



1. Ans: C

Exp:

- The **largest source of SO<sub>2</sub>** in the atmosphere is the **burning of fossil fuels by power plants** and other industrial facilities. **Hence, statement 1 is correct.**
- **Smaller sources of SO<sub>2</sub>** emissions include: **industrial processes** such as extracting metal from ore, **natural sources** such as volcanoes, and locomotives, ships and other vehicles and heavy equipment that burn fuel with a high sulfur content. **Hence, statement 2 is not correct.**
- SO<sub>2</sub> can affect both health and the environment. **Short-term exposures to SO<sub>2</sub> can harm the human respiratory system and make breathing difficult.** People with asthma, particularly children, are sensitive to these effects of SO<sub>2</sub>. **Hence, statement 3 is correct.**

2. Ans: B

Exp:

**Sendai Framework for Disaster Reduction 2015-30:**

- It was **adopted at the Third United Nations World Conference on Disaster Risk Reduction**, held from March 14 to 18, 2015 in Sendai, Miyagi, Japan. **Hence, statement 1 is correct.**
- The present Framework applies to the risk of small-scale and large-scale, frequent and infrequent, sudden and slow-onset disasters caused by natural or man-made hazards, as well as related environmental, technological and biological hazards and risks.
- It aims to guide the multi hazard management of disaster risk in development at all levels as well as within and across all sectors.
- It is the **successor instrument to the Hyogo Framework for Action (HFA) 2005-2015: Building the Resilience of Nations and Communities to Disasters.** **Hence, statement 2 is not correct.**
  - ◆ The Yokohama Strategy for a Safer World: Guidelines for Natural Disaster Prevention, Preparedness and Mitigation and its Plan of Action was adopted in the First World Conference on Natural Disasters in Yokohama, Japan from May 23 to 27, 1994.

3. Ans: C

Exp:

- An **oil spill** refers to any uncontrolled release of crude oil, gasoline, fuels, or other oil by-products into the environment. Oil spills can pollute land, air, or water, though it is mostly used for oceanic oil spills.

- ◆ Oil spills have become a major environmental problem, chiefly as a result of intensified petroleum exploration and production on continental shelves and the transport of large amounts of oils in vessels.
- ◆ Oil spills adversely impact aquatic life, the indigenous population dependent on the seafood and the saltwater marshes and mangroves.
- Presently, there is no law covering oil spill as such and its consequential environmental damage in India but India has “the National Oil Spill Disaster Contingency Plan of 1996 (NOS-DCP)” to handle such situations.
  - ◆ Also, in **2015 India ratified the International Convention on Civil Liability for Bunker Oil Pollution Damage, 2001 (Bunker Convention).** **Hence, statement 1 is correct but statement 2 is not correct.**
  - ◆ Convention ensures adequate, prompt and effective compensation for damage caused by oil spills.
  - ◆ It is administered by the **International Maritime Organization (IMO).** **Hence, statement 3 is not correct.**

4. Ans: D

Exp:

- Deforestation is the **permanent removal of trees** to make room for something besides forest. This can include clearing the land for **agriculture or grazing, or using the timber for fuel, construction or manufacturing.**
  - ