



Drishti IAS Presents...

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GEOGRAPHY

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Detailed
Explanation

Answers

Drishti IAS, 641, Mukherjee Nagar,
Opp. Signature View Apartment,
New Delhi

Drishti IAS, 21
Pusa Road, Karol Bagh
New Delhi - 05

Drishti IAS, Tashkent Marg,
Civil Lines, Prayagraj,
Uttar Pradesh

Drishti IAS, Tonk Road,
Vasundhara Colony,
Jaipur, Rajasthan

e-mail: englishsupport@groupdrishti.com, Website: www.drishtias.com

Contact: 011430665089, 7669806814, 8010440440

1. Ans: B

Exp:

- The **Brahmaputra** river **originates under the name of Siang or Dihang**, from the Chemayungdung glacier of the Kailash range near the Mansarovar lake. **Hence, statement 2 is not correct.**
 - ◆ It enters India west of **Sadiya town in Arunachal Pradesh**. **Hence, statement 3 is correct.**
- The river is known as **Yarlung Tsangpo in China**. **Hence, statement 1 is correct.**
 - ◆ Its **tributaries** include Dibang, Lohit, Siang, **Burhi Dihing**, Tista, and Dhansari.
- It is a perennial river and has several peculiar characteristics due to its geography and prevailing climatic conditions.
 - ◆ The river is in itself dynamic as frequent landslides and geological activity force it to change course very often.
- **Hence, option B is correct.**

2. Ans: B

Exp:

Savannas:

- Savanna, also spelled savannah, **vegetation type that grows under hot, seasonally dry climatic conditions and is characterised by an open tree canopy** (i.e., scattered trees) above a continuous tall grass understory (the vegetation layer between the forest canopy and the ground).
- The largest areas of savanna are found in Africa, South America, Australia, India, the Myanmar (Burma)–Thailand region in Asia, and Madagascar.
- In general, savannas grow in **tropical regions 8° to 20° latitudes** from the Equator. **Hence statement 1 is not correct.**
- Conditions are **warm to hot in all seasons**, but significant rainfall occurs for only a few months each year—about October to March in the Southern Hemisphere and April to September in the Northern Hemisphere.
- Mean annual precipitation is generally 80 to 150 cm although in some central continental locations it may be as low as 50 cm.
- The dry season is typically longer than the wet season, but it varies considerably, from 2 to 11 months. **Mean monthly temperatures are about 10 to 20 °C in the dry season and 20 to 30 °C in the wet season.**
- Grasses and trees that grow in the savanna have **adapted to life with little water and hot temperatures**. **Hence statement 2 is correct.**

- ◆ Grasses, for example, grow quickly in the wet season when water is abundant and turn brown in the dry season to conserve water.

3. Ans: C

Exp:

Caspian sea:

- It is the world's largest inland body of water. It lies to the east of the Caucasus Mountains and to the west of the vast steppe of Central Asia.
- The sea's name derives from the ancient Kaspi peoples, who once lived in Transcaucasia to the west.
- Among its other historical names, Khazarsk and Khvalynsk derive from former peoples of the region, while Girkansk stems from Girkanos, "Country of the Wolves."
- The sea is bordered in the northeast by **Kazakhstan**, in the southeast by **Turkmenistan**, in the south by **Iran**, in the southwest by **Azerbaijan**, and in the northwest by **Russia**. **Hence option C is correct.**



4. Ans: C

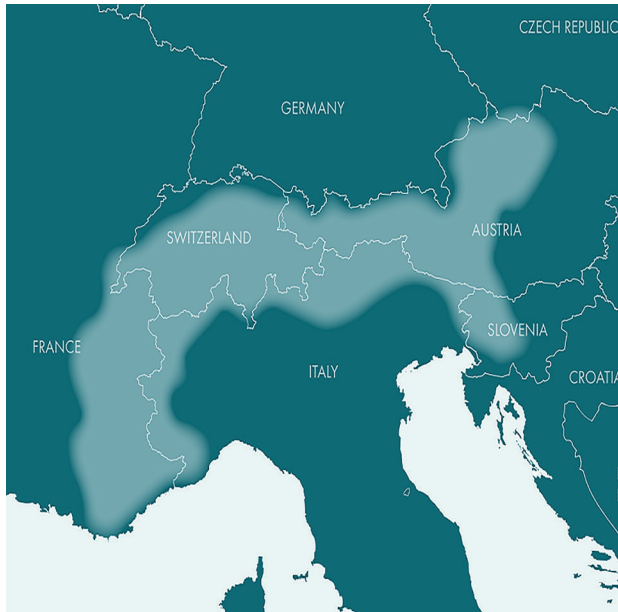
Exp:

- Alps is a small segment of a discontinuous mountain chain that **stretches from the Atlas Mountains of North Africa** across southern Europe and Asia to **beyond the Himalayas**. **Hence, statement 1 is correct.**
 - ◆ The Alps are an **interzonal mountain system** (Orobiome), or a "transition area" **between Central and Mediterranean Europe**. **Hence, statement 2 is correct.**
- Though they are not as high and extensive as other mountain systems uplifted during the Paleogene and Neogene periods (i.e., about 65 million to 2.6 million

years ago)—such as the Himalayas (great mountain system of Asia) and the Andes and Rocky mountains (in South America and North America respectively) —they are responsible for major geographic phenomena.

- **Mont Blanc is the highest peak in the Alps.**

◆ **Mount Aconcagua, the highest point in the Western Hemisphere, lies in the Southern Andes Mountains. Hence, statement 3 is not correct.**



5. Ans: B

Exp:

- **Chambal river is the primary habitat of Gharials but they are found in many other parts in the freshwater of northern India eg. Ghagra, Gandak river, Girwa river (Uttar Pradesh), the Ramganga river (Uttarakhand) and the Sone river (Bihar). Hence, statement 1 is not correct.**
- **Population of Gharials is a good indicator of clean river water. Hence, statement 2 is correct.**
- **India has three species of Crocodilians namely:**
 - ◆ **Gharial (*Gavialis gangeticus*): IUCN Red List-Critically Endangered. Hence, statement 3 is correct.**
 - ◆ **Mugger crocodile (*Crocodylus palustris*): IUCN-Vulnerable.**
 - ◆ **Saltwater crocodile (*Crocodylus porosus*): IUCN-Least Concern**

6. Ans: C

Exp:

- **After the defeat of Japan in World War II, the Allied forces at the Yalta Conference (1945), agreed to establish a “four-power trusteeship over Korea”.**

- **The fear of the spread of communism and the mutual distrust between the USSR and the USA led to the failure of the trusteeship plan.**
 - ◆ **Before a concrete plan could be formulated, the USSR invaded Korea.**
 - ◆ **This led to a condition where the north of Korea was under the USSR and the south under the rest of the allies, mainly the USA.**
 - ◆ **The Korean peninsula was divided into two regions by the 38th parallel.**
- **Hence, option C is correct.**

7. Ans: A

Exp:

Pangong Tso Lake:

- **Pangong Lake is located in the Union Territory of Ladakh.**
- **It is situated at a height of almost 4,350m and is the world’s highest saltwater lake. Hence, statement 1 is correct.**
- **Extending to almost 160km, one-third of the Pangong Lake lies in India and the other two-thirds in China. Hence, statement 2 is not correct.**



8. Ans: B

Exp:

- **The Galwan Valley refers to the land that sits between steep mountains that buffet the Galwan River.**

- ◆ The river has its source in Aksai Chin, on China's side of the Line of Actual Control (LAC), and it flows from the east to Ladakh, where it meets the Shyok river on India's side of the LAC.
- ◆ The **valley is strategically located between Ladakh in the west and Aksai Chin in the east**, which is currently controlled by China as part of its Xinjiang Uyghur Autonomous Region. **Hence, statement 1 is correct.**
- **Karakoram Range** is also known as Krishnagiri which is situated in the northernmost range of the Trans-Himalayan ranges. It forms India's frontiers with Afghanistan and China. **Hence, statement 3 is not correct.**
 - ◆ It extends eastwards from the Pamir for about 800 km. It is a range with lofty peaks (elevation 5,500 m and above).
 - ◆ Some of the peaks are more than 8,000 metre above sea level. K2 (8,611 m) [Godwin Austen or Qogir] is the second highest peak in the world and the highest peak in the Indian Union.
- The **Ladakh Plateau lies to the north-east of the Karakoram Range. Hence, statement 2 is correct.**

9. Ans: C

Exp:

Indonesia:

- It is a country in Southeast Asia and Oceania between the Indian and Pacific oceans. It consists of over 17,000 islands, including Sumatra, Sulawesi, Java etc.
- The westernmost and second largest island of Indonesia is Sumatra which is 1,790 km long and 435 km wide and is fringed with smaller islands off its western and eastern coasts.
- Hence option C is correct.



10. Ans: A

Exp:

Red Sea:

- The Red Sea is the world's northernmost tropical sea and is also one of the most heavily travelled waterways.
- This sea has a surface area of roughly 438,000 km² and is about 2,250 km in length. The maximum width of the

sea is 355 km, and the sea's deepest point is 3,040 m at the central Suakin Trough, with the sea's estimated average depth being 490 m.

- The Red Sea is a Global 200 Ecoregion, and underlying it is the Red Sea Rift, which makes it a part of the Great Rift Valley.
- A total of **6 countries of Asia and Africa, border the Red Sea**. The countries of **Yemen and Saudi Arabia** border the Red Sea to the east.
- The Red Sea is bordered by **Egypt to the north and west, and by Sudan, Eritrea, and Djibouti to the west**.
- The Gulf of Aqaba is bordered by Egypt along with Israel, Jordan, and Saudi Arabia. Besides these 6 countries, some other areas including Somalia are also often recognized as Red Sea Territories, due to their proximity to the sea and the geographical similarities with the countries that border the Red Sea.
- **Hence option A is correct.**



11. Ans: C

Exp:

- La Nina, the “cool phase” of El Nino-Southern Oscillation (ENSO), is a pattern that describes the unusual cooling of the tropical eastern Pacific. Hence, statement 1 is correct.
 - ◆ La Nina events may last between one and three years, unlike El Nino, which usually lasts no more than a year.
- Effects of La Nina:
 - ◆ Effects of La Nina kept world temperatures lower.
 - La Niña is a weather pattern that happens in the Pacific Ocean but affects weather around the world.
 - A La Niña event happens when ocean surface waters cool along the Pacific coast of the South American tropics. Hence, statement 2 is correct.

12. Ans: D

Exp:

- The Pacific ‘Ring of Fire’ or the Circum-Pacific Belt, is an area along the Pacific Ocean that is characterized by active volcanoes and frequent earthquakes.
 - ◆ It is home to about 75% of the world’s volcanoes – more than 450 volcanoes. Also, about 90% of the world’s earthquakes occur here. Hence, statement 1 is correct.
- The Ring of Fire is stretched to approximately 40,000 kilometers tracing boundaries between several tectonic plates including the Pacific, Juan de Fuca, Cocos, Indian-Australian, Nazca, North American, and Philippine Plates. Hence, statement 2 is correct.
- The chain runs up along the western coast of South and North America, crosses over the Aleutian Islands in Alaska, runs down the eastern coast of Asia past New Zealand and into the northern coast of Antarctica. Hence, statement 3 is correct.

13. Ans: D

Exp:

- Wetlands are defined as: “lands transitional between terrestrial and aquatic eco-systems where the water table is usually at or near the surface or the land is covered by shallow water”. Hence, statement 1 is not correct.
 - ◆ 2nd February is World Wetlands Day. It was on this date in 1971 that the Ramsar Convention on Wetlands was adopted in Ramsar, Iran.

- It is a specialised body set up under the **National Green Tribunal Act - 2010 (not 2014)** for effective and expeditious disposal of cases relating to environmental protection (including wetland conservation) and conservation of forests and other natural resources. Hence, statement 2 is not correct.

- ◆ With the establishment of the NGT, India became the third country in the world to set up a specialised environmental tribunal, only after Australia and New Zealand, and the first developing country to do so.

14. Ans: D

Exp:

- The **Darvaza gas crater** also known as the ‘Gateway to Hell’ is located in the Karakum desert, 260 kilometres away from Turkmenistan’s capital, Ashgabat, the crater has been burning for the last 50 years.
 - ◆ The details of the origin of the crater are not actually known but it has been said that the crater was created in 1971 during a Soviet drilling operation.
 - ◆ The crater has become a significant tourist attraction in the country. In 2018, the country’s president officially renamed it as the “Shining of Karakum”.
- However, recently, Turkmenistan has decided to find a way to extinguish the fire in the Darvaza gas crater as it negatively affects both the environment and the health of the people living nearby along with the loss of valuable natural resources for which the country can get significant profits
 - ◆ Turkmenistan has been at the centre of methane leakages.
- Hence, option D is correct.



15. Ans: D

Exp:

Gulf of Aqaba:

- Gulf of Aqaba, Arabic Khalīj al-'Aqabah, northeastern arm of the Red Sea, penetrating between Saudi Arabia and the Sinai Peninsula. It varies in width from 12 to 17 miles (19 to 27 km) and is 110 miles (177 km) long.
- The Gulf of Aqaba is part of the complex East African Rift System, and its head touches the Egyptian, Israeli, Jordanian, and Saudi Arabian boundaries.
- Hence, option D is Correct.



16. Ans: B

Exp:

- Great Nicobar is the southernmost island of the Nicobar Islands Archipelago. Hence, statement 1 is not correct.
- It covers 1,03,870 hectares of unique and threatened tropical evergreen forest ecosystems.
 - ◆ It is home to a very rich ecosystem, including 650 species of angiosperms, ferns, gymnosperms, bryophytes, among others.
- The Mongoloid Shompen Tribe, about 200 in number, live in the forests of the biosphere reserve particularly along the rivers and streams. Hence, statement 2 is correct.
 - ◆ Another Mongoloid Tribe, Nicobarese, about 300 in number, used to live in settlements along the west coast.
 - ◆ After the tsunami in 2004, which devastated their settlement on the western coast, they were relocated to Afra Bay in the North Coast and Campbell Bay.

17. Ans: A

Exp:

- Western Disturbance (WD), labeled as an extra-tropical storm originating in the Mediterranean, is an area of low pressure that brings sudden showers, snow and fog in northwest India. Hence, statement 1 is correct.
 - ◆ The disturbance travels from the "western" to the eastern direction.
 - ◆ These travel eastwards on high-altitude westerly jet streams - massive ribbons of fast winds traversing the earth from west to east.
- Western Disturbances are the cause of the most winter and pre-monsoon season rainfall across North-West India. This phenomenon is usually associated with a cloudy sky, higher night temperatures, and unusual rain. Hence, statement 2 is not correct.
 - ◆ It is estimated that India gets close to 5-10% of its total annual rainfall from western disturbances

18. Answer: D

Explanation

- Dams built on major rivers of Himachal Pradesh:
 - ◆ Sutlej (Bhakra Dam, Gobind Sagar reservoir, Koldam Dam),
 - Hence, pair 1 is correctly matched.
 - ◆ Beas (Pandoh Dam, Maharana Pratap Sagar Reservoir).
 - Hence, pair 2 is correctly matched.
 - ◆ Ravi (Chamera Dam), Parbati
 - Hence, pair 3 is correctly matched.

19. Ans: C

Exp:

- Baltic Sea is an arm of the North Atlantic Ocean, extending northward from the latitude of southern Denmark almost to the Arctic Circle and separating the Scandinavian Peninsula from the rest of continental Europe.
- The largest expanse of brackish water in the world, the semi enclosed and relatively shallow Baltic Sea is of great interest to scientists, while to historians it represents the economic core of the Hanseatic League, the great mediaeval trading group of northern European ports.
- The many names for the sea attest to its strategic position as a meeting place of many countries.
- Proceeding clockwise from the west, the countries bounding the Baltic are Denmark, Sweden, Finland, Russia, Estonia, Latvia, Lithuania, Poland, and Germany.
- Hence option C is correct.



20. Ans: B

Exp:

- Burkina Faso, **landlocked country in western Africa**. The country occupies an extensive plateau, and its geography is characterized by a savanna that is grassy in the north and gradually gives way to sparse forests in the south. **Hence, statement 1 is not correct.**
- Burkina Faso is **bounded by Mali to the north and west, Niger to the northeast**, Benin to the southeast, and Côte d'Ivoire, Ghana, and Togo to the south. **Hence, statement 2 is correct.**



21. Ans: A

Exp:

- Mangroves are a diverse **group of salt-tolerant plant communities of tropical and subtropical intertidal regions** of the world. **Hence, statement 1 is correct.**
 - ◆ Mangrove species exhibit a variety of adaptations in morphology, anatomy, and physiology to survive in waterlogged soils, high salinity, and frequent cyclonic storms and tidal surges.
 - ◆ Mangroves are important refuges of coastal biodiversity and also act as bio-shields against extreme climatic events.
- Status of Mangrove Cover Worldwide: As per Global Forest Resource Assessment, 2020 (FRA 2020), the world over, 113 countries have Mangrove forests covering an estimated 14.79 million hectares.
 - ◆ The largest Mangrove area is reported in:
 - Asia > Africa > North and Central America > South America.
 - Oceania has reported the smallest area of Mangroves.
 - ◆ More than 40% of the total area of Mangroves was reported to be in just four countries: Indonesia (19%), Brazil (9%), Nigeria (7%), and Mexico (6%).
- Status of Mangrove Cover in India: **The mangrove cover in India is 4,992 sq km, which is 0.15% of the country's total geographical area. Hence, statement 2 is not correct.**
 - ◆ Increase in the mangrove cover as compared to 2019 assessment: 17 sq km
 - ◆ The states that show significant gain in Mangrove cover are Odisha and Maharashtra.

22. Ans: B

Exp:

- Alps is a small segment of a discontinuous mountain chain that stretches from the Atlas Mountains of North Africa across southern Europe and Asia to beyond the Himalayas.
 - ◆ The Alps are an interzonal mountain system (Orobicome), or a "transition area" between Central and Mediterranean Europe.
 - ◆ Mont Blanc is the highest peak.
- The **Alpine region** encompasses **eight European countries: Austria, France, Germany, Italy, Liechtenstein, Monaco, Slovenia and Switzerland.**
- The Alpine crests isolate one European region from another and are the source of many of Europe's major rivers.

- ◆ Waters from the Alps ultimately reach the North, Mediterranean, Adriatic, and Black seas.

● Hence, option B is correct.



23. Ans: B

Exp:

- Typhoons are a kind of storm. The storms, depending on where they occur, may be called hurricanes, typhoons or cyclones.
 - ◆ **Typhoons:** In the **China Sea** and Pacific Ocean.
 - ◆ **Hurricanes:** In the West Indian islands in the Caribbean Sea and Atlantic Ocean.
 - ◆ **Tornados:** In the **Guinea lands** of West Africa and southern USA.
 - ◆ **Willy-willies:** In **north-western Australia** and
 - ◆ **Tropical Cyclones:** In the Indian Ocean Region.
- Hence, option B is correct.

24. Ans: D

Exp:

About Chilika Lake:

- Chilika is Asia's largest and world's second largest lagoon.
 - ◆ In 1981, Chilika Lake was **designated the first Indian wetland** of international importance under the **Ramsar Convention**.
- **Major attraction at Chilika is Irrawaddy dolphins** which are often spotted off Satapada Island.
- The large Nalabana Island (Forest of Reeds) covering about 16 sq km in the lagoon area was declared a bird sanctuary in 1987.
- **Kalijai Temple - Located on an island in the Chilika Lake.**

- Chilika lake hosts birds migrating from thousands of miles away from the Caspian Sea, Lake Baikal, Aral Sea, remote parts of Russia, Kirghiz steppes of Mongolia, Central and South East Asia, Ladakh and the Himalayas.

- ◆ The birds find the vast mud-field and abundant fish stock here suitable to congregate.

● Hence, option D is correct.

25. Ans: C

Exp:

- The **Cerrado is spread across several states of Brazil** and is **one of the world's largest savannas**, is often called an **"upside-down forest"** because of the deep roots its plants sink into the ground to survive seasonal droughts and fires.
 - ◆ **Cerrado is a major carbon sink** that helps to stave off climate change.
- Deforestation in 2021 rose to the highest level since 2015 in Brazil's Cerrado, prompting scientists to raise alarm over the state of the world's most species-rich savanna.
- Hence, option C is correct.

26. Ans: A

Exp:

- Kalapani is a valley that is administered by India as a part of the Pithoragarh district of Uttarakhand. It is situated on the Kailash Mansarovar route.
 - ◆ The **Kali River** in the Kalapani region demarcates the border between India and Nepal. **Hence, statement 1 is correct.**
- River Mahakali is also known as Sharda river or Kali Ganga in Uttarakhand.
- It joins **Ghagra river in Uttar Pradesh, which is a tributary of Ganga. Hence, statement 2 is not correct.**
 - ◆ Recently, the Union Cabinet has cleared a plan to build a new bridge connecting India and Nepal over the Mahakali river and link Dharchula in Uttarakhand with Nepal's Dharchula.

27. Ans: C

Exp:

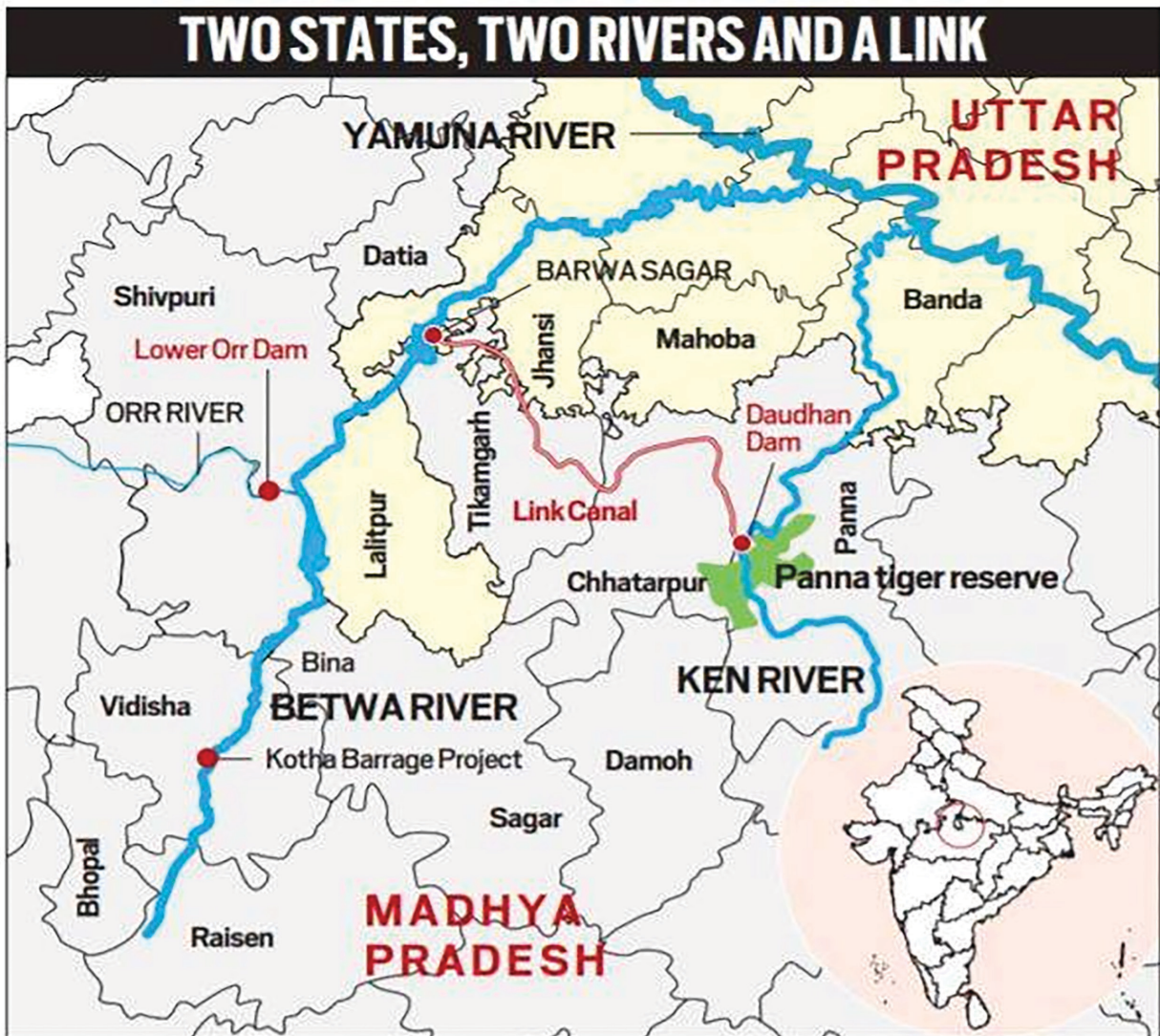
- **Bomb Cyclone:** It is a large, **intense midlatitude storm that has low pressure at its center**, weather fronts and an array of associated weather, from blizzards to severe thunderstorms to heavy precipitation. **Hence, statement 1 is not correct.**
 - ◆ Bomb cyclones put forecasters on high alert, because they can produce significant harmful impacts.
- **Bomb Cyclone v/s Hurricane:**

- ◆ Hurricanes tend to form in tropical areas and are powered by warm seas. For this reason, they're most common in summer or early fall, when seawater is warmest.
- ◆ Bomb cyclones **generally occur during colder months** because cyclones occur due to cold and warm air meeting.
 - **During the summer**, there's generally not much cold air across the atmosphere; this means a **bomb cyclone is much less likely to occur. Hence, statement 2 is correct.**
- ◆ Hurricanes form in tropical waters, while **bomb cyclones form over the northwestern Atlantic, northwestern Pacific** and sometimes the Mediterranean Sea. **Hence, statement 3 is correct.**

28. Ans: D

Exp:

- Ken and Betwa rivers **originate in MP** and are the **tributaries of Yamuna. Hence, statement 1 is correct.**
- **Ken meets with Yamuna in Banda district of UP** and with **Betwa in Hamirpur district of UP.**
- Rajghat, Paricha and Matatila dams are over Betwa river.
- Ken River passes through **Panna tiger reserve. Hence, statement 2 is correct.**
- The **Ken-Betwa inter-linking of rivers project lies in Bundelkhand**, a drought-prone region, which spreads across **13 districts of Uttar Pradesh and Madhya Pradesh. Hence, statement 3 is correct.**



29. Ans: D

Exp:

- Goa is located on the southwestern coast of India within the region known as the Konkan, and **geographically separated from the Deccan highlands by the Western Ghats. Hence, statement 1 is correct.**
- **Official Language of Goa is Konkani.**
 - ◆ Konkani is one of the 22 languages from the Eight Schedule. **Hence, statement 3 is correct.**
 - ◆ It was added in the list along with Manipuri and Nepali by the 71st Amendment Act of 1992.
- It is surrounded by Maharashtra to the north and Karnataka to the east and south, with the Arabian Sea forming its western coast.
- **Wildlife Sanctuaries and National Parks:**
 - ◆ Dr Salim Ali Bird Sanctuary
 - ◆ Mhadei Wildlife Sanctuary
 - ◆ Netravali Wildlife Sanctuary
 - ◆ **Cotigao Wildlife Sanctuary. Hence, statement 2 is correct.**

◆ Bhagwan Mahaveer Sanctuary

◆ Mollem National Park

30. Ans: D

Exp:

About Beas River:

- **It originates near the Rohtang Pass, at a height of 4,062 m above sea level, on the southern end of the Pir Panjal Range, close to the source of the Ravi. It is a tributary of the Indus river. Hence, statement 1 is correct.**
- **It meets the Satluj river at Harike in Punjab. It is a comparatively small river which is only 460 km long but lies entirely within the Indian territory. Hence, statement 2 and statement 3 are correct.**
 - ◆ It forms a gorge at Kati and Largi in the Dhauladhar range.
- The major tributaries of the Beas River are Bain, Banganga, Luni and Uhal, along with Banner, Chakki, Gaj, Harla, Mamuni, Parvati, Patlikuhlal, Sainj, Suketi and Tirthan.



31. Ans: C

Exp:



- Hence, option C is correct.

32. Ans: C

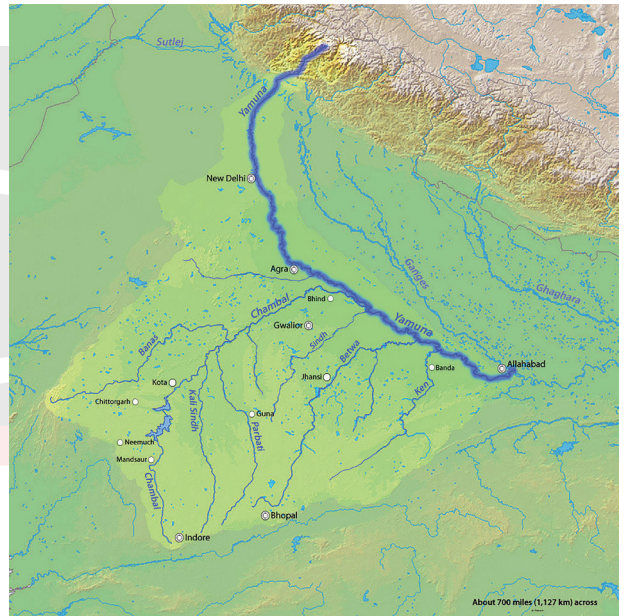
Exp:

- Kameng River originates in Tawang district from the glacial lake below snow-capped Gori Chen mountain on the **India-Tibet border**.
 - Kameng is **not a transboundary river**. Hence, **statement 1 is not correct**.
 - It flows through Bhalukpong circle of West Kameng District, Arunachal Pradesh and Sonitpur District of Assam.
- It becomes a braided river in its lower reaches and is **one of the major tributaries of the Brahmaputra River**. Hence, **statement 2 is correct**.
 - It joins Brahmaputra river at Tezpur, just east of the Kolia Bhomora Setu bridge, Assam.
- Tributaries: Tippi, Tenga, Bichom and Dirang Chu.
- It forms the boundary between East Kameng District and West Kameng Districts.
 - It also forms the boundary between the Sessa and Eaglenest sanctuaries to its west (Arunachal Pradesh) and the Pakke tiger reserve to the east (Arunachal Pradesh).
 - The **Dafila Hills** are **east** and the Aka Hills are located west of the Kameng River. Hence, **statement 3 is correct**.

33. Ans: C

Exp:

- The river Yamuna, a major tributary of river Ganges, **originates from the Yamunotri glacier near Bandarpooch peaks** in the Mussoorie range of the lower Himalayas at an elevation of about 6387 meters above mean sea level in Uttarkashi district of Uttarakhand. Hence, **statement 1 is correct**.
 - Yamuna **meets the Ganges at the Sangam** (where Kumbh mela is held) in Prayagraj, Uttar Pradesh **after flowing through Uttarakhand, Himachal Pradesh, Haryana and Delhi**.
- Important Dams built on the river include; **Lakhwar-Vyasi Dam** (Uttarakhand) and **Tajewala Barrage Dam** (Haryana). Hence, **statement 2 is correct**.
- Important Tributaries of the Yamuna river are Chambal, Sindh, Betwa and Ken.



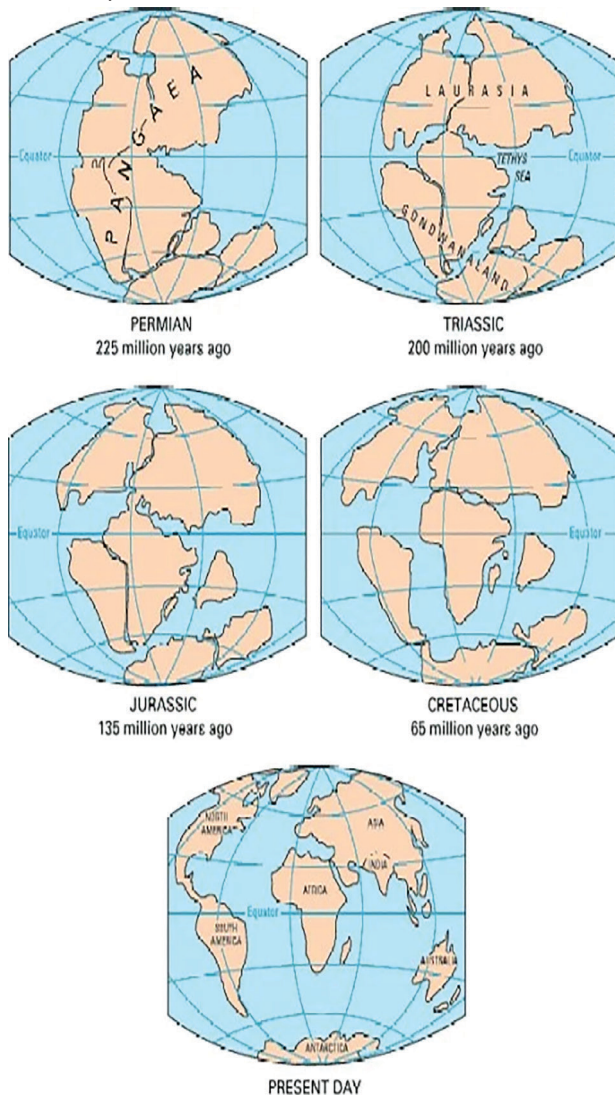
34. Ans: A

Exp:

Continental Drift Theory

- Continental drift theory deals with the distribution of the oceans and the continents. It was first suggested by a German meteorologist, **Alfred Wegener in 1912**.
- According to the theory, **all the continents formed a single continental mass- Pangea and mega ocean- Panthalassa surrounded it**.
- Around 200 million years ago Pangea started splitting and broke down into two large continental masses as Laurasia and Gondwanaland forming the northern and southern components respectively.

- Subsequently, Laurasia and Gondwanaland continued to break into various smaller continents that exist today.



Hence, option A is correct.

35. Ans. D

Exp:

- Baltic sea is an arm of the North Atlantic Ocean, extending northward from the latitude of southern Denmark almost to the Arctic Circle and separating the Scandinavian Peninsula from the rest of continental Europe.
- Proceeding clockwise from the west, the **countries bounding the Baltic** are **Denmark, Sweden, Finland, Russia, Estonia, Latvia, Lithuania, Poland, and Germany**. Hence option D is correct.



36. Ans: C

Exp:

- Lamkhaga Pass is a **high altitude pass** in Garhwal Himalayas (Uttarakhand) which connects with Sangla in Himachal Pradesh. Due to its altitude and remoteness, it is considered **one of the toughest treks in the Himalayas (Uttarakhand)**.
- Hence, option C is correct.



37. Ans: C

Exp:

- India is one of the **highly earthquake affected countries because of the presence of technically active young fold mountains** - Himalaya. Hence, **statement 1 is correct.**
- India has been divided into four seismic zones (II, III, IV, and V) based on scientific inputs relating to seismicity, earthquakes that occurred in the past and tectonic setup of the region.
- Previously, earthquake zones were divided into five zones with respect to the severity of the earthquakes but the **Bureau of Indian Standards (BIS) grouped the country into four seismic zones by unifying the first two zones.** Hence, **statement 2 is correct.**
 - ◆ BIS is the official agency for publishing the seismic hazard maps and codes.

38. Ans: B

Exp:

- An **earthquake** in simple words is the shaking of the earth. It is a natural event caused due to the release of energy, which generates waves that travel in all directions.
- The vibrations called seismic waves are generated from earthquakes that travel through the Earth and are recorded on instruments called seismographs.
- The **location below the earth's surface where the earthquake starts** is called the **hypocenter**, and the location directly above it on the surface of the earth is called the epicenter.
- Hence, **option B is correct.**

39. Ans: C

Exp:

- The Trans-Himalayas Mountain Region or Tibet Himalayan Region is located to the north of the Great Himalayas which **consists of Karakoram, Ladakh, Zaskar and Kailash mountain ranges.** Hence, **statement 1 is correct.**
 - ◆ It is also called the Tibet Himalayan Region because most of the part of these ranges lies in Tibet.
 - ◆ They are the eastward continuation of the most northerly ranges of the Himalayas.
- It consists of an ill-defined mountain area about 600 miles long and 140 miles wide in the centre, narrowing to a 20-mile width at the eastern and western ends.
- It is mainly **composed of granites and volcanic rocks of the Neogene and Paleogene age.** Hence, **statement 2 is correct.**

40. Ans: C

Exp:

- The Lukha is located in the **southern part of east Jaintia Hills of Meghalaya** where most of Meghalaya's rat-hole coal mines are located. Hence, **statement 1 is correct.**
 - ◆ It has become a victim of the unsustainable large-scale mining of coal and limestone, allegedly responsible for the pollution that turns the river its surreal winter hue.
 - ◆ It **receives water from the Lunar river (Wah Lunar)** and small streams draining from the Narpuh Reserve Forest and the undulating hills of the area while flowing down. Hence, **statement 2 is correct.**
 - ◆ The river is mainly fed by monsoon rain and flows in the south-west direction and later takes a southern path after joining the Lunar river near the Gaddum village.
 - ◆ The river passes via the Sonapur village and then into southern Assam's Barak Valley and ends up in the floodplains of Bangladesh.

41. Ans: C

Exp:

- A **heatwave** is a period of abnormally high temperatures, more than the normal maximum temperature that occurs during the summer season in the North-Western and South Central parts of India.
 - ◆ The **India Meteorological Department (IMD)** classifies heat waves according to **regions and their temperature ranges.** Hence, **option C is correct.**
- Recently, a study has found a spatial shift of heatwaves in India, now occurring in new regions in the country.
 - ◆ It also added that the **eastern and western coasts, which are currently unaffected by heatwaves,** will be severely impacted in the future. Hence, **option A is not correct.**
 - ◆ Also, heatwaves were **found in southern Madhya Pradesh, Andhra Pradesh, Karnataka and Tamil Nadu,** where they would **traditionally not take place.** Hence, **option B is not correct.**
- The heatwave is considered when the maximum temperature of a station reaches at least 40°C for Plains and **at least 30°C for Hilly regions.** Hence, **option D is not correct.**
 - ◆ An increase of 5°C to 6°C from the normal temperature is considered to be heat wave condition..

42. Ans: B

Exp:

- La Nina is one part of the El Nino Southern Oscillation (ENSO) cycle. In a la Nina event, ocean water from off the coast of South America to the central tropical Pacific cools to below average temperatures.
 - ◆ This cooling occurs because of stronger than normal easterly trade winds, which churns cooler, deeper sea water up to the ocean's surface.
 - ◆ Sea temperatures can warm above average in the far western Pacific when this happens.
- **Impacts of La Nina**
 - ◆ **On Walker Circulation:** The unusually cool water in the eastern Pacific **influences the Walker Circulation** and suppresses cloud, rain, and thunderstorms. This change impacts weather patterns around the world, but in a different way than El Niño does.
 - ◆ **On the Pacific Jet Stream:** These cold waters in the **Pacific push the jet stream northward**. This tends to lead to drought in the southern US and heavy rains and flooding in the Pacific Northwest and Canada. It can also lead to a more severe hurricane season.
 - ◆ **On the Indian Ocean:** There are increased temperatures in Western Pacific, Indian Ocean and off the Somalian coast. It also leads to heavy floods in Australia and a **comparatively better monsoon rains in India**.
- Hence, option B is correct.

43. Ans: A

Exp:

- Drought fueled by climate change has dropped Lake Tahoe in the US below its natural rim and halted flows into the Truckee River.
- **Lake Tahoe** is the largest alpine lake in North America, and the second deepest lake in the US, with Crater Lake in Oregon being the deepest in the US.
- Alpine lakes are lakes or reservoirs at high altitudes, usually over above sea level or above the tree line.
- Hence, option A is correct.

44. Ans: A

Exp:

- The **Periyar River** is the **longest river in the state of Kerala** with a length of 244 km.
 - ◆ It is also known as the '**Lifeline of Kerala**' as it is one of the few perennial rivers in the state.
- Periyar River **originates from the Sivagiri hills of Western Ghats**, in Tamil Nadu and flows through the Periyar National Park.

- ◆ The main **tributaries** of Periyar are **Muthirapuzha**, **Mullayar**, **Cheruthoni**, **Perinjankutti**.

- It is located in the State of Assam and covers 42,996 Hectare (ha). It is the single largest undisturbed and representative area in the Brahmaputra Valley floodplain.

- ◆ **Mullaperiyar Dam is located on the confluence of the Mullayar and Periyar rivers** in Kerala's Idukki district.

- Hence, option A is correct.

45. Ans: B

Exp:

- The **Mullaperiyar Dam** is located on the **confluence of the Mullayar and Periyar rivers** in Kerala's Idukki district. The reservoir is within the Periyar Tiger Reserve.
- It is **operated and maintained by Tamil Nadu** for meeting the drinking water and irrigation requirements of five of its southern districts.
 - ◆ According to a 999-year lease agreement made during British rule the operational rights were handed over to Tamil Nadu.
- The water diverted from the reservoir is first used for power generation in lower Periyar (by Tamil Nadu) before flowing into the Suruliya, a tributary of Vaigai river, and then for irrigating nearly 2.08 lakh hectares in Theni and four other districts farther away.
- Hence, option B is correct.

46. Ans: C

Exp:

- The **Idukki Dam** is located in Kerala (168.91 m). The dam stands between the two **mountains – Kuravan Mala (839 m) and Kurathi Mala (925 m)**.
- It is one of the **highest arch dams in Asia** and third tallest arch dam.
- It is **built on the Periyar River**, in the ravine between the Kuravan and Kurathi Hills in Kerala.
- It was constructed and is owned by the Kerala State Electricity Board. It supports a 780 MW hydroelectric power station.
- Hence, option C is correct.

47. Ans: A

Exp:

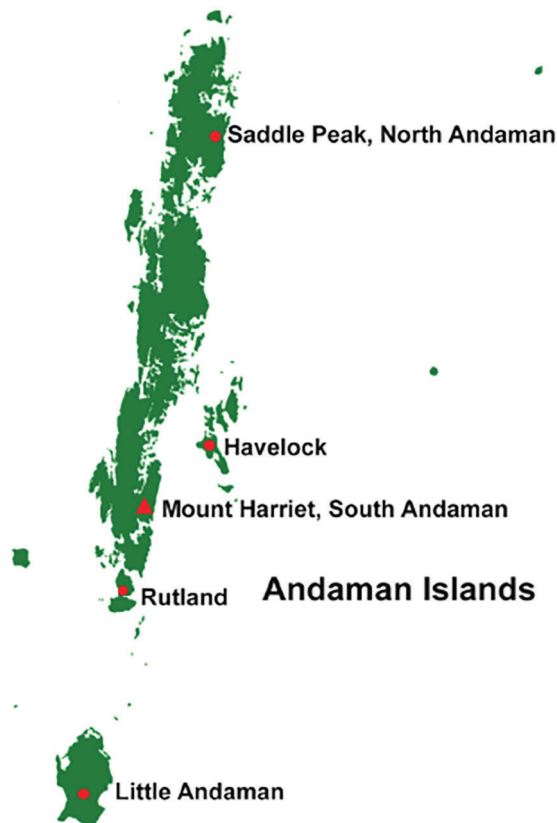
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- It is also known as '**Lifeline of Kerala**' as it is one of the few perennial rivers in the state.
- Periyar River originates from Sivagiri hills of Western Ghats, in Tamil Nadu and flows through the Periyar National Park.

- The main tributaries of Periyar are **Muthirapuzha, Mullayar, Cheruthoni, Perinjankutti.**
- **Lakshmana and Theertha** are the tributaries of **Cauvery river.** Its other tributaries are Arkavathi, Hemavathi, Shimsa, Kabini and Harangi.
- **Hence, option A is correct.**

48. Ans: D

Exp:

- Recently, the Union government has **renamed Mount Harriet** of Andaman and Nicobar (A&N) Islands to **Mount Manipur.**
- Mount Harriet, the **third-highest island peak in A&N Islands**, where Manipur's Maharaja Kulchandra Singh and 22 other freedom fighters were imprisoned during the Anglo-Manipuri war (1891).
 - ◆ It has been renamed in a tribute to those freedom fighters of Manipur.
 - ◆ Manipur celebrates Khongjom Day on 23rd April in commemoration of the freedom fighters of Anglo-Manipuri War.
- **Hence, option D is correct.**



49. Ans: D

Exp:

- Submarine volcanoes are exactly what they sound like—volcanoes **located beneath the ocean's surface.**
 - ◆ From Hawaii to Indonesia to Iceland, hundreds of islands across the globe have been formed by submarine volcanoes.
- Because they erupt into water instead of air, submarine volcanoes behave quite differently than terrestrial volcanoes. For instance, **it's uncommon for submarine volcanoes to have explosive eruptions. Hence, statement 1 is not correct.**
- The sheer weight of the water above them creates very high pressure, usually resulting in what are known as passive lava flows along the seafloor. **Most submarine eruptions do not disturb the ocean surface. Hence, statement 2 is not correct.**

50. Ans: C

Exp:

- Recently, the Indian and Algerian navies participated in a maiden naval exercise off the Algerian coast in a bid to increase maritime cooperation.
 - ◆ The naval exercise with Algeria is crucial for India as it is strategically located in the Maghreb region and is the largest country of Africa. **Hence, statement 1 is correct.**
 - The region also includes Algeria, Libya, Mauritania, Morocco and Tunisia.
 - It includes the disputed territories of Western Sahara and the cities of Ceuta and Melilla.
 - ◆ The Maghreb region of North Africa **borders the Mediterranean Sea. Hence, statement 2 is correct.**



51. Ans: B

Exp:

- Ladakh was established as a Union Territory (UT) of India on 31st October 2019, following the enactment of the Jammu and Kashmir Reorganization Act.
 - ◆ Before that, it was part of the Jammu and Kashmir state.
- It is the largest and the second least populous union territory of India.
- It **extends from the Siachen Glacier** in the Karakoram Range to the **north to the main Great Himalayas to the south. Hence, statement 1 is correct.**
 - ◆ The eastern end, consisting of the uninhabited Aksai Chin Plains, is claimed by the Indian Government as part of Ladakh, and has been under Chinese control since 1962.
- The largest town in Ladakh is Leh, followed by Kargil, each of which headquarters a district.
 - ◆ The **Leh district contains the Indus, Shyok and Nubra river valleys. Hence, statement 2 is not correct.**
 - ◆ The Kargil district contains the Suru, Dras and Zaskar river valleys.
- Earlier, in 2020 Indian and **Chinese troops were engaged in a temporary and short duration face-off along the Line of Actual Control (LAC) at Naku La (Sikkim) and near Pangong Tso Lake (Eastern Ladakh). Hence, statement 3 is not correct.**
 - ◆ However, recently India and China have agreed in principle to disengage at a key patrol point in eastern Ladakh.



52. Ans: D

Exp:

- El Nino is a climate pattern that describes the **unusual warming** of surface waters in the **eastern tropical Pacific Ocean. Hence, statement 1 is not correct.**

◆ It is the “warm phase” of ENSO.

◆ It occurs more frequently than **La Nina. Hence, statement 2 is correct.**

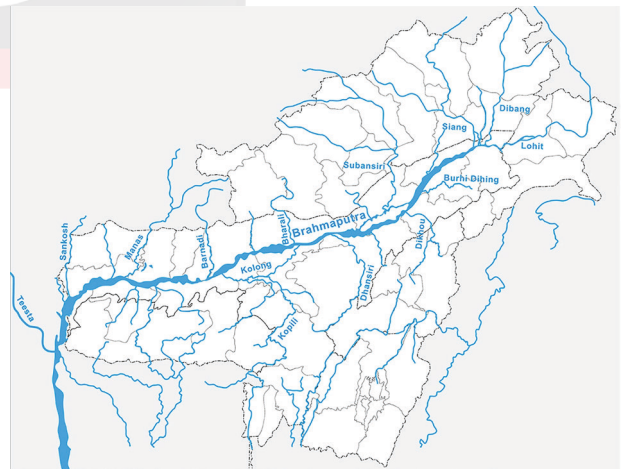
● Impact:

- ◆ The warmer waters cause the Pacific jet stream to move south of its neutral position. With this shift, areas in the northern US and Canada are dryer and warmer than usual.
 - But in the US Gulf Coast and Southeast, these periods are wetter than usual and have increased flooding.
- ◆ As El Nino brings rain to South America, it **brings droughts to Indonesia and Australia. Hence, statement 3 is not correct.**
- ◆ El Niño also has a strong effect on marine life off the Pacific coast.

53. Ans: D

Exp:

- Brahmaputra River **originates under the name of Siang** or Dihang, from the Chemayungdung glacier of the **Kailash range** near the Mansarovar lake (Tibet). **Hence, statement 1 is correct.**
 - ◆ It enters India west of Sadiya town in Arunachal Pradesh. **Hence, statement 2 is not correct.**
- Tributaries: Dihing River, Dibang River, Lohit River, Dhansiri River, Kolong River, Kameng River, **Manas River**, Beki River, Raidak River, Jaldhaka River, Teesta River, **Subansiri River. Hence, statement 3 is correct.**



54. Ans: A

Exp:

- The Thar desert is also called the ‘Great Indian Desert’.
 - ◆ It is located partly in Rajasthan state, northwestern India, and partly in Punjab and Sindh provinces, eastern Pakistan.

- ◆ It is **bordered by the irrigated Indus River plain to the west**, the Punjab Plain to the north and northeast, the **Aravalli Range to the southeast**, and the Rann of Kachchh to the south. **Hence, statement 1 is correct.**

- The surface of Thar consists of aeolian (wind-deposited) sand that has accumulated over the past 1.8 million years.

- ◆ Presents an undulating surface, with high and low sand dunes separated by sandy plains and low barren hills, or bhakars, which rise abruptly from the surrounding plains.

- Barchan, also spelled **Barkhan are crescent-shaped sand dune** produced by the action of wind predominately from one direction. **Hence, statement 2 is not correct.**

- ◆ Several playas (**saline lake beds**), locally known as **dhands**, are scattered throughout the region.

55. Ans: D

Explanation:

- **Factors Causing Rainfall Patterns Change:**

- ◆ **Moisture and Drought Together:**

- An aspect of warming that influences rainfall is the **drying of the land**, which increases the frequency and intensity of **dry periods and Droughts**.
- An increase in **moisture and the drying up together change the rainfall patterns** in unpredictable ways.

- **Hence, statement 1 is correct.**

- ◆ **Increased Snowfall in the Eurasian Region:**

- Increased snowfall in the **Eurasian region** also impacts monsoon rainfall in NE India as the excessive snowfall in Eurasia causes **cooling of the atmosphere of the region**, which triggers events eventually leading to a weak summer monsoon season there.

- **Hence, statement 2 is correct.**

- ◆ **Change in Pacific Decadal Oscillation (PDO):**

- Sea surface temperatures over the subtropical **Pacific Ocean**, which vary in a cycle and each phase of which lasts a decade. The peak comes every 20 years and is known as the **Pacific Decadal Oscillation (PDO)**.
- It may have an impact on the monsoon rainfall in NE.

- **Hence, statement 3 is correct.**

- ◆ **Sunspot Epoch:**

- During the monsoon, rainfall patterns in **NE differed significantly from one Sunspot epoch to another**, suggesting a differential

intensification of the seasonal trough of low pressure over the country.

- **Hence, statement 4 is correct.**

56. Ans: D

Exp:

- As per a report by Save the Children (a humanitarian organisation), migration in East Africa's Burundi in recent years has been seen mainly because of the rapid and significant rise of Lake Tanganyika.

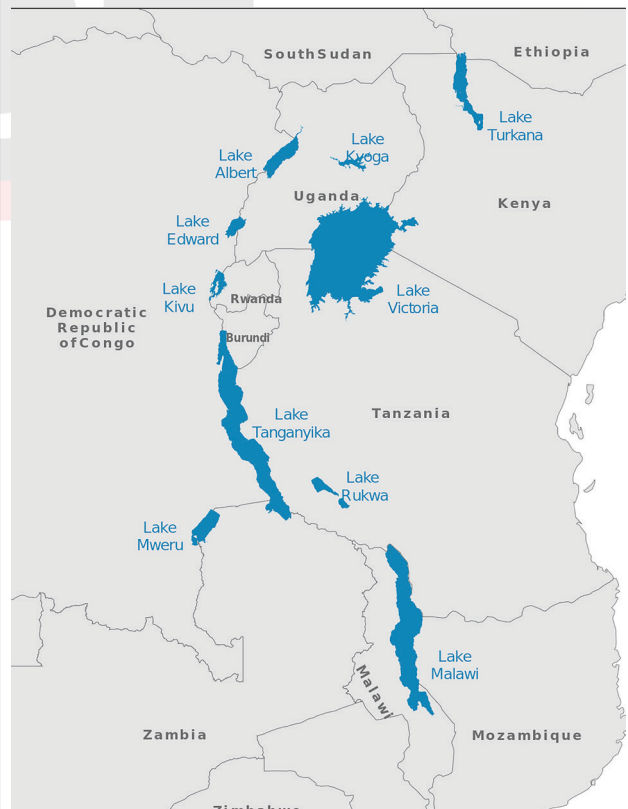
- Lake Tanganyika is the second largest lake in eastern Africa. It covers about 12,700 square miles,

- ◆ It is the longest freshwater lake in the world and the second deepest after Lake Baikal in Russia.

- ◆ The lake is shared among four countries namely **Burundi, Democratic Republic of the Congo (DRC), Tanzania and Zambia**. **Hence, option D is correct.**

- ◆ It is situated on the line dividing the floral regions of eastern and western Africa, and oil palms, which are characteristic of the flora of western Africa, grow along the lake's shores.

- ◆ The largest rivers discharging into the lake are the Malagarasi, the Ruzizi, and the Kalambo. Its outlet is the Lukuga River, which flows into the Lualaba River.



57. Ans: B

Exp:

- The **Cumbre Vieja volcano** erupted for the first time in **50 years**. The last time hot molten lava erupted and spread was in 1971.
- **La Palma** is the most north-westerly island of the **Canary Islands, Spain**.
 - ◆ It's geography is a result of a volcanic formation and has an area of 708 square kilometres making it the fifth largest of the eight main Canary Islands.
- The Canary Islands are a group of ocean island volcanoes located off the coast of western Africa that have been formed by volcanic activity since around 20 million years ago.
 - ◆ It comprises the Spanish provinces of Las Palmas and Santa Cruz de Tenerife.
- Hence, option B is correct.



58. Ans: B

Exp:

- **Cauvery** is known as '**Ponni**' in **Tamil**, also known as Ganga of the south, and it is the fourth largest river of southern India.
- It is a sacred river of southern India. It rises on **Brahmagiri Hill of the Western Ghats in southwestern Karnataka state**, flows in a southeasterly direction through the states of Karnataka and Tamil Nadu, and descends the Eastern Ghats in a series of great falls and **drains into Bay of Bengal** through Pondicherry.
- Some of its tributaries are:
 - ◆ Left: **Harangi, Hemavati, Shimsha, Arkavathy**
 - ◆ Right: **Lakshmana Tirtha, Kabini, Bhavani, Noyyal, Amaravati, Moyar**
- Hence, option B is correct.



59. Ans: A

Exp:

About Rajaji National Park:

- Rajaji National Park was established in the year 1983 after amalgamating three sanctuaries in Uttarakhand i.e. Rajaji, Motichur and Chila.
 - ◆ It was **named after the famous freedom fighter C. Rajgopalachari**; popularly known as "Rajaji".
 - ◆ It is located around Haridwar, along the foothills of the Shivalik range.
 - ◆ It also encompasses **Rajaji Tiger Reserve** in 2015 as the 48th tiger reserve of the country.
- **Flora:** Broadleaved deciduous forests, riverine vegetation, scrubland, grasslands and pine forests form the range of flora in this park.
 - ◆ **Sal (*Shorea robusta*)** is the characteristic dominant tree species.
- **Fauna:** The tiger reserve is home to both elephants and tigers in India.
 - ◆ The reserve is home to more than 50 species of mammals including tiger, leopard, Himalayan black bear, sloth bear, jackal, hyena, spotted deer, sambhar, barking deer, nilgai, monkeys and over 300 species of birds.
 - ◆ The Park is also home to many migratory birds in winters.
- **Rivers:** The **Ganga and Song** rivers flow through this.
- Hence, option A is correct.

60. Ans: D

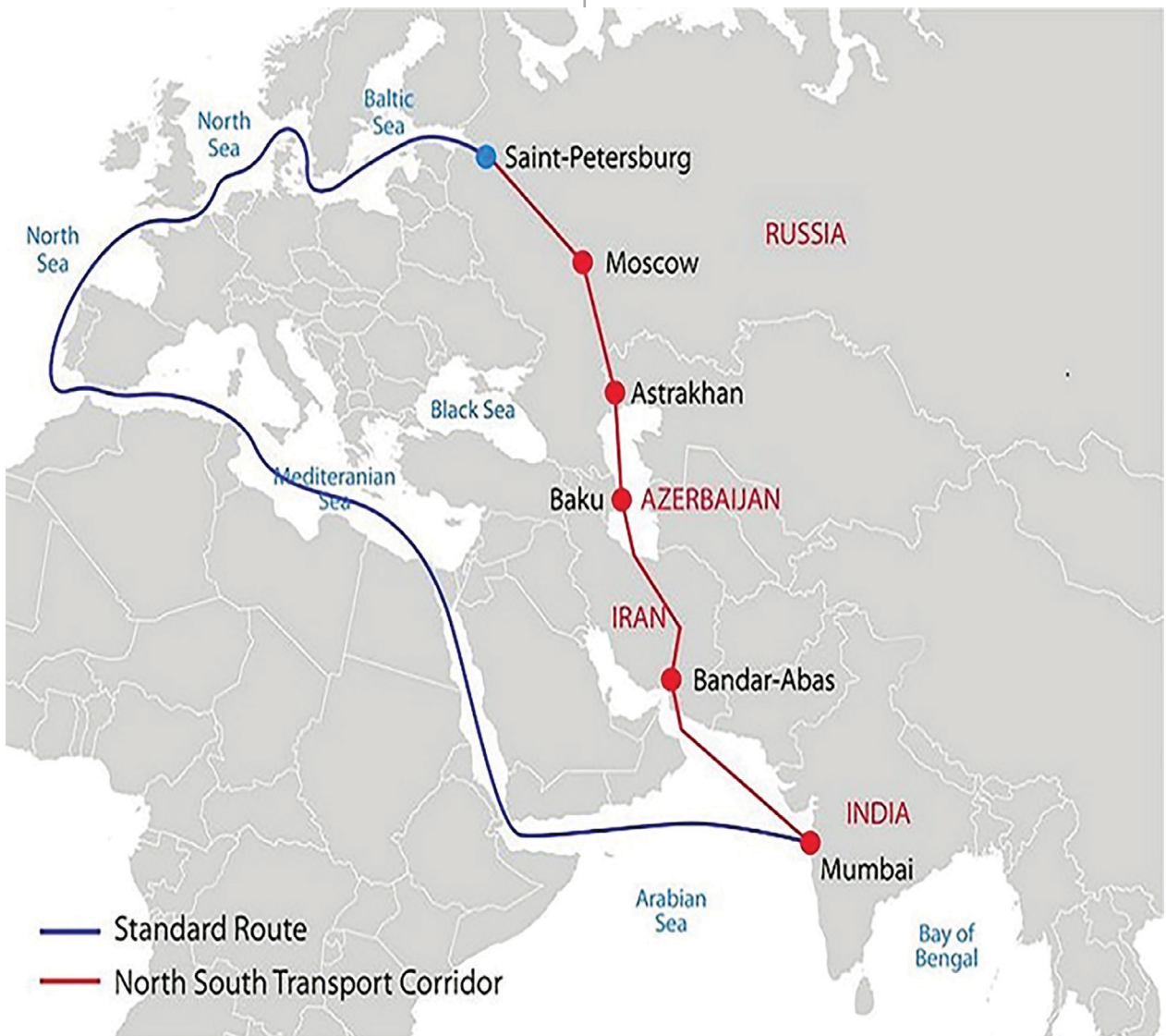
Exp:

- The International North-South Transport Corridor (INSTC) connected Europe with India (mainly through territorial route) for the first time with a Finnish logistics company despatching a consignment from Finland to India.

- INSTC is a 7,200-km-long multi-mode network of ship, rail, and road routes. The route primarily involves moving freight from India, Iran, Azerbaijan and Russia.
- The major cities involved are **Mumbai, Bandar Abbas, Tehran, Baku, Astrakhan, Moscow, etc.**
 - ◆ The INSTC does not pass through Iraq (Baghdad).

Hence, option D is correct.

- It is also in consonance with the Ashgabat agreement, a Multimodal transport agreement signed by India (2018 - year of joining), Oman (2011), Iran (2011), Turkmenistan (2011), Uzbekistan (2011) and Kazakhstan (2015).



61. Ans: B

Exp:

- The Red Sea is a semi-enclosed tropical basin, bounded by northeastern Africa, to the west, and the Arabian peninsula, to the east.
- The elongated and narrow-shaped basin extends between the Mediterranean Sea, to the north-west,

and the Indian Ocean, to the south-east.

- ◆ At the northern end, it separates into the Gulf of Aqaba and the Gulf of Suez, which is connected to the Mediterranean Sea via the Suez Canal.
- It is surrounded by **Egypt, Sudan** and Eritrea in the West and **Saudi Arabia** and Yemen in the East.
- Hence, option B is correct.



62. Ans: A

Exp:

- Active volcanoes are the volcanoes that have a recent history of eruptions or are likely to erupt again.
- **Mt. Sinabung is an active volcano on Indonesia's Sumatra island.**
 - ◆ Sinabung is among more than 120 active volcanoes in Indonesia, which is prone to seismic upheaval due to its location on the Pacific Ring of Fire.
 - ◆ The volcano was dormant for 400 years before exploding in 2010.
 - It exploded again in 2014, 2016 and 2020.
- **Sangay volcano is one of the highest active volcanoes in the world** and one of Ecuador's most active ones.
 - ◆ Sangay is the southernmost stratovolcano (a volcano built up of alternate layers of lava and ash) in the northern volcanic zone of the Andes. It is 5230 m high.
- **Volcanoes in India:**

- ◆ Barren Island, Andaman Islands (**India's only active volcano**)
- ◆ **Narcondam, Andaman Islands**
 - Narcondam is an oceanic island of volcanic origin located in the Andaman Islands, in the Bay of Bengal.
 - It is **classified as a dormant volcano** by the Geological Survey of India.
- ◆ Baratang, Andaman Islands
- ◆ Deccan Traps, Maharashtra
- ◆ Dhinodhar Hills, Gujarat
- ◆ Dhosi Hill, Haryana
- **Hence, option A is correct.**

63. Ans: B

Exp:

- **Lithium** is a soft, silvery-white metal with the symbol Li.
 - ◆ Under standard conditions, it is the lightest metal and the lightest solid element.
 - ◆ It is highly reactive and flammable, and must be stored in mineral oil.
- Lithium metal is used to make useful alloys
 - ◆ **It is also used in thermonuclear reactions. Hence, statement 2 is correct.**
 - ◆ It is used to make electrochemical cells.
- Lithium in India:
 - ◆ Researchers at the Atomic Minerals Directorate (under India's Atomic Energy Commission) have estimated lithium reserves of 14,100 tonnes in a small patch of land surveyed in **Southern Karnataka's Mandya district recently.**
 - **Also to be India's first ever Lithium deposit site found. Hence, statement 3 is correct.**
- Lithium Production in Stars:
 - ◆ Scientists from the Indian Institute of Astrophysics (IIA) have provided evidence for the first time that **Lithium (Li) production is common among low mass Sun-like stars** during their Helium (He) core burning phase. **Hence, statement 1 is not correct.**

64. Ans: B

Exp:

- **La Nina**, the "cool phase" of ENSO, is a pattern that describes the unusual cooling of the tropical eastern Pacific.
 - ◆ La Nina events may last between one and three years, unlike El Nino, which usually lasts no more than a year.
- **Impact:**

- ◆ Off the west coast of the Americas, upwelling increases, bringing cold, nutrient-rich water to the surface.
 - It usually has a positive impact on the fishing industry of western South America.
- ◆ It can also lead to a **more severe hurricane season. Hence, statement 3 is correct.**
- ◆ Causes the jet stream to move northward and to weaken over the eastern Pacific.
- ◆ Causes drought in the South American countries of Peru and Ecuador.
- ◆ There are **increased temperatures in Western Pacific, Indian Ocean** and off the Somalian coast. **Hence, statement 1 is correct.**
 - It also leads to **heavy floods in Australia.** **Hence, statement 2 is not correct.**

- Hence, option B is correct.

65. Ans: A

Exp:

- A new island has been discovered that is **located off the Greenland's coast**. The researchers have suggested the discovery be named '**Qeqertaq Avannarleq**', which is Greenlandic for "the northernmost island".
 - ◆ Measuring 60×30 metres and with a peak of three metres above sea level, it has now become the new northernmost piece of land on Earth. Before this, Oodaaq was marked as the Earth's northernmost terrain.
 - ◆ It is made up of seabed mud and moraine, i.e. soil, rock and other material left behind by moving glaciers, and has no vegetation.
- Hence, option A is correct.

LOCATION OF MOST NORTHERN ISLAND

The northernmost island in the world has been discovered by accident, according to scientists who were collecting samples off coast of Greenland



66. Ans: A

Exp:

- Popularly known as **Dawki river**, the Umngot river in **Meghalaya** is undisputedly the **cleanest river in Asia with its crystal clear water.**
 - ◆ It originates from the Eastern Shillong Peak, which is located 1,800 m above sea level.
- The river is in the village of Mawlynnong ("God's Own Garden") in Meghalaya, close to India's border with Bangladesh, which is touted as Asia's Cleanest Village.
 - ◆ Alongside cleanliness, the village has also achieved a rare feat — a 100% literacy rate.
- It acts as a natural divide between Jaintia and Khasi hills, before finally flowing into Bangladesh.
- Hence, option A is correct.

67. Ans: B

Explanation:

- Recently, the Border Roads Organisation (BRO) has constructed and completed blacktopping the world's highest motorable road at Umling La pass in Eastern Ladakh, located at an altitude of 19,300 ft.
- The strategic road built under 'Project Himank' passes through the **Umling La Top and connects Chisumle and Demchok villages.**
- It will enhance the socio-economic condition and promote tourism in Ladakh.
- By constructing this road, BRO has created a record in high-altitude road construction.
- Hence, option B is correct.

68. Ans: D

Exp:

- In the Indian Ocean, **three major Sea Lanes Of Communication (SLOCs)** play a crucial role in the energy security and economic prosperity:
 - ◆ SLOC connecting the **Red Sea to the Indian Ocean** through the **Bab al-Mandab** (that transports the bulk of Asia's international trade with its major trading partners in Europe and America). **Hence, Pair 1 is correctly matched.**
 - ◆ SLOC connecting the **Persian Gulf to the Indian Ocean** through the **Strait of Hormuz** (transporting the bulk of energy exports to major import destinations like India, ASEAN, and East Asia). **Hence, Pair 2 is correctly matched.**
 - ◆ SLOC connecting the **Indian and Pacific Oceans** through the **Straits of Malacca** (integral to the smooth flow of trade with ASEAN, East Asia, Russia's Far East and the US). **Hence, Pair 3 is correctly matched.**
- Hence, option D is correct.

69. Ans: C

Exp:

- India hosts around 104 million (that is almost 8.6% of the country's population).
- Though there are 705 ethnic groups that have been formally identified, out of which around 75 are Particularly Vulnerable Tribal Groups (PVTGs).
 - The Gond comprise the largest tribal group of India.
 - The largest number of tribal communities (62) are found in Odisha. **Hence, statement 1 is correct.**
- The **central tribal belt** which comprises the Northeastern states of India (including the **region ranging from Rajasthan to West Bengal**) boasts of the maximum concentration of indigenous population. **Hence, statement 2 is correct.**

70. Ans: A

Exp:

- A **Glacial Lake Outburst Flood (GLOF)** refers to the flooding that occurs when the water dammed by a glacier or a moraine (accumulations of dirt and rocks fallen onto the glacier surface) is released suddenly.
 - When glaciers melt, the **water in glacial lakes accumulates** behind loose, natural "glacial/moraine dams" made of ice, sand, pebbles and ice residue.
 - Unlike earthen dams, the **weak structure of the moraine dam leads to the abrupt breach of the dam on top of the glacial lake** which could cause flash floods in the downstream areas. Hence, statement 1 is correct.
- According to NDMA, glacial retreat due to climate change occurring in most parts of the Hindu Kush Himalaya has given rise to the **formation of numerous new glacial lakes**, which are the major cause of GLOFs. **Hence, statement 2 is not correct.**

71. Ans: C

Exp:

- Glacier is a large, perennial accumulation of crystalline ice, snow, rock, sediment, and water that originates on land and moves down slope under the influence of its own weight and gravity.
- Depositional Landforms:**
 - Glacial Till:** The unsorted coarse and fine debris dropped by the melting glaciers is called glacial till.
 - Moraines:** They are long ridges of deposits of glacial till.

- ◆ **Eskers:** These are ridges made of sands and gravels, deposited by glacial meltwater flowing through tunnels within and underneath glaciers, or through meltwater channels on top of glaciers.
- ◆ **Drumlins:** They are smooth oval shaped ridge-like features composed mainly of glacial till with some masses of gravel and sand.

● **Erosional Landforms of Glaciers:**

- ◆ **Glacial Valleys/Troughs:** These valleys are trough-like and U-shaped with broad floors and relatively smooth, and steep sides.
- ◆ **Cirques:** Often are found at the heads of glacial valleys, these are the most common of landforms in glaciated mountains.
- ◆ **Horns and Serrated:** Ridges Horns form through headward erosion of the cirque walls.

72. Ans: A

Exp:

- **Hirakud Dam** is a multipurpose scheme conceived by Er. M. Visveswaraya in 1937, after recurrence of devastating floods in Mahanadi river.
 - ◆ Its first hydro power was commissioned in 1956.
 - ◆ **It is the longest dam of India.**
- The dam is **built across river Mahanadi** at about 15 km upstream of Sambalpur town of Odisha.
- The **Debrigarh wildlife sanctuary is located near Hirakud dam.** It is bounded on the east and north by the huge Hirakud reservoir.
 - ◆ It is one of the select few sanctuaries in the state supporting both terrestrial and aquatic biodiversity.
- **Hence, option A is correct.**

73. Ans: C

Exp:

- It is a sacred river in southern India that flows through the **state of Karnataka to Andhra Pradesh.** The ancient name of the river was Pampa. The river is approximately 710 km long, and it drains an area of 72,200 sq km.
 - ◆ It flows in a **more or less northwest direction** before joining the **eastern river Krishna.** The Krishna River finally ends into the Bay of Bengal. **Hence, statement 1 is not correct.**
- Tungabhadra dam also known as **Pampa Sagar** is a multipurpose dam built across Tungabhadra River in Hosapete, Ballari district of Karnataka. It was built by **Dr. Thirumalai Iyengar** in 1953. **Hence, statement 2 is correct.**

- It's major tributaries are the **Bhadra, the Haridra, the Vedavati, the Tunga, the Varda and the Kumdavathi**. Hence, **statement 3 is correct**.

74. Ans: A

Exp:

Geo-heritage sites in Northeast:

- Majuli (Assam): A river "island", among the world's largest, in Brahmaputra river.
 - ◆ The island is also the hub of spiritualism in Assam.
- **Sangetsar Tso (Arunachal Pradesh): It is popularly known as Madhuri Lake. hence, statement 2 is not correct. Hence, statement 2 is not correct.**
 - ◆ It is close to the border with Tibet and was formed due to the damming of a river during a major earthquake in 1950.
- **Loktak Lake (Manipur): It is the largest freshwater lake in the Northeast. Hence, statement 1 is correct. Hence, statement 1 is correct.**
 - ◆ The attractions of this lake are the 'phumdis' or floating biomass and the 'phumsangs' or huts of fishermen on them.
 - ◆ The Keibul Lamjao National Park, the only floating wildlife habitat on earth, is on the southwestern part of the lake and is the last natural habitat of the sangai or brow-antlered dancing deer.

75. Answer: C

Explanation:

- The earthquake is characterized by **severe shaking of the ground** and severe shaking of structures above the ground.
 - ◆ They move slowly and steadily over the **Earth's interior and many smaller plates**. Earthquakes are basically tectonic, that is, moving plates are mainly responsible for the shaking in the ground. Hence, **statement 1 is correct**.
- The location below the earth's surface where the earthquake starts is called the **hypocenter**, and the location directly above it on the surface of the earth is called the **epicentre**. Hence, **statement 2 is not correct**.
- Deep earthquakes (300-700 km) are produced in **Wadati-Benioff zones**.
 - ◆ It is a zone of subduction, along which earthquakes are common, which are produced by the interaction of a downgoing oceanic crustal plate against a continental plate. Hence, **statement 3 is correct**.

76. Ans: B

Exp:

- '**Sambhar lake**' is located 80 km south-west of Jaipur in east-central Rajasthan, it is the country's **largest inland saline water body**. Hence, **statement 1 is correct**.

- ◆ Represents the depression of the Aravalli Range.
- It is famous for the production of brine/salt, houses one of the largest salt manufacturing units in the country.
 - ◆ Thousands of migratory birds every year.
- **A wetland of 'international importance' under the Ramsar Convention, declared in 1990. Hence, statement 2 is correct.**
- **Receives water from six rivers, namely Samaod, Khari, Mantha, Khandela, Medtha, and Roopangarh. Hence, statement 3 is not correct.**
- Mostly xerophytic type (Xerophyte is a plant adapted for growth under dry conditions).
- Flamingoes, pelicans and the waterfowls are commonly sighted.

77. Ans: D

Exp:

- It is a **rare form of marine bioluminescence** where the nocturnal ocean surface produces a widespread, uniform and steady whitish glow.
 - ◆ Bioluminescence is **light produced by a chemical reaction within a living organism**.
 - ◆ It is also called mareel. Hence, **statement 1 is correct**.
- Arises from a **saprophytic relationship between luminous bacteria and microalgae** that expresses on the macroscale.
 - ◆ A strain of luminous bacteria called **Vibrio harveyi** colonizing algae at the water's surface has been found. Hence, **statement 2 is correct**.
- Luminous bacteria cause the particles they colonize to glow. The purpose of this glow **could be to attract fish that eat them**.
 - ◆ These bacteria thrive in the guts of fishes, so when their populations get too big for their main food supply, **a fish's stomach makes a great second option**.
- During its positive phase, the **Indian Ocean Dipole (IOD)** corresponds to warm/wet conditions with warm pooling waters on the western side of the Indian Ocean, and cool/dry conditions with strong easterly winds on the eastern side.
 - ◆ These winds generate upwelling of cool, nutrient-rich coastal waters which drift offshore with the currents, leading to algal blooms over a broad region, and **potentially, conditions favourable for milky sea genesis**. Hence, **statement 3 is correct**.

78. Ans: A**Exp:**

- Recently, the central government has said that no new Hydropower projects would be allowed in the upper reaches of the Ganga and those sanctioned would have to abide by environment regulations that prescribe a minimum flow in the river at all times of the year to preserve its health.
- Seven projects, all in Uttarakhand, have been allowed to complete construction primarily on the ground that they were over 50% complete.
 - ◆ The seven projects are the:
 - Tehri Stage 2 is a 1000 MW project on Bhagirathi river. Hence, pair 1 is correctly matched.
 - Tapovan Vishnugad is a 520 MW project on Dhauliganga river. Hence, pair 2 is not correctly matched.
 - Vishnugadh Pipalkoti is a 444 MW project on Alaknanda river. Hence, pair 3 is not correctly matched.
 - ◆ Other projects in Uttarakhand are:
 - Singoli Bhatwari: 99 MW on Mandakini river
 - Phata Bhuyang: 76 MW on Mandakini river
 - Madhyamaheshwar: 15 MW on Madhyamaheshwar Ganga
 - Kaliganga 2: 6 MW on Kaliganga river

79. Ans: B**Exp:**

- A **Mangrove** is a small tree or shrub that grows along coastlines, taking root in salty sediments, often underwater.
 - ◆ They are flowering trees, belonging to the families Rhizophoraceae, Acanthaceae, Lythraceae, Combretaceae, and Arecaceae.
- Features of Mangroves:
 - ◆ **Saline environment:** They can survive under extreme hostile environments such as high salt and low oxygen conditions.
 - ◆ **Low oxygen:** Underground tissue of any plant needs oxygen for respiration. But in a mangrove environment, the oxygen in soil is limited or nil.
 - ◆ **Survival in Extreme Conditions:** With their roots submerged in water, mangrove trees thrive in hot, muddy, salty conditions that would quickly kill most plants.
 - ◆ **Succulent leaves:** Mangroves, like desert plants, store fresh water in thick succulent leaves.

- A waxy coating on the leaves seals in water and minimises evaporation.

◆ **Viviparous:** Their seeds germinate while still attached to the parent tree. Once germinated, the seedling grows into a propagule.

- The mature propagule then drops into the water and gets transported to a different spot, eventually taking root in a solid ground.

● Hence, option B is correct.

80. Ans: B**Exp:**

- India hosts around 104 million (that is almost 8.6% of the country's population).
- Though there are 705 ethnic groups that have been formally identified, out of which around 75 are Particularly Vulnerable Tribal Groups (PVTGs).
 - ◆ The Gond comprise the largest tribal group of India.
- The **largest number** of tribal communities (62) are found in **Odisha**. Hence, statement 1 is not correct.
- The central tribal belt which comprises the **Northeastern states of India** (including the region ranging from Rajasthan to West Bengal) boasts of the **maximum concentration of indigenous population**. Hence, statement 2 is correct.

81 Ans: C**Exp:**

- Recently, the **Pacific Northwest and some parts of Canada recorded temperatures** around 47 degrees, causing a "historic" heat wave.
 - ◆ This is a result of a phenomenon referred to as a "heat dome". Hence, statement 1 is correct.
- The **phenomenon begins when there is a strong change (or gradient) in ocean temperatures**. In the process known as convection, the gradient causes more warm air, heated by the ocean surface, to rise over the ocean surface. Hence, statement 2 is correct.
- As prevailing winds move the hot air east, the northern shifts of the jet stream trap the air and move it toward land, where it sinks, resulting in heat waves.

82 Ans: B**Exp:**

- The River Nile is in Africa. It originates in **Burundi, south of the equator**, and flows northward through northeastern Africa, eventually flowing through Egypt and finally draining into the Mediterranean Sea. Hence, statement 1 is not correct.

- ◆ The source of the Nile is sometimes considered to be Lake Victoria, but the lake itself has feeder rivers of considerable size like the Kagera River.
- ◆ The Nile River is considered as one of the longest rivers in the world.
- ◆ The Nile is formed by three principal streams: the Blue Nile, the Atbara, and the White Nile.
- The Nile basin is huge and includes parts of Tanzania, Burundi, Rwanda, Congo (Kinshasa), Kenya.
- The Nile River forms an arcuate delta as it empties into the Mediterranean Sea. Deltas with triangular or fan-shape are called arcuate (arc-like) deltas. **Hence, statement 2 is correct.**
- Ethiopia has started the second phase of filling a Grand Ethiopian Renaissance Dam's (GERD) reservoir on the upper Blue Nile, which raised tensions from Sudan and Egypt ahead of an upcoming UN Security Council meeting on the issue.
- Ethiopia began the construction of the GERD in 2011 on the **Blue Nile**. **Hence, statement 3 is correct**
- **Blue Nile** is a tributary of the Nile river and it carries about two-thirds of the river's water volume and most of the silt.
- This 145-meter-tall hydropower project is Africa's biggest dam project and will have lasting impacts on its longest river- Nile.

83 Ans: A

Exp:

- **Amazon Rainforests** are large tropical rainforests occupying the drainage basin of the Amazon River and its tributaries in northern South America. **Hence, statement 1 is correct.**
 - ◆ It is a vast region that spans eight rapidly developing countries: Brazil, Bolivia, Peru, Ecuador, Colombia, Venezuela, Guyana, Suriname, and French Guiana, an overseas territory of France.
 - ◆ Tropical forests are closed-canopy forests growing within 28 degrees north or south of the equator.
 - ◆ They are very wet places, receiving more than 200 cm rainfall per year, either seasonally or throughout the year.
 - ◆ Temperatures are uniformly high - between 20°C and 35°C.
 - ◆ Such forests are found in Asia, Australia, Africa, South America, Central America, Mexico and on many of the Pacific Islands.

- Comprising about 40% of Brazil's total area, it is **bounded by the Guiana Highlands to the north, the Andes Mountains to the west (not Pacific Ocean), the Brazilian central plateau to the south, and the Atlantic Ocean to the east.** **Hence, statement 2 is not correct.**

84 Ans: D

Exp:

Alps Mountains

- The Alps **emerged during the Alpine orogeny** (mountain-building event), an event that began about **65 million years** ago as the **Mesozoic Era** was drawing to a close.
- They are the **most prominent of western Europe's physiographic regions.**
- The Alps form part of **France, Italy, Switzerland, Germany, Austria, Slovenia, Croatia, Bosnia and Herzegovina, Montenegro, Serbia, and Albania.**
- Only **Switzerland and Austria** can be considered **true Alpine countries.**
- The Alps extend north **from the subtropical Mediterranean coast** near Nice, France, **to Lake Geneva before trending east-northeast to Vienna, Austria.**
 - ◆ There they touch the **Danube River** and meld with the adjacent plain.
- **Mont Blanc** is the highest peak in the Alps and in Europe, reaching a lofty 4,804 meters above sea level. It is located in the Graian Alps and lies within France, Switzerland, and Italy.
- **Hence, option D is correct.**

85 Ans: C

Exp:

- The ancient name of **Sutlej River** is Zaradros (Ancient Greek) Shutudri or Shatadru (Sanskrit).
- It is the **longest of the five tributaries of the Indus River** that give the Punjab (meaning "Five Rivers") its name. **Hence, statement 1 is not correct.**
 - ◆ Jhelum, Chenab, Ravi, Beas and Sutlej are main tributaries of Indus.
- It **rises on the north slope of the Himalayas** in Lake La'nga in **southwestern Tibet**. **Hence, statement 2 is not correct.**
 - ◆ Flowing northwestward and then west-southwestward through Himalayan gorges, it enters and crosses Himachal Pradesh before beginning its flow through the Punjab plain near Nangal.

- ◆ Continuing southwestward in a broad channel, it receives the Beas River (and forms 65 miles (105 km) of the India-Pakistan border before entering Pakistan and flowing another 220 miles (350 km) to join the Chenab River west of Bahawalpur.
- **Sutlej River meets the Beas River in Harike in the Ferozpur district before entering Pakistan. Hence, statement 3 is correct.**
- ◆ The combined rivers then form the Panjnad, the link between the Five Rivers and the Indus.

86 Ans: C

Exp:

- Tides can be defined as the **alternate rise and fall of the ocean water**. It is caused by the **combined effects of the gravitational force exerted on Earth by the Sun, the gravitational force exerted on Earth by the Moon and rotation of the Earth**.
- ◆ **Spring Tide:** It occurs during the full moon and new moon days **when the sun, the moon and the earth are in the same line twice each lunar month** all year long, without regard to the season. **Hence, statement 1 is correct.**
- ◆ **Neap Tide:** It occurs when the moon is in its first and last quarter, the ocean waters get drawn in diagonally opposite directions by the gravitational pull of sun and earth resulting in low tides. **Hence, statement 2 is correct.**
- **Stages of Tidal Changes:**
 - ◆ High tide is the stage when the tidal crest arrives at a particular location on shore, raising the local sea level.
 - ◆ Low tide is the stage when the trough arrives, lowering the local sea level.
 - ◆ Flood tide is a rising or incoming tide between low tide and high tide.
 - ◆ Ebb tide is a falling or outgoing tide between high tide and low tide.
 - The vertical distance between high tide and low tide is the tidal range.

87 Ans: C

Exp:

- **Caucasus mountain system** and region **lying between the Black Sea (west) and the Caspian Sea (east)** and occupied by Russia, Georgia, Azerbaijan, and Armenia. **Hence, statement 1 is correct.**
- It is **home to Mount Elbrus, the highest peak in Europe** at 5,642 metres (18,510 ft) above sea level. **Hence, statement 2 is correct.**



88 Ans: A

Exp:

- **Vaigai River** originates in the **Western Ghats (Varusanadu Hills)**.
 - ◆ It **travels through the Pandya Nadu region of Tamil Nadu**.
 - ◆ Its main tributaries are Suruliyaru, Mullaiyaru, Varaganadhi, Manjalaru, Kottagudi, Kridhumaal and Upparu.
- The Vaigai is 258 kms long and finally empties into the **Palk Strait near the Pamban Bridge** in Ramanathapuram district.
- **Heritage River:** The Vaigai was the river that flowed through the noted city of Madurai, the capital (4th-11th century CE) of the ancient and prosperous Pandya kingdom located in southern Tamil Nadu.
 - ◆ The river finds a **mention in Sangam literature** dated to 300 before the Common Era.
- **Hence, option A is correct.**

89 Ans: D

Exp:

- The **Kosi is a trans-boundary river** which flows through Tibet, Nepal and India.
 - ◆ It **has its source in Tibet** that includes the world's highest upland; it then drains a large part of Nepal before emerging onto the Gangetic plains. **Hence, statement 1 is correct.**
- The river crosses into northern Bihar, India where it branches into distributaries **before joining the Ganges near Kursela in Katihar district**. **Hence, statement 2 is correct.**
 - ◆ Its unstable nature has been attributed to course changes and the heavy silt it carries during the monsoon season, and flooding in India has extreme effects.
 - ◆ The Kosi carries the maximum amount of silt and sand after the Brahmaputra in India.

- It is **also known as the "Sorrow of Bihar"** as the annual floods affect about 21,000 km² of fertile agricultural lands thereby disturbing the rural economy. **Hence, statement 3 is correct.**

90 Ans: A

Exp:

- The climate of India is described as the 'monsoon' type. In Asia, this type of climate is found mainly in the south and the southeast.
- Factors Influencing South-West Monsoon Formation:**
 - The **differential heating and cooling of land and water** creates a low pressure on the landmass of India while the seas around experience comparatively high pressure. **Hence, statement 1 is correct.**
 - The shift of the position of Inter Tropical Convergence Zone (ITCZ) in summer, over the Ganga plain (this is the equatorial trough normally positioned about 5°N of the equator. It is also known as the monsoon-trough during the monsoon season).
 - The presence of the high-pressure area, east of Madagascar, approximately at 20°S over the Indian Ocean. The intensity and position of this high-pressure area affect the Indian Monsoon.
 - The movement of the westerly jet stream to the north of the Himalayas and the presence of the tropical easterly jet stream over the Indian peninsula during summer.
 - Tropical Easterly Jet (African Easterly Jet).
 - El Nino/Southern Oscillation (SO): Normally when the tropical eastern south Pacific Ocean experiences high pressure, the tropical eastern Indian Ocean experiences low pressure. But in certain years, there is a reversal in the pressure conditions and the eastern Pacific has lower pressure in comparison to the eastern Indian Ocean. This periodic change in pressure conditions is known as the SO.
 - The **Tibetan plateau gets intensely heated during summer**, which results in strong vertical air currents and the formation of low pressure over the plateau at about 9 km above sea level. **Hence, statement 2 not is correct.**
 - The **Northeast monsoon** occurs during October to December, and is a comparatively small-scale monsoon, which is confined to the Southern peninsula. It is called the winter monsoon.

91 Ans: C

Exp:

- The Black Sea, also known as the Euxine Sea, is one of the major water bodies and a famous **inland sea** of the world.
- This marginal sea of the Atlantic Ocean is located between Eastern Europe and Western Asia.
 - The **bordering countries of Black Sea** are: Russia, Ukraine, Georgia, **Turkey, Bulgaria and Romania.** **Hence, statement 1 is correct.**
- It is surrounded by the Pontic, Caucasus, and Crimean Mountains in the south, east and north respectively.
- The Turkish straits system - the Dardanelles, Bosphorus and Marmara Sea - forms a **transitional zone between the Mediterranean and the Black Sea.** **hence, statement 2 is correct.**
 - The Black Sea is also connected to the Sea of Azov by the Strait of Kerch.



92 Ans: D

Exp:

- Black Sea is a marginal sea of the Atlantic Ocean, located between Eastern Europe and Western Asia.
- The bordering countries of Black Sea are: **Russia, Ukraine, Georgia, Turkey, Bulgaria and Romania.** **Hence, option D is correct.**
- The Black Sea happens to be the largest water body with a meromictic basin, which means the movement of water between the lower and upper layers of the sea is a rare phenomenon which is also responsible for its Anoxic Water (i.e. a significant absence of oxygen in the water).



93 Ans: B

Exp:

- The **Summer Solstice** is the **longest day and shortest night** of the year in the **Northern Hemisphere**. Hence, **statement 2 is correct**.
 - ◆ During this, countries in the Northern Hemisphere are nearest to the Sun and the Sun shines overhead on the Tropic of Cancer (23.5° North).
 - ◆ The **Winter Solstice** is the shortest day and longest night of the year in the Northern Hemisphere and is also known as the 'first day of winter' in the Northern Hemisphere as well as 'Hiemal solstice or Hibernial solstice'. Hence, **statement 1 is not correct**.
- During the solstice, the Earth's axis — around which the planet spins, completing one turn each day — is tilted in a way that the North Pole is tipped towards the sun and the South Pole is away from it.
 - ◆ At the **Arctic Circle**, the sun never sets during the summer solstice. Hence, **statement 3 is correct**.

94 Ans: D

Exp:

- **Antarctic Circumpolar Current (ACC)** is the only current in the global ocean to close upon itself in a circumpolar loop.
 - ◆ This trait makes the ACC the most important current in the Earth's climate system because it **links the Atlantic, Pacific and Indian Oceans** and is the primary means of inter-basin exchange of heat, carbon dioxide, chemicals, biology and other tracers. Hence, **statement 1 is correct**.
 - ◆ The current **flows from west to east around Antarctica**. Hence, **statement 3 is correct**.
- The ACC is **created by the combined effects of strong westerly winds across the Southern Ocean**, and the big change in surface temperatures between the Equator and the poles. Hence, **statement 2 is correct**.

95 Ans: B

Exp:

- The **Mahanadi River system** is the **third largest of peninsular India** after Godavari and Krishna, and the largest river of Odisha state.
- The **catchment area** of the river extends to **Chhattisgarh, Madhya Pradesh, Odisha, Jharkhand and Maharashtra**.
- The river rises from a place near Sihawa in **Bastar hills in the state of Chhattisgarh** to the south of Amarkantak.

- Major Tributaries of Mahanadi river include **Seonath River, Hasdeo river, Mand river, Ib river, Jonking river and Tel river**.
- Hence, **option B is correct**.

96 Ans: C

Exp:

- Since the 1990s, climate change has caused billions of tonnes of glacial ice to melt into oceans. This has caused the Earth's poles to move in new directions.
- The **north pole has shifted in a new eastward direction since the 1990s**, because of changes in the hydrosphere (meaning the way in which water is stored on Earth). Hence, **statement 1 is correct**.
- From 1995 to 2020, the average speed of drift was 17 times faster than from 1981 to 1995.
- Also, in the last four decades, the poles moved by about 4 metres in distance.
 - ◆ The calculations were based on satellite data from NASA's **Gravity Recovery and Climate Experiment (GRACE)** mission.
- **Causes of Polar Drift:**
 - ◆ **Ice Melting:** The faster ice melting under global warming was the most likely cause of the directional change of the polar drift in the 1990s.
 - As glaciers melt, water mass redistributes, causing shifts in the planet's axis.
 - ◆ **Change in Non-Glacial Regions (Terrestrial Water Storage):** Due to climate change and unsustainable consumption of groundwater for irrigation and other anthropogenic activities.
 - ◆ **Groundwater Depletion:** As millions of tonnes of water from below the land is pumped out every year for drinking, industries or agriculture, most of it eventually joins the sea, thus redistributing the planet's mass. Hence, **statement 2 is correct**.

97 Ans: D

Exp:

- Factors Influencing Southwest Monsoon Formation:
 - ◆ The **differential heating and cooling of land and water** creates a low pressure on the landmass of India while the seas around experience comparatively high pressure. Hence, **statement 1 is correct**.
 - ◆ The shift of the position of Inter Tropical Convergence Zone (ITCZ) in summer, over the Ganga plain (this is the equatorial trough normally positioned about 5°N of the equator. It is also known as the monsoon-trough during the monsoon season).

- ◆ The presence of the high-pressure area, east of Madagascar, approximately at 20°S over the Indian Ocean. The intensity and position of this high-pressure area affect the Indian Monsoon. Hence, statement 2 is correct.
- ◆ The Tibetan plateau gets intensely heated during summer, which results in strong vertical air currents and the formation of low pressure over the plateau at about 9 km above sea level.
- ◆ The movement of the westerly jet stream to the north of the Himalayas and the presence of the **tropical easterly jet stream over the Indian peninsula during summer. Hence, statement 3 is correct.**
- ◆ Tropical Easterly Jet (African Easterly Jet).
- ◆ El Nino/Southern Oscillation (SO): Normally when the tropical eastern south Pacific Ocean experiences high pressure, the tropical eastern Indian Ocean experiences low pressure. But in certain years, there is a reversal in the pressure conditions and the eastern Pacific has lower pressure in comparison to the eastern Indian Ocean. This periodic change in pressure conditions is known as the SO.

98 Ans: A

Exp:

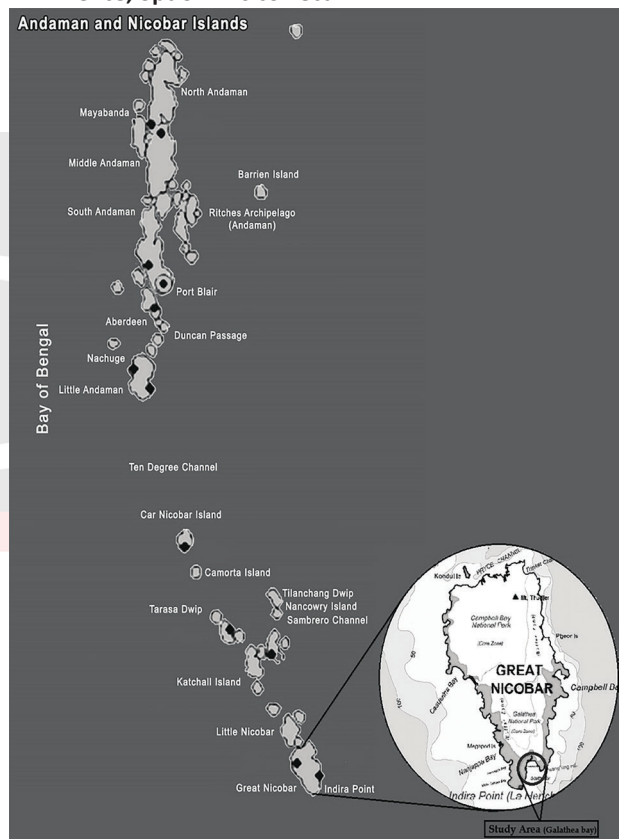
- Recently, the Taliban has captured Afghanistan's second-biggest dam - Dahla Dam.
 - ◆ The Dahla Dam is also known as Arghandab Dam. It is **built on the Arghandab River. Hence, statement 1 is correct.**
 - ◆ It is located in the Shah Wali Kot District of Kandahar Province, Afghanistan.
 - ◆ It was **constructed in 1952 by the USA. Hence, statement 2 is not correct.**
- Dams built by India in Afghanistan:
 - ◆ Pact for Construction of Shahtoot Dam on Kabul River.
 - ◆ Afghanistan-India Friendship Dam (Salma Dam).



99 Ans: A

Exp:

- **Galathea Bay is in Andaman and Nicobar.** It is an iconic nesting site of the enigmatic Giant Leatherback, the world's largest marine turtle—borne out by surveys done over three decades.
- Ecological surveys in the last few years have reported a number of new species, many restricted to just the Galathea region.
- These include the critically **endangered Nicobar shrew**, the Great Nicobar crane, the Nicobar frog, the Nicobar cat snake, a new skink (*Lipinia* sp), a new lizard (*Dibamus* sp,) and a snake of the *Lycodon* sp that is yet to be described.
- **Hence, option A is correct.**



100 Ans: D

Exp:

- Uranium is a hard, dense, malleable, ductile, silver-white, radioactive metal which occurs naturally in low concentrations in soil, rock and water.
 - ◆ Uranium metal has a very high density.
 - ◆ The main use of uranium in the civilian sector is to fuel commercial nuclear power plants for generation of nuclear energy.

- ◆ The first atomic bomb used in warfare was an uranium bomb
- In India, **Uranium deposits occur in the Dharwar rocks.**
 - ◆ It occurs along the **Singbhum Copper belt (Jharkhand)**; Udaipur, Alwar and Jhunjhunu districts of **Rajasthan**, Durg district of Chhattisgarh, Bhandara district of Maharashtra and Kullu district of Himachal Pradesh.
 - ◆ Significant quantities of reserves have been recently discovered in parts of **Andhra Pradesh and Telangana** between Seshachalam forest and Sresailam (Southern edge of Andhra to Southern edge of Telangana). **Hence, statement 1 is not correct.**
- In pursuance to entry at **serial No. 54 of List I (Union List)**, the Parliament has passed 'The Mines & Minerals (Development and Regulation) Act, 1957 (MMDR Act)'.
 - ◆ However, with respect to minor minerals, the rulemaking powers have been delegated to the States through this Act.
 - ◆ Since **Uranium is a major mineral, it is managed by the Union Government under provisions of MMDR Act. Hence, statement 2 is not correct.**

101 Ans: C

Exp:

- It is a tropical cyclone, **named for Myanmar**. It means 'gecko', a highly vocal lizard, in the Burmese language.
- Cyclone **Tauktae made landfall in Gujarat.**
 - ◆ The cyclone has left a trail of destruction as it swept through the coastal states of Kerala, Karnataka, Goa and Maharashtra.
- **Developed in Arabian Sea:**
 - ◆ Tauktae is the fourth cyclone in consecutive years to have **developed in the Arabian Sea (Not originated in Persian Gulf)**, that too in the **pre-monsoon period (April to June)**
 - ◆ Hence, option C is correct.

102 Ans: D

Exp:

- A **tropical cyclone** is an intense circular storm that originates over warm tropical oceans and is characterized by low atmospheric pressure, high winds, and heavy rain.
 - ◆ A characteristic feature of tropical cyclones is the **eye, a central region of clear skies, warm temperatures, and low atmospheric pressure. Hence, statement 1 is correct.**

- According to World Meteorological Organization (WMO) guidelines, countries in every region are supposed to give names for cyclones. **Hence, statement 2 is correct.**
- The **India Meteorological Department (IMD)**, one of the six Regional Specialised Meteorological Centres (RSMC) in the world, is mandated to issue advisories and **name tropical cyclones in the north Indian Ocean Region. Hence, statement 3 is correct.**
 - ◆ It is an agency of the Ministry of Earth Sciences.
 - ◆ The North Indian Ocean Region covers tropical cyclones formed over Bay of Bengal and Arabian Sea.
 - The 13 members, which come under the region, are Bangladesh, India, Maldives, Myanmar, Oman, Pakistan, Sri Lanka, Thailand, Iran, Qatar, Saudi Arabia, the UAE and Yemen.

103 Ans: B

Exp:

- **Oman** is bounded to the **southwest by Yemen**, to the **south and east by the Arabian Sea**, to the north by the Gulf of Oman, to the **northwest by the United Arab Emirates**, and to the west by Saudi Arabia. **Hence, statement 1 is not correct.**
- The **Musandam Peninsula** locally known as Ruus Al Jibal is a peninsula that forms the northeastern point of the Arabian Peninsula. It is **located to the south of the Strait of Hormuz between the Persian Gulf and Gulf of Oman. Hence, statement 2 is correct.**
 - ◆ It is mainly governed by Oman as the Musandam Governorate with certain parts governed by the United Arab Emirates, including Ras Al Khaimah and parts of Dibba.

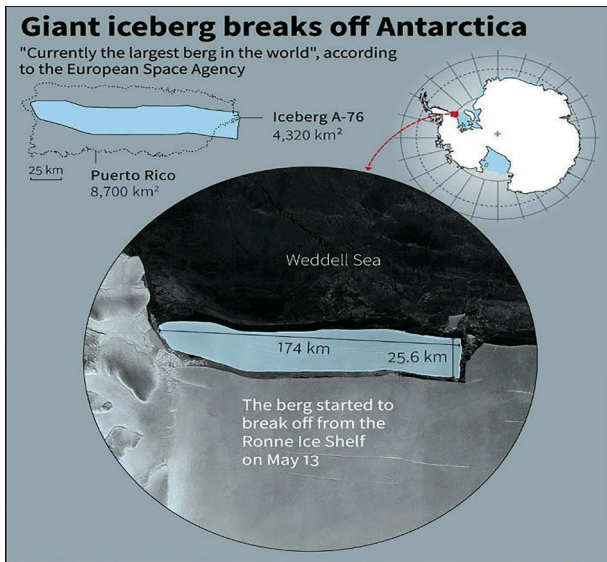


104 Ans: B

Exp:

- An **enormous iceberg 'A-76'** has calved from the western side of the Ronne Ice Shelf, lying in the Weddell Sea, in Antarctica.

- **A-76 measures** around 4320 sq km in size – currently **making it the largest berg in the world. Hence, option C is correct.**
- ◆ It has **surpassed the now second-place A-23A**, about 3,380 sq km in size and also floating in the Weddell Sea.
- The newly calved berg 'A-76' was spotted in recent satellite images captured by the **Copernicus Sentinel-1 mission.**



105 Ans: C

Exp:

- The historical city of Kanchipuram is known for its spirituality, serenity, and silk.
 - ◆ It is situated on the **banks of River Vegavathi (and not river Kaveri). Hence, statement 1 is not correct.**
 - ◆ River Vegavathi is a tributary of river Swarnamukhi.
- This historical city once had 1,000 temples, of which only 126 (108 Shaiva and 18 Vaishnava) now remain.
- Its rich legacy has been the endowment of the **Pallava dynasty, which made the region its capital between the 6th and 7th centuries** and lavished upon its architectural gems that are a fine example of Dravidian styles. **Hence, statement 2 is correct.**
- The **temples of Kanchipuram** along with five other Indian places have been **added to the tentative list of UNESCO's world heritage sites (it was not declared as a UNESCO World Heritage Site in 2011). Hence, statement 3 is not correct.**
 - ◆ As per Operational Guidelines, 2019 of UNESCO, it is mandatory to put any monument/site on the Tentative List (TL) for one year before it is considered for the final nomination dossier.

- ◆ The other five places include; Satpura Tiger Reserve (Madhya Pradesh), Ghats of Varanasi (Uttar Pradesh), Megalithic Site of Hire Benkal (Karnataka), Maratha Military Architecture in Maharashtra and Bhedaghat-Lametaghata in Narmada Valley- Jabalpur (Madhya Pradesh).

106 Ans: C

Exp:

- **Banni is the largest grassland of Asia situated near the Great Rann of Kutch in Gujarat.**
 - ◆ It is spread over 2,618 kilometres and accounts for almost 45% of the pastures in Gujarat.
- Two ecosystems, wetlands and grasslands, are mixed side by side in Banni.
 - ◆ The grassland is dominated by low-growing plants, forbs and graminoids, many of which are halophiles (salt tolerant), as well as scattered tree cover and scrub.
- In 1955, the court notified that the **grassland will be a reserve forest** (the most restricted forests classified according to Indian Forest Act, 1927).
 - ◆ In 2019, the tribunal ordered to demarcate the boundaries of the Banni grassland and restricted non-forest activities.
- The **Wildlife Institute of India (WII) has identified this grassland reserve as one of the last remaining habitats of the cheetah** in India and a possible reintroduction site for the species.
- The **Maldharis are a tribal herdsmen community inhabiting Banni.**
 - ◆ The literal meaning of Maldhari is keeper (dhari) of the animal stock (mal).
- The Shola Grasslands cover the states of Karnataka, Kerala and Tamil Nadu.
 - ◆ The Saramati Grasslands are located in Nagaland.
 - ◆ The Ukhul Grasslands are located in Uttarakhand.
- **Hence, option C is correct.**

107 Ans: C

Exp:

- **Lakshadweep** is India's smallest Union Territory, Lakshadweep is an archipelago consisting of 36 islands with an area of 32 sq km. It extends between 8° N and 12° N latitude.
 - ◆ It is directly under the control of the Centre through an administrator.
 - ◆ There are three main group of islands:
 - Amindivi Islands
 - Laccadive Islands
 - Minicoy Island.

- ◆ The Capital is Kavaratti and it is also the principal town of the UT.
- ◆ Amindivi Islands are the northernmost while Minicoy island is the southernmost.
- ◆ **Minicoy Island**, located to the **south of the nine-degree channel** is the largest island among the Lakshadweep group. **Hence, statement 1 is not correct.**

- The 8 Degree Channel (8 degrees north latitude) separates the islands of Minicoy and Maldives.
- The 9 Degree Channel (9 degrees north latitude) separates the island of Minicoy from the main Lakshadweep archipelago.

- All are tiny islands of **coral origin (Atoll)** and are **surrounded by fringing reefs**. **Hence, statement 2 is correct.**
 - ◆ Pitti island, which is uninhabited, has a bird sanctuary.
- Recently, the entire Lakshadweep group of islands has been **declared as an organic agricultural area** under the Participatory Guarantee System (PGS) of India. **Hence, statement 3 is correct.**

108 Ans: C

Exp:

- Lunar eclipse takes place when the Moon moves into the Earth's shadow. The Earth has to be directly between the Sun and the Moon, and a lunar eclipse can only take place during a full Moon.
- First, the Moon moves into the **penumbra – the part of the Earth's shadow where not all of the light from the Sun is blocked out**. Part of the Moon's disc will look dimmer than a regular full Moon. **Hence, statement 1 is not correct.**
- And then the Moon moves into the **Earth's umbra, where direct light from the Sun is totally blocked out by the Earth**. This means the only light reflecting off the Moon's disc has already been refracted, or bent, by the Earth's atmosphere. **Hence, statement 2 is not correct.**

109 Ans: A

Exp:

- The Godavari is the largest Peninsular river system. It is also called the Dakshin Ganga.
 - ◆ It rises from **Trimbakeshwar near Nasik** in Maharashtra and flows for a length of about 1465 km before outfalling into the Bay of Bengal. **Hence, statement 1 is correct.**

- ◆ The **Godavari basin extends** over states of **Maharashtra, Telangana, Andhra Pradesh, Chhattisgarh and Odisha** in addition to smaller parts in **Madhya Pradesh, Karnataka and Union territory of Puducherry**. **Hence, statement 2 is not correct.**

- Tributaries: Pravara, Purna, Manjra, Penganga, Wardha, Wainganga, Pranhita (combined flow of Wainganga, Penganga, Wardha), Indravati, Maner and the Sabri.

110 Ans: B

Exp:

- The Chenab river rises in the **upper Himalayas in the Lahaul and Spiti district of Himachal Pradesh** state. **Hence, statement 1 is not correct.**
 - ◆ The river is formed by the confluence of two rivers, Chandra and Bhaga, at Tandi, 8 km southwest of Keylong, in the Lahaul and Spiti district.
 - The Bhaga river originates from Surya taal lake, which is situated a few kilometers west of the Bara-lacha la pass in Himachal Pradesh.
 - The Chandra river originates from glaciers east of the same pass (near Chandra Taal).
- Chenab flows through the Jammu region of **Jammu and Kashmir** into the plains of **Punjab**, Pakistan, before flowing into the Indus River. **Hence, statement 2 is correct.**
- Some of the important projects/dams on Chenab:
 - ◆ Ratle Hydro Electric Project
 - ◆ Salal Dam- hydroelectric power project near Reasi
 - ◆ Dul Hasti Hydroelectric Plant- power project in Kishtwar District
 - ◆ Pakal Dul Dam (under construction)- on a tributary Marusadar River in Kishtwar District
- The **Pong Dam** is built on the Beas river. **Hence, statement 3 is not correct.**

111 Ans: C

Exp:

- The **West Bank** is sandwiched between **Israel and Jordan**. One of its major cities is Ramallah, the de facto administrative capital of Palestine. **Hence, statement 2 is correct.**
 - ◆ Israel took control of it in the 1967 war and has over the years established settlements there.
- The **Gaza Strip is located between Israel and Egypt**. Israel occupied the strip after 1967, but relinquished control of Gaza City and day-to-day administration in most of the territory during the Oslo peace process. **Hence, statement 3 is correct.**

- ◆ In 2005, Israel unilaterally removed Jewish settlements from the territory, though it continues to control international access to it.
- The **Golan Heights** is a **strategic plateau** that **Israel captured from Syria** in the 1967 war. Israel effectively annexed the territory in 1981. **Hence, statement 1 is not correct.**
- ◆ The US has officially recognized Jerusalem and Golan Heights as part of Israel.



112 Ans: A

Exp:

- Researchers from Sweden's University of Gothenburg have been able to obtain data from underneath **Thwaites Glacier**, also known as the '**Doomsday Glacier**'.
- They find that the supply of warm water to the glacier is larger than previously thought, triggering concerns of faster melting and accelerating ice flow.
- Doomsday Glacier is 120 km wide at its broadest, fast-moving, and melting fast over the years. Because of its size (1.9 lakh square km), it contains enough water to raise the world sea level by more than half a metre.
- Studies have found the amount of ice flowing out of it has nearly doubled over the past 30 years.
- Today, Thwaites's melting already contributes 4% to global sea level rise each year.
- It is estimated that it would collapse into the sea in 200-900 years.
- Thwaites is important for **Antarctica** as it slows the ice behind it from freely flowing into the ocean.
- Because of the risk it faces, and poses, Thwaites is often called the Doomsday Glacier (Doomsday meaning warning or threat, something that can cause destruction). **Hence, option A is correct.**

113 Ans: A

Exp:

- Geographically, **Northern Ireland** is part of Ireland. **Politically**, it's part of the United Kingdom (UK). **Hence, statement 1 is correct.**
- Ireland, long dominated by the UK, broke free about 100 years ago after centuries of colonisation and an uneasy union.
 - ◆ 26 of its 32 counties became an independent, Roman Catholic-majority country.
 - ◆ **6 counties in the north, which have a Protestant majority, stayed British.**
 - ◆ Northern Ireland's **Catholic minority** experienced discrimination in the Protestant-run state. **Hence, statement 2 is not correct.**



114 Ans: B

Exp:

- The Himalayas are the **highest and the youngest fold mountain ranges** of the world. **Hence, statement 1 is correct.**
 - ◆ Their geological structure is young, weak and flexible since the Himalayan uplift is an ongoing process, making them one of the highest earthquake-prone regions of the world.
- It separates India, along its north-central and northeastern frontier, from China (Tibet).
- The Himalayas are a series of parallel mountain ranges extending along the North-West to the South-East direction (known as the Strike of the Himalayas). They include:

- ◆ Trans-Himalayas
- ◆ The Greater Himalayas or Himadri
- ◆ The Lesser Himalayas or Himachal
- ◆ Shiwaliks or the Outer Himalayas
- ◆ The Eastern Hills or Purvanchal
- ◆ Hence, statement 2 is not correct.

115 Ans: C

Exp:

- Russian scientists have launched **one of the world's biggest underwater neutrino telescopes** called the Baikal-GVD (Gigaton Volume Detector) in the waters of Lake Baikal, the **world's deepest lake situated in Siberia**. Hence, statement 1 is correct.
- The construction of this telescope, which started in 2016, is motivated by the mission to study in detail the elusive fundamental particles called neutrinos and to possibly determine their sources.
- Baikal-GVD Telescope is one of the three largest neutrino detectors in the world along with the IceCube at the South Pole and ANTARES in the Mediterranean Sea.
- GVD is designed to detect high-energy neutrinos that may have come from the Earth's core, or could have been produced during nuclear reactions in the Sun. Hence, statement 2 is correct.
- It will aid scientists' understanding of the origins of the universe since some neutrinos were formed during the Big Bang, others continue to be formed as a result of supernova explosions or because of nuclear reactions in the Sun.

116 Ans: B

Exp:

- Cuba is a country of the West Indies and one of the more-influential states of the Caribbean region.
 - ◆ It is situated to the south of the Tropic of Cancer at the intersection of the **Atlantic Ocean (north and east, but not south)**, the **Gulf of Mexico (west)**, and the **Caribbean Sea (south) (not surrounded by Pacific Ocean)**. Hence, statement 1 is not correct.
- India was amongst the first countries to extend recognition to Cuba after the 1959 Revolution and both have maintained close contacts with each other in various international fora, such as the United Nations (UN), Non-Aligned Movement (NAM), World Trade Organization (WTO), etc.
 - ◆ Cuba has also joined the **International Solar Alliance**, an India-France initiative. Hence, statement 2 is correct.



117 Ans: C

Exp:

- The Sulphur Dioxide (SO₂) emissions from a volcanic eruption in the Caribbean (La Soufriere Volcano) have reached India, sparking fear of increased pollution levels in the northern parts of the country and acid rain.
- The La Soufriere Volcano is **an active stratovolcano on the Caribbean island of Saint Vincent** in Saint Vincent and the Grenadines. Hence, statement 1 is correct.
- A stratovolcano is a tall, conical volcano composed of one layer of hardened lava, tephra, and volcanic ash. These volcanoes are **characterized by a steep profile and periodic, explosive eruptions**. Hence, statement 2 is correct.

118. Ans: C

Exp:

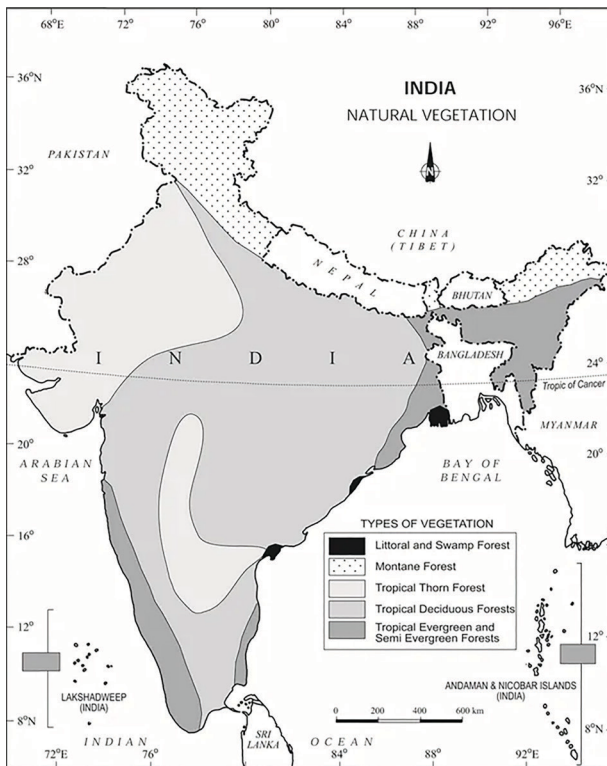
- The Kopili fault zone is a 300 km long and 50 km wide lineament (linear feature) extending from the **western part of Manipur up to the tri-junction of Bhutan, Arunachal Pradesh and Assam**. Hence, statement 2 is correct.
- The area is seismically very active falling in the highest Seismic Hazard zone V associated with collisional tectonics where Indian plate subducts beneath the Eurasian Plate. Hence, statement 1 is correct.

119. Ans: C

Exp:

- **Tropical Deciduous Forests** are also known as **Monsoon Forests**.

- Moist Deciduous Forests are found in the north-eastern states along the **foothills of Himalayas, eastern slopes of the Western Ghats** and Odisha.
 - Dry Deciduous Forests are found throughout the northern part of the country except in the north-east.
- These forests are found in the regions which record rainfall between 70-200 cm.
- Trees of the moist deciduous forest include: **Teak, sal, shisham, hurra, mahua, amla, semul, kusum, and sandalwood.**
 - Tendu, palas, amaltas, bel, khair, axlewood, etc.** are the common trees of dry deciduous forests.
- Hence, option C is correct.



120. Ans: D

Exp:

- India is one of the highly earthquake affected countries because of the presence of technically active young fold mountains - Himalaya.
- India has been **divided into four seismic zones** (II, III, IV, and V) based on scientific inputs relating to seismicity, earthquakes occurred in the past and tectonic setup of the region. Hence, statement 1 is not correct.

- Previously, earthquake zones were divided into five zones with respect to the severity of the earthquakes but the **Bureau of Indian Standards (BIS)** grouped the country into four seismic zones by unifying the first two zones.
- BIS** is the **official agency for publishing the seismic hazard maps and codes.** Hence, statement 2 is not correct.

121. Ans: C

Exp:

- Chad is a landlocked state in north-central Africa. Hence, statement 1 is not correct.
- It is named after Lake Chad.
 - This is the second-largest lake in Africa (after Lake Victoria) and its basin covers parts of Nigeria, Niger, Chad and Cameroon.
- Chad is also a part of the Sahel region. Hence, statement 2 is not correct.
 - Sahel is a semi-arid region of western and north-central Africa extending from Senegal eastward to Sudan.
 - It forms a transitional zone between the arid Sahara (desert) to the north and the belt of humid savannas to the south.
- Chad is a member country of International Solar Alliance (ISA), an India-France initiative.
 - The increase in the **import of Crude Oil from Chad** is the main reason for the **significant increase in the bilateral trade** between India and Chad. (USD 513.59 million in 2018-19). Hence, statement 3 is correct.



122. Ans: C

Exp:

- **Black Sea is an inland sea** located between far-southeastern Europe and the far-western edges of the continent of Asia and the country of Turkey.
 - ◆ It connects to the Mediterranean Sea first through the Bosphorus Strait, then through the Sea of Marmara and the Dardanelles Strait, then south through the Aegean Sea and the Sea of Crete.
 - ◆ The Black Sea is also connected to the Sea of Azov by the Strait of Kerch.
- The countries bordering the Black Sea include: Romania, **Bulgaria**, **Ukraine**, Russia, Georgia, and Turkey. **Hence, option C is correct.**



123. Ans: D

Exp:

- The Chenab Bridge is the **world's highest railway bridge** and is part of the Udhampur-Srinagar-Baramulla rail link project (USBRL). **Hence, statement 1 is correct.**
 - ◆ Recently, Indian Railways completed the arch closure of the iconic Chenab Bridge in Jammu & Kashmir.
- The Project was declared as a **Project of National Importance** in March 2002. **Hence, statement 2 is correct.**
- This bridge is 1,315-metre long and is the highest railway bridge in the world being 359 metres above the river bed level.
 - ◆ It is arguably the biggest civil-engineering challenge faced by any railway project in India in recent history.
- The Bridge is designed to withstand high wind speed up to 266 Km/Hour.
 - ◆ Moreover, it is designed to bear **earthquake forces of highest intensity zone-V** in India. **Hence, statement 3 is correct.**

124. Ans: B

Exp:

- The **Red Sea is a semi-enclosed tropical basin**, bounded by **northeastern Africa**, to the west, and the **Arabian peninsula**, to the east. **Hence, statement 1 is not correct.**
 - ◆ The Mediterranean Sea is an almost completely enclosed water body separating Africa (south) and Europe (north)
- The elongated and narrow-shaped basin **extends between the Mediterranean Sea**, to the north-west, and the **Indian Ocean**, to the south-east. **Hence, statement 2 is correct.**
- At the northern end, it separates into the Gulf of Aqaba and the Gulf of Suez, which is connected to the Mediterranean Sea via the Suez Canal.
- At the southern end, it is connected to the Gulf of Aden, and the outer Indian Ocean, via the Strait of Bab-el-Mandeb.
- It is surrounded by desert or semi-desert areas, with no major freshwater inflow.



125. Ans: C

Exp:

- Iran shares its land borders with Pakistan, Afghanistan, Turkmenistan, Iraq and Turkey (and not with Syria). **Hence, statement 1 is not correct.**
- Recently, China and Iran have signed a 25-year “strategic cooperation pact” which includes “political economic and strategic components”.
 - The agreement comes amid a major push from China to back Iran to deal with the continuing weight of sanctions reinstated by the US after its withdrawal from the Iranian nuclear deal.
- Iran relies on China as its largest trading partner. **Hence, statement 2 is not correct.**



126. Ans: B

Exp:

- The **Mahanadi River system is the third largest of peninsular India** after Godavari and Krishna, and the largest river of Odisha state. **Hence, statement 1 is not correct.**
- The catchment area of the river extends to **Chhattisgarh, Madhya Pradesh, Odisha, Jharkhand and Maharashtra**. **Hence, statement 2 is correct.**
 - Its basin is bounded by the Central India hills on the north, by the Eastern Ghats on the south and east and by the Maikala range on the west.
- The **Hirakud dam is built across river Mahanadi** at about 15 km upstream of Sambalpur town in the state of Odisha. **Hence, statement 3 is not correct.**
 - The **Tehri Dam**, tallest in India, is a multi-purpose rock and earth-fill embankment dam on the **Bhagirathi River** near Tehri in Uttarakhand, India.

127. Ans: A

Exp:

- Recently, the Prime Minister inaugurated **Bharat Bangla Maitri Bridge** in Tripura's South district.
 - The construction was taken up by the National Highways and Infrastructure Development Corporation Ltd at a project cost of Rs. 133 crore.
- The bridge **'Maitri Setu' has been built over the Feni river** which flows between Indian boundary in Tripura State and Bangladesh. **Hence, statement 2 is not correct.**
 - Feni originates in the South Tripura district.** The river passes through Sabroom town on the Indian side, and meets the Bay of Bengal after it flows into Bangladesh. **Hence, statement 1 is correct.**
 - The 1.9 Km long bridge joins Sabroom (in Tripura) with Ramgarh (in Bangladesh).
 - The name 'Maitri Setu' symbolises growing bilateral relations and friendly ties between India and Bangladesh.

128. Ans: C

Exp:

- Mt. Sinabung (2,600-metre) is located in Karo regency, North Sumatra.
 - Sinabung is among more than 120 active volcanoes** in Indonesia, which is prone to seismic upheaval due to its location on the **Pacific Ring of Fire**.
 - The volcano was dormant for 400 years before exploding in 2010.
 - It exploded again in 2014, 2016 and 2020.
- Semeru** is the highest volcano in Java and one of the most active.
 - It previously erupted in December, 2019.
 - Indonesia, with the maximum number of active volcanoes in the world, is prone to seismic upheaval due to its location on the **Pacific's Ring of Fire**. **Hence, statements 1 and 2 are correct.**
 - It is also known as "The Great Mountain".

129. Ans: A

Exp:

- A **convergent plate boundary** is formed when tectonic plates crash into each other. They are **also known as destructive boundaries**.
 - These boundaries are often subduction zones, where the heavier plate slips under the lighter plate, creating a deep trench.
- A **divergent boundary** is formed by tectonic plates pulling apart from each other. They are known as **constructive boundaries**. **Hence, statement 2 is not correct.**

- ◆ Divergent boundaries are the site of seafloor spreading and rift valleys.
- ◆ At divergent boundaries in the oceans, magma from deep in the Earth's mantle rises toward the surface and pushes apart two or more plates. Mountains and volcanoes rise along the seam. The process renews the ocean floor and widens the giant basins.
 - The best-known example of divergent boundaries is the **Mid-Atlantic Ridge** where the American Plates are separated from the Eurasian and African Plates.
 - This single mid-ocean ridge system connects the world's oceans, making the ridge the longest mountain range in the world (10,000 miles).
- ◆ On land, giant troughs such as the **Great Rift Valley in Africa** form where plates are tugged apart.
 - If the plates there continue to diverge, millions of years from now eastern Africa will split from the continent to form a new landmass.
 - A mid-ocean ridge would then mark the boundary between the plates. **Hence, statement 1 is correct.**

130. Ans: B

Exp:

- **Sangay volcano** is one of the highest active volcanoes in the world and one of Ecuador's most active ones. **Hence, option B is correct.**
 - ◆ Sangay is the southernmost stratovolcano (a volcano built up of alternate layers of lava and ash) in the northern volcanic zone of the Andes. It is 5230 m high.
 - ◆ The Andes is the longest above water mountain range in the world and boasts some of the highest peaks.
- **Sangay National Park** is located in the central part of Ecuador on the Andes mountains' eastern side. It is a world heritage site. The earliest report of a historical eruption was in 1628. More or less continuous eruptions were reported from 1728 until 1916, and again from 1934 to the present. Sangay has had frequent eruptions in historic times, mostly of strombolian type.
- Ecuador, part of the Pacific Rim's "Ring of Fire" region, has eight volcanoes such as Cotopaxi (5,897m), Cayambe (5,790m), Pichincha (4,784m) etc. in its territory.

131. Ans: D

Exp:

- The Bhadar is one of the major rivers of Kathiawar (Saurashtra) peninsula in Gujarat.
 - ◆ It **originates near Vaddi in Rajkot** district at an elevation of 261 m above mean sea level. **Hence, statement 1 is not correct.**
- It **flows through the Saurashtra region (does not cross the Aravali Range)** and finally confluence with Arabian sea at Naviobandar (Porbandar). **Hence, statement 2 is not correct.**
 - ◆ The total length of this river is 198 km. It drains about 1/7th of the area of Saurashtra.

132. Ans: C

Exp:

- The **Periyar River** is the longest river in the state of Kerala with a length of 244 km.
- It is also known as 'Lifeline of Kerala' as it is one of the few perennial rivers in the state.
 - ◆ A perennial river is a channel that has continuous flow in parts of its stream bed all year round.
- Periyar River originates from **Sivagiri hills of Western Ghats** and flows through the Periyar National Park. **Hence, statement 1 is correct.**
- The **main tributaries of Periyar** are Muthirapuzha, Mullayar, Cheruthoni and Perinjankutti. **Hence, statement 2 is correct.**

133. Ans: D

Exp:

- **Chambal River** is one of the most pollution-free rivers of India.
 - ◆ It originates at the Singar Chouri peak in the northern slopes of the Vindhya mountains (Indore, Madhya Pradesh).
 - ◆ From there, it flows in the North direction in Madhya Pradesh for a length of about 346 km and then follows a north-easterly direction for a length of 225 km through Rajasthan.
- It is a rainfed river and its basin is bounded by the Vindhyan mountain ranges and the Aravallis.
- The Chambal and its tributaries drain the Malwa region of northwestern Madhya Pradesh.
 - ◆ Main Tributaries: Banas, Kali Sindh, Sipra, Parbati, etc.
- **Hence, option D is correct.**

134. Ans: B

Exp:

- **Ken and Betwa** rivers originate in MP and are the tributaries of Yamuna. **Hence, statement 1 is correct.**

- ◆ Ken meets with Yamuna in Banda district of UP and with Betwa in Hamirpur district of UP.
- Recently, the Chief Ministers of Madhya Pradesh and Uttar Pradesh signed a memorandum of agreement to implement the Ken Betwa Link Project (KBLP), the first project of the National Perspective Plan for interlinking of rivers.
 - ◆ The **Ken-Betwa Link Project (KBLP)** is the river interlinking project that aims to **transfer surplus water from the Ken river in MP to Betwa in UP** to irrigate the drought-prone Bundelkhand region. **Hence, statement 2 is not correct.**
 - ◆ The project involves building a 77-metre tall and a 2-km wide Dhaudhan dam and a 230-km canal.

135. Ans: B

Exp:

- Mangroves are the plant communities occurring in inter-tidal zones along the coasts of tropical and subtropical countries.
 - ◆ Among the states and Union Territories, **West Bengal has the highest percentage of area under total Mangrove cover** followed by Gujarat and Andaman and Nicobar Islands. **Hence, statement 1 is not correct.**
- The Sunderbans is a vast contiguous mangrove forest ecosystem in the coastal region of Bay of Bengal spread over India and Bangladesh on the delta (world's largest) of the Ganges, Brahmaputra and Meghna rivers.
 - ◆ The **Sunderbans Delta is the only mangrove forest in the world inhabited by tigers.** **Hence, statement 2 is correct.**
- Sunderbans region was badly damaged by **Cyclone Amphan** in 2020.
 - ◆ **Cyclone Gati affected Somalia** in November, 2020 by causing landfall in the region. **Hence, statement 3 is not correct.**

136. Ans: A

Exp:

- The Cape of Good Hope is a rocky headland on the Atlantic coast of the Cape Peninsula in South Africa.
 - ◆ A headland is a narrow piece of land which sticks out from the coast into the sea.
- The Cape of Good Hope route joins Eastern Asia and Europe to southern parts of Africa.
 - ◆ The opening of the Suez Canal in 1869 provided a much shorter route from the Mediterranean Sea to the Indian Ocean, making the long trip around Africa inefficient.

- ◆ The Cape of Good Hope route is 8900 km longer than the Suez canal route and can take additional two weeks.
- A common misconception is that the Cape of Good Hope is the southern tip of Africa.
- Contemporary geographic knowledge instead states the **southernmost point of Africa is Cape Agulhas** about 150 km to the east-southeast. **Hence, statement 1 is correct.**
- The **warm-water Agulhas current** (Indian Ocean) meets the cold-water Benguela current (Atlantic ocean) between Cape Agulhas and Cape Point (about 1.2 km east of the Cape of Good Hope). **Hence, statement 2 is not correct.**

137. Ans.: B

Exp.:

- Map based question



138. Ans: C

Exp:

- The **Mullaperiyar dam, a gravity dam in Kerala** is a 126-year-old barrage (built between 1887-95) that has dangerously outlived its 50 years of life. **Hence, statement 1 is not correct.**
 - ◆ A gravity dam is one which is designed to withstand water by its own weight and resistance.
 - ◆ The dam is located in the Western Ghats, adjacent to the Periyar wildlife sanctuary, built during the British colonial period.
 - ◆ The dam is considered hazardous, not only because of its age but also for its location in an acknowledged **seismic zone (zone-III)**. **Hence, statement 3 is correct.**

- The dam is operated and maintained by Tamil Nadu for meeting the drinking water and irrigation requirements of five of its southern districts.
- ◆ According to a **999-year lease agreement made during the British rule the operational rights were handed over to Tamil Nadu. Hence, statement 2 is correct.**
- The lease allows Tamil Nadu to operate the dam and divert 640 million cubic metres of water annually for irrigation and power generation through a tunnel bored into the Western Ghat mountains that form a wall between the two states.

139. Ans: C

Exp:

- **Chambal River** is one of the most pollution-free rivers of India.
 - ◆ It originates at the **Singar Chouri peak** in the northern slopes of the Vindhya mountains (Indore, Madhya Pradesh). From there, it flows in the North direction in Madhya Pradesh for a length of about 346 km and then follows a north-easterly direction for a length of 225 km through Rajasthan. **Hence, statement 1 is correct.**
 - ◆ It enters U.P. and flows for about 32 km before joining the Yamuna River in Etawah District.
- It is a **rainfed river and its basin is bounded by the Vindhyan mountain ranges and the Aravallis**. The Chambal and its tributaries drain the Malwa region of northwestern Madhya Pradesh. **Hence, statement 2 is correct.**
- The Hadauti plateau in Rajasthan occurs in the upper catchment of the Chambal River to the southeast of the Mewar Plains.
- Tributaries: Banas, Kali Sindh, Sipra, Parbati, etc.
- Main Power Projects/ Dam: Gandhi Sagar Dam, Rana Pratap Sagar Dam, Jawahar Sagar Dam, and Kota Barrage.
- The National Chambal Sanctuary is located along river Chambal on the tri-junction of Rajasthan, Madhya Pradesh and Uttar Pradesh. It is known for critically endangered gharials, the red-crowned roof turtle, and the endangered Ganges river dolphin.

140. Ans: A

Exp:

- The Suez Canal is an **artificial sea-level waterway** running north to south across the Isthmus of Suez in Egypt, to **connect the Mediterranean Sea and the Red Sea. Hence, statement 1 is correct.**

- ◆ The canal separates the African continent from Asia.
- ◆ It provides the shortest maritime route between Europe and the lands lying around the Indian and western Pacific oceans.
- ◆ It is one of the world's most heavily used shipping lanes, carrying over 12% of world trade by volume.
- The Suez Canal is actually the first canal that directly links the Mediterranean Sea to the Red Sea. It was opened for navigation in November 1869.
 - ◆ The 150-year-old canal was **controlled by British and French interests in its initial years, but was nationalised in 1956 by Egypt. Hence, statement 2 is not correct.**
 - Suez Crisis, international crisis in the Middle East, precipitated in July 1956, when the Egyptian president, Gamal Abdel Nasser, nationalized the Suez Canal. The canal had been owned by the Suez Canal Company, which was controlled by French and British interests.
- The Canal was closed five times; the last time was the most serious one since it lasted for 8 years. The Canal was then reopened for navigation in June 1975.

141. Ans: C

Exp:

Little Andaman Island

- This island is part of the Little Andaman Group (Little Andaman is the counterpart of Great Andamans). This island is the fourth largest island in Andamans.
 - ◆ It is **famous by the name of its main village** and the largest settlement – **Hut Bay (rarely known by its other name Kwate-tu-kwage). Hence, statement 1 is correct.**
- At a distance of about 120 Kilometers by sea from the capital town of Port Blair, this island has become a tribal reserve from sometime near to 1957.
 - ◆ This is **considered home to the Onge Tribes**, even though there are multilingual settlers of Bengali, Tamil, Telugu, and Ranchi communities. **Hence, statement 2 is correct.**
- Lying at the southern end of the archipelago, Hut Bay Jetty is the only harbor for ships or boats coming into this island from the capital town – Port Blair.
 - ◆ Little Andamans is less explored due to the limited mode of connection with the capital town of Port Blair.

142. Ans: C

Exp:

- **Dam Rehabilitation and Improvement Project (DRIP)** aims to improve the safety and performance of selected existing dams and associated appurtenances in a sustainable manner.
- It also aims to explore the alternative incidental means at few of selected dams **to generate the incidental revenue for sustainable operation and maintenance of dams. Hence, statement 1 is correct.**
- This project is being funded by the **World Bank and the Asian Infrastructure Investment Bank (AIIB). Hence, statement 2 is correct.**

143. Ans: C

Exp:

- Myanmar, also known as Burma, is in South East Asia and neighbours Thailand, Laos, Bangladesh, China and India. **Hence, statement 1 is correct.**
 - ◆ The biggest city is Yangon (Rangoon) but the capital is Nay Pyi Taw.
- India has cultivated several infrastructure and development projects with Myanmar, which it sees as the "gateway to the East" and ASEAN countries:
 - ◆ India assists infrastructure projects such as the India-Myanmar-Thailand trilateral highway and the **Kaladan Multi-Modal Transit Transport Project.**
 - The **Kaladan project will link Kolkata to Sittwe in Myanmar** and then from Myanmar's Kaladan river to India's north-east. **Hence, statement 2 is correct.**



144. Ans: A

Exp:

- Dhauliganga originates from **Vasudhara Tal**, perhaps the largest glacial lake in **Uttarakhand. Hence, statement 1 is correct.**

- Dhauliganga is one of the important tributaries of Alaknanda, the other being the Nandakini, Pindar, Mandakini and Bhagirathi.

◆ Dhauliganga is joined by the Rishiganga river at Raini. It merges with the Alaknanda at **Vishnuprayag. Hence, statement 2 is not correct.**

- There it loses its identity and the Alaknanda flows southwest through Chamoli, Maithana, Nandaprayag, Karnaprayag until it meets the Mandakini river, coming from the north at Rudraprayag.
- After subsuming Mandakini, the Alaknanda carries on past Srinagar, before joining the Ganga at Devprayag near.

◆ Alaknanda then disappears and the mighty Ganga carries on its journey, first flowing south then west through important pilgrimage centres such as Rishikesh and finally descending into the Indo-Gangetic plains at Haridwar.

145. Ans: D

Exp:

- Recently, a border dispute between Odisha and Andhra Pradesh once again resurfaced when **Andhra Pradesh announced panchayat polls in three villages of Kotia panchayat** in Koraput district of Odisha.
- In another dispute, in 2006 Odisha sent a complaint to the Central Government under Section 3 of the **Inter-State River Water Disputes (ISRWD) Act, 1956** regarding its water disputes with Andhra Pradesh pertaining to Inter-State River Vamsadhara.
 - ◆ **Vamsadhara River is an east-flowing river** which originates in Kalahandi district of Odisha, flows in Odisha, along its boundary with Andhra Pradesh and **finally joins the Bay of Bengal** (not into Mahanadi) at Kalingapatnam, Andhra Pradesh. **Hence, statement 1 is not correct.**
- The border dispute between Odisha and Jharkhand arises due to change in course of river Baitarani. **The Baitarani river originates from the hill ranges of Keonjhar district of Odisha. Hence, statement 2 is not correct.**

146. Ans: C

Exp:

- The **Kurubas of Karnataka** are a **traditional sheep rearing community. Hence, statement 1 is correct.**
- Presently, the Kurubas constitute 9.3% of the state's population and **come under the backward classes category.**

- ◆ A massive rally was organised by the Kuruba community to urge the state government of Karnataka to recommend the Centre **inclusion of the community in the Scheduled Tribe (ST) list**. Hence, **statement 2 is not correct**.

- Kurubas are the **fourth largest caste** in Karnataka after the **Lingayats, Vokkaligas and Muslims**. Hence, **statement 3 is not correct**.

- ◆ Kurubas in other states are known by different names – as Dhangars in Maharashtra, Rabaris or Raikas in Gujarat, Dewasis in Rajasthan and Gadarias in Haryana.

147. Ans: C

Exp:

- India is one of the highly earthquake affected countries because of the presence of tectonically active young fold mountains, Himalayas.
- India has been **divided into four seismic zones (II, III, IV, and V)** based on scientific inputs relating to seismicity, earthquakes occurred in the past and tectonic setup of the region. Hence, **statement 1 is correct**.
 - ◆ Previously, earthquake zones were divided into five zones with respect to the severity of the earthquakes but the Bureau of Indian Standards (BIS) grouped the country into four seismic zones by unifying the first two zones.
 - ◆ BIS is the official agency for publishing the seismic hazard maps and codes. Hence, **statement 3 is correct**.
- Seismic waves are the vibrations from earthquakes that travel through the Earth and are recorded on instruments called seismographs.
 - ◆ Seismographs record a zigzag trace that shows the varying amplitude of ground oscillations beneath the instrument.
- The earthquake events are scaled either according to the magnitude or intensity of the shock.
 - ◆ The **magnitude scale is known as the Richter scale**. The magnitude relates to the energy released during the earthquake which is expressed in absolute numbers, 0-10. Hence, **statement 2 is not correct**.
 - ◆ The intensity scale or Mercalli scale takes into account the visible damage caused by the event. The range of intensity scale is from 1-12.

148. Ans: C

Exp:

- With the **dissolution of the U.S.S.R. (the Soviet Union)** in December 1991, **Ukraine gained full independence**.

- ◆ The country changed its official name to Ukraine, and it helped to found the Commonwealth of Independent States (CIS), an association of countries that were formerly republics of the Soviet Union. Hence, **statement 1 is correct**.

- Ukraine, a country located in eastern Europe. The capital is Kyiv (Kiev), located on the Dnieper River in north-central Ukraine.
- Ukraine is bordered by Belarus to the north, Russia to the east, **the Sea of Azov and the Black Sea to the south**, Moldova and Romania to the southwest, and Hungary, Slovakia, and Poland to the west. Hence, **statement 2 is correct**.
- In the far southeast, Ukraine is separated from Russia by the Kerch Strait, which connects the Sea of Azov to the Black Sea.



149. Ans: A

Exp:

- The South China Sea is an arm of western Pacific Ocean in Southeast Asia. It is south of China, east & south of Vietnam, west of the Philippines and north of the island of Borneo.
 - ◆ It is **connected by Taiwan Strait** with the **East China Sea** and **by Luzon Strait** with the Philippine Sea. Hence, **statement 1 is correct**.
 - ◆ Bordering states & territories (clockwise from north): the People's Republic of China, the Republic of China (Taiwan), the Philippines, Malaysia, Brunei, Indonesia, Singapore and Vietnam.
 - ◆ Strategic Importance: This sea holds tremendous strategic importance for its location as it is the connecting link between the Indian Ocean and the Pacific Ocean (Strait of Malacca).
- **Contesting Claims Over Islands:**

- ◆ The Paracel Islands are claimed by China, Taiwan and Vietnam.
- ◆ The Spratly Islands are claimed by China, Taiwan, Vietnam, Brunei and Philippines. Hence, statement 2 is not correct.
- ◆ The Scarborough Shoal is claimed by Philippines, China and Taiwan.



150. Ans: D

Exp:

- Countries that border Baltic Sea are: Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Poland, Russia, Sweden. Norway doesn't border the Baltic Sea. Hence, option D is correct.



151. Ans: C

Exp:

HinduKush Himalayan (HKH) Region:

- The HKH region spans Afghanistan, Bangladesh, Bhutan, China, India, Kyrgyzstan, Mongolia, Myanmar, Nepal, Pakistan, Tajikistan, and Uzbekistan. Hence, statement 1 is correct.
- It traverses about 5 million square kilometres and hosts a large and culturally diverse population.

- It is considered the Third Pole (after the North and South Poles), and has significant implications for climate.
- It contains vast cryospheric zones (frozen water parts) and is also the world's largest store of snow and ice outside the polar region. Hence, statement 2 is correct.



152. Ans: C

Exp:

- The Thar Desert is an arid region that covers over 2,00,000 sq km. It forms a natural boundary along the border between India and Pakistan.
- ◆ The surface consists of aeolian (wind-deposited) sand that has accumulated over the past 1.8 million years.
- The desert presents an undulating surface, with high and low sand dunes separated by sandy plains and low barren hills, or bhakars, which rise abruptly from the surrounding plains.
- ◆ The dunes are in continual motion and take on varying shapes and sizes.
- ◆ Barchan, also spelled Barkhan, crescent-shaped sand dune produced by the action of wind predominately from one direction. One of the commonest types of dunes, it occurs in sandy deserts all over the world. Hence, statement 2 is correct.
- It is bordered by the irrigated Indus River plain to the west, the Punjab Plain to the north and northeast, the Aravalli Range to the southeast, and the Rann of Kachchh to the south. Hence, statement 1 is correct.
- The subtropical desert climate there results from persistent high pressure and subsidence at that latitude.

- ◆ The prevailing **southwest monsoon winds** that bring rain to much of the subcontinent in summer **tend to bypass the Thar to the east.**

153. Ans: C

Exp:

- During the British Colonial Rule, until 1972, Arunachal Pradesh was known as the North-East Frontier Agency (NEFA).
 - ◆ On 20th January, 1972, it became a Union Territory and named Arunachal Pradesh
 - ◆ The **state was formed out of Assam** in the year 1987 through the **55th amendment to the Indian Constitution** in 1986, Arunachal Pradesh became the 24th state of the Indian Union on 20th February, 1987. **Hence, statement 2 is correct.**
- **Biodiversity:** State Animal of Arunachal Pradesh is **Mithun** (also known as **Gayal**). **Hence, statement 3 is correct.**
 - ◆ The State Bird is Hornbill
- **Geographical Location:** In the west, Arunachal Pradesh is bordered by **Bhutan** and in the north falls the **Tibetan region of China**.
 - ◆ In the Southeastern region falls Nagaland and **Myanmar** and to the southwestern region falls Assam. **Hence, statement 1 is not correct.**



154. Ans. B

Exp.

Banihal Pass	Kashmir Valley with the outer Himalaya and the Plains to the south.
Bara-Lacha-La Pass	Lahaul district in Himachal Pradesh with Leh district in Ladakh.
Fotu La pass	Leh with Kargil of Ladakh
Rohtang Pass	Kullu Valley with the Lahaul and Spiti Valleys of Himachal Pradesh.
Shipki La Pass	Kinnaur district of Himachal Pradesh with Autonomous Region of Tibet, China.
Jelep La pass	Sikkim with Autonomous Region of Tibet, China.
Nathu La Pass	Sikkim with Autonomous Region of Tibet, China.
Lipu Lekh pass	Chaudans valley of India with Autonomous Region of Tibet, China. It is located close to the tri junction of Uttarakhand (India), China and Nepal.
Khaldung La	Ladakh with Siachen glacier. It is the highest motorable pass in the world.
Bom di La	It is in Arunachal Pradesh

155. Ans: A

Exp:

- Sambhar Lake is the **largest inland salt lake in India**. It represents the depression of the Aravalli Range. **Hence, statement 1 is correct.**
 - ◆ The lake's salt supply was worked by the Mughal dynasty (1526–1857) and it was later owned jointly by the Jaipur and Jodhpur princely states.
- It is a **wetland of 'international importance'** under the Ramsar Convention, declared in 1990. **Hence, statement 2 is correct.**
- The area occupied by this lake differs from season to season, so roughly it is between 190 and 230 sq km.
 - ◆ Also, being an extensive saline wetland, the depth of the lake also fluctuates from season to season. During peak summers (dry time), the depth measures as low as 60 cm but during the monsoons, it goes up to 3 m.
- It receives water from six rivers, namely **Samaod, Khari, Mantha, Khandela, Medtha, and Roopangarh**. **Hence, statement 3 is not correct.**

156. Ans. D

Exp:

- A recent study that looked at the rainfall pattern in the past 119 years found a decreasing trend at Cherrapunji (Meghalaya) and nearby areas.
- The rainfall in Cherrapunji-Mawsynram is caused by the **orography favouring a monsoon wind regime**. **Hence, statement 1 is correct.**
- The changes in the Indian Ocean temperature have a huge effect on the rainfall in the region.
- Increasing sea surface temperatures in the tropical Indian Ocean region was pointed out by the first climate change assessment report published by the Union Ministry of Earth Sciences in June 2020. **Hence, statement 2 is correct.**
- Another reason for decline in rainfall in this region is that there is sizable deforestation in the region. The study saw the decrease in vegetation cover and increase in the areas of cropland mainly from the year 2006 onwards. **Hence, statement 3 is correct.**

157. Ans: d

Explanation:

- Lightning is a very rapid and massive discharge of electricity in the atmosphere. It is the process of occurrence of a natural 'electrical discharge of very short duration and high voltage between a cloud and the ground or within a cloud', accompanied by a bright flash and sound, and sometimes thunderstorms.
- As water vapour moves to temperatures below zero, droplets change into small ice crystals. As they continue upwards, they gather mass, until they become so heavy that they start descending.
- It leads to a system where smaller ice crystals move upwards while larger ones come down. The resulting collisions trigger release of electrons, in a process very similar to the generation of electric sparks. **Hence, statement 1 is correct.**
- The process results in a situation in which the top layer of the cloud gets positively charged while the middle layer is negatively charged.
 - ◆ The difference in electrical charge between the top and bottom of a cloud creates lightning. **Hence, statement 2 is correct.**
- The Earth is a good conductor of electricity. While electrically neutral, it is relatively positively charged compared to the middle layer of the cloud. As a result,

an estimated 20-25% of the current flow is directed towards the Earth. It leads to the lightning strikes on the ground. **Hence, statement 3 is correct.**

158. Ans. A

Exp

- According to the India Meteorological Department (IMD)'s State of the Climate Report, the year 2020 was the eighth warmest since India started keeping records in 1901.
 - ◆ Such temperature trends were reported despite the cooling effect of La Nina, a global weather pattern that prevailed in 2020 and is linked to substantially below normal temperatures in winter.
- El Nino and La Nina are the extreme phases of the El Niño and the Southern Oscillation (ENSO) cycle.
 - ◆ El Niño has a warming influence on global temperatures, whilst La Nina has the opposite effect.
- **La Nina typically has a cooling effect on global temperatures**, but this is now offset by global warming due to greenhouse gas emissions. **Hence, statement 1 is correct.**
 - ◆ As a result, La Nina years now are warmer than years with El Nino events of the past.
- ENSO is a periodic fluctuation in sea surface temperature and the air pressure of the overlying atmosphere across the equatorial **Pacific Ocean**. It has a major influence on weather and climate patterns such as heavy rains, floods and drought. **Hence, statement 2 is not correct.**

159. Ans: B

Explanation:

- **Strait of Hormuz** is the waterway separating Iran and Oman, linking the **Persian Gulf to the Gulf of Oman** and the Arabian Sea. **Hence, option B is correct.**
 - ◆ On the north coast lies Iran, and on the south are the UAE and Musandam, an enclave of Oman.
 - ◆ The Strait is 21 miles wide at its narrowest point, but the shipping lane is just two miles wide in either direction.
- It is one of the world's most strategically important choke points.
 - ◆ As much as 18 million barrels of oil pass through the Strait of Hormuz every day, accounting for one-third of the global oil trade.



160. Ans: B

Exp:

- The Grand Renaissance Dam is being constructed by **Ethiopia on the river Blue Nile**.
 - ◆ Given the **dam's location on the Blue Nile tributary**, it would allow **Ethiopia to gain control** of the flow of the river's waters. **Hence, statement 1 is not correct.**
 - ◆ Blue Nile is a tributary of the Nile river and it carries about two-thirds of the river's water volume and most of the silt.
- The River Nile is in Africa. It originates in **Burundi, south of the equator**, and flows northward through northeastern Africa, eventually flowing through Egypt and finally draining into the **Mediterranean Sea**. **Hence, statement 2 is correct.**
- The Nile River is the **longest river** in the world. The Nile has a length of about **6,695 kilometers (4,160 miles)**.
 - ◆ The Nile basin is huge and includes parts of **Tanzania, Burundi, Rwanda, Congo (Kinshasa), Kenya**.
- The Nile River forms an **arcuate delta** as it **empties into the Mediterranean Sea**. Deltas with **triangular or fan-shape** are called **arcuate (arc-like) deltas**. **Hence, statement 3 is correct.**
- The Nile is formed by three principal streams: **the Blue Nile, the Atbara, and the White Nile**.



161. Ans: C

Exp:

- Recently, **Semeru volcano** erupted in Indonesia's East Java province. Other volcanoes, such as the Merapi volcano (Java) and Sinabung volcano (Sumatra), also erupted recently.
- Semeru - also known as "The Great Mountain" - is the highest volcano in Java and one of the most active.
 - ◆ It previously erupted in December, 2019.
 - ◆ Indonesia, with the maximum number of active volcanoes in the world, is **prone to seismic upheaval** due to its location on the **Pacific's Ring of Fire**. **Hence, statement 2 is correct.**

- ◆ Semeru volcano is also the part of the Island arcs formed by the subduction of the Indo-Australian plate below Sunda Plate (part of Eurasian Plate). The trench formed here is called Sunda trench whose major section is the Java Trench. **Hence, statement 1 is correct.**

162. Ans: C

Exp:

- According to the India Meteorological Department (IMD), a western disturbance is likely to affect the Himalayan region soon.
 - ◆ The disturbances will result in fairly widespread light to moderate snowfall and rains in the plains of Jammu.
 - ◆ Western Disturbance (WD), labelled as an **extra-tropical storm originating in the Mediterranean**, is an area of low pressure that brings sudden showers, snow and fog in northwest India. **Hence, option A is correct.**
- In the term "extra-tropical storm", storm refers to low pressure. "Extra-tropical" means outside the tropics. As the WD originates outside the tropical region, the word "extra-tropical" has been associated with them.
- A WD is associated with rainfall, snowfall and fog in northern India. It arrives with rain and snow in Pakistan and northern India. The moisture which WDs carry with them comes from the Mediterranean Sea and/or from the Atlantic Ocean. **Hence, option B is correct.**
- WD brings winter and pre-monsoon rain and is **important for the development of the Rabi crop** in the Northern subcontinent. **Hence, option C is not correct.**
- The WD disturbance travels from the **"western" to the eastern direction**. These **travel eastwards on high-altitude westerly jet streams** - massive ribbons of fast winds traversing the earth from west to east. **Hence, option D is correct.**

163. Ans: A

Exp:

- The Union Cabinet has given its approval for 850 MegaWatt (MW) Ratle hydropower project on Chenab river in Jammu and Kashmir.
 - ◆ **Ratle Hydroelectric Project** is a run-of-the-river hydroelectric power station on the **Chenab River, Kishtwar district of the Indian Union Territory of Jammu and Kashmir**. **Hence, statement 3 is not correct.**
- Chenab River rises in the upper Himalayas in the Lahaul and Spiti district of Himachal Pradesh.

- ◆ The river is formed by the **confluence of two rivers, Chandra and Bhaga**, at Tandi, 8 km southwest of Keylong, in the Lahaul and Spiti district. **Hence, statement 1 is correct.**

- The Bhaga river originates from Surya taal lake, which is situated a few kilometers west of the Bara-lacha la pass in Himachal Pradesh. **Hence, statement 2 is correct.**
- The Chandra river originates from glaciers east of the same pass (near Chandra Taal).

- Chenab River flows through the Jammu region of Jammu and Kashmir into the plains of Punjab, Pakistan, before flowing into the Indus River.

164. Ans: B

Exp:

- The **Mohorovicic Discontinuity**, or "Moho," is the **boundary between the crust and the mantle**. **Hence, statement 1 is not correct.**
- In geology the word "discontinuity" is used for a surface at which seismic waves change velocity.
- One of these surfaces exists at an average depth of 8 kilometres beneath the ocean basin and at an average depth of about 32 kilometres beneath the continents.
- **At this discontinuity, seismic waves accelerate**. This surface is known as the Mohorovicic Discontinuity or often simply referred to as the "Moho." **Hence, statement 2 is correct.**
- The Mohorovicic Discontinuity was discovered in 1909 by Andrija Mohorovicic, a Croatian seismologist.

165. Ans: D

Exp:

Arunachal Pradesh:

- The state was formed out of Assam in the year 1987.
 - ◆ In the west, Arunachal Pradesh is bordered by Bhutan and in the **north falls the Tibetan region of China**.
 - ◆ In the **Southeastern region falls Nagaland and Myanmar** and to the southwestern region falls Assam. **Hence, statement 1 is correct.**
- The state is home to 26 major tribes, there are more than 100 sub-tribes, many of them are still unexplored. About 65% of the population of the state is tribals.
- Biodiversity:
 - ◆ State Animal: Mithun (also known as Gayal). **Hence, statement 3 is correct.**
 - ◆ State Bird: Hornbill
 - ◆ It is also home to the Dihang Dibang Biosphere Reserve.

● **Protected Areas:**

- ◆ Namdapha National Park
- ◆ Mouling National Park
- ◆ Sessa Orchid Sanctuary
- ◆ Dibang Wildlife Sanctuary
- ◆ Pakke Tiger Reserve

● **Hence, statement 2 is correct.**

166. Ans: B

Exp:

- The formalization of Mizoram State took place on 20th February, 1987 after the 53rd Amendment of the Indian Constitution, 1986.
- The Mizo hills area became the **Lushai Hills district** within Assam at the time of independence. Further, in 1954 it was renamed the Mizo Hills District of Assam.
 - ◆ Mizoram was granted the **status of a Union Territory in 1972** after signing an accord with the moderates of the **Mizo National Front (MNF)**.
 - ◆ The **Union Territory of Mizoram was conferred the status of a full state in 1986** after signing of a memorandum of settlement (**Mizoram Peace Accord**) between the Central government and the MNF. **Hence, statement 3 is not correct.**
- According to **India State of Forest Report (ISFR), 2021** Mizoram has the **maximum forest cover as a percentage** of their own geographical area at (84.53%) from the **North eastern region of the country**. **Hence, statement 1 is correct.**
- **Protected Areas:**
 - ◆ Dampa Tiger Reserve
 - ◆ Murlen National Park
 - ◆ Phawngpui National Park
 - ◆ Ngengpui Wildlife Sanctuary
 - ◆ Tawi Wildlife Sanctuary

● **Hence, statement 2 is correct.**

167. Ans: B

Exp:

- Iraq's Razzaza Lake was once a tourist attraction known for its beautiful scenery and an abundance of fish that locals depended on. Now, dead fish litter its shores and the once-fertile lands around it have turned into a barren desert.
- It's the second largest lake in Iraq and is part of a wide valley that includes the lakes of Habbaniyah, Tharthar and Bahr al-Najaf.
 - ◆ Lake Tharthar is the largest.
- **Hence, option B is correct.**

168. Ans: B

Exp:

- **More than a quarter of the world's wheat export comes from Russia and Ukraine.**
 - ◆ Russia is the world's largest exporter of wheat, accounting for more than 18% of international exports.
 - ◆ In 2019, Russia and Ukraine together exported more than a quarter (25.4 %) of the world's wheat. **Hence, statement 1 is correct.**
 - ◆ The top five countries that exported the highest dollar-value worth of wheat include Russia > United States > Canada > France > Ukraine.
- **Egypt is the world's biggest importer of wheat. Hence, statement 2 is correct.**
 - ◆ Turkey is also a big spender on Russian and Ukrainian wheat with 74% of its imports coming from those two countries in 2019.
- **India is the second largest producer of wheat** with a share of around 13.5% of world total production. Wheat is the second most important cereal crop in India after rice. It is the main food crop, in north and north-western part of the country.
 - ◆ Wheat is a rabi crop that requires a **cool growing season** and bright sunshine at the time of ripening.
 - ◆ Success of the Green Revolution contributed to the **growth of Rabi crops**, especially wheat.
 - ◆ The kharif cropping season is from July –**October during the south-west monsoon and the Rabi cropping season** is from October-March (winter). **Hence, statement 3 is not correct.**

169. Ans: C

Exp:

- Ocean currents are the continuous, predictable, directional movement of seawater. It is a massive movement of ocean water that is caused and influenced by various forces. They are like river flows in oceans.
- Ocean currents are influenced by two types of forces namely:
 - ◆ **Primary forces:**
 - Heating by solar energy: Heating by solar energy causes the water to expand. That is why, near the equator the ocean water is about 8 cm higher in level than in the middle latitudes. This causes a very slight gradient and water tends to flow down the slope.

- Wind: Wind blowing on the surface of the ocean pushes the water to move. Friction between the wind and the water surface affects the movement of the water body in its course.
- Gravity: Gravity tends to pull the water down the pile and create gradient variation.
- Coriolis force. The **Coriolis force intervenes and causes the water to move to the right in the northern hemisphere and to the left in the southern hemisphere. Hence, statement 2 is correct.**
- These large accumulations of water and the flow around them are called Gyres.
- These produce large circular currents in all the ocean basins.
- ◆ Secondary forces:
 - Differences in water density: It affects vertical mobility of ocean currents.
 - Water with high salinity is denser than water with low salinity and in the same way cold water is denser than warm water.
 - Denser water tends to sink, while relatively lighter water tends to rise.
- ◆ Temperature of water: Cold-water ocean currents occur when the **cold water at the poles sinks and slowly moves towards the equator. Hence, statement 1 is correct.**
 - Warm-water currents travel out from the equator along the surface, flowing towards the poles to replace the sinking cold water.

170. Ans: C

Exp:

- **Kuroshio Current** is the west boundary current and is also known as **Japan current or Black Current**. The term "Kuroshio" in Japanese means "Black Stream".
 - ◆ It is the Pacific analogue of the Gulf Stream in the Atlantic Ocean.
 - ◆ The average surface temperature of this current is warmer than the surrounding ocean.
 - ◆ This also helps in regulating the temperature of Japan, which is relatively warmer.
- **Hence, option C is correct.**

171. Ans: D

Exp:

Solomon Islands:

- **Solomon Islands is a nation in Melanesia, east of Papua New Guinea, comprising more than 990 islands.**

Its **capital is Honiara, located on the island of Guadalcanal.**

- The Solomon Islands have been **inhabited by Melanesian people for at least 30,000 years.**
- It consists of a **double chain of volcanic islands and coral atolls in Melanesia.**
 - ◆ Melanesia is a subregion of Oceania in the southwestern Pacific Ocean.
- The country comprises most of the Solomons chain—with the exception of Buka and Bougainville, two islands at the northwestern end that form an autonomous region of Papua New Guinea.
- The island is a constitutional monarchy, with the British monarch, represented by a governor-general, serving as the formal head of state. Still, the country, a member of the Commonwealth, is independent, and the governor-general is appointed on the advice of the unicameral National Parliament.
- **Hence, option D is correct.**



172. Ans: B

Exp:

- Devika river **originates from the hilly Suddha Mahadev temple in Udhampur district of Jammu and Kashmir** and flows down **towards western Punjab** (now in Pakistan) where it merges with the **Ravi river. Hence, statement 1 is not correct but statement 3 is correct.**
- The river **holds religious significance** as it is revered by **Hindus as the sister of river Ganga. Hence, statement 2 is correct.**

- In June 2020, **Devika Bridge** was inaugurated in Udhampur. Apart from taking care of traffic congestion, the Devika Bridge was also meant to **help smooth passage of Army convoys and vehicles**.

173. Ans: C

Exp:

Tropical Evergreen Forests:

- These forests are **found in the western slope of the Western Ghats**, hills of the northeastern region and the Andaman and Nicobar Islands.
- They are found in **warm and humid areas** with an annual precipitation of over 200 cm and **mean annual temperature above 22°C**.
- Tropical evergreen forests are **well stratified, with layers closer to the ground and are covered with shrubs and creepers**, with short structured trees followed by a tall variety of trees.
- In these forests, trees reach great heights up to 60 m or above. There is no definite time for trees to shed their leaves, flowering and fruition. As such these forests appear green all the year round.
- **Hence, option C is correct.**

174. Ans: B

Exp:

- The Maldivian Ridge is an **aseismic ridge that is not associated with earthquake activities**. Hence, **statement 1 is not correct**.
- It is of paramount importance to gain knowledge on the structure and geodynamics of aseismic ridges (as it provides valuable inputs towards understanding the evolution of ocean basins).
- It is a very **crucial geodynamic feature in the western Indian Ocean** whose origin has been the centre of many a scientific debate. Hence, **statement 2 is correct**.

175. Ans: B

Exp:

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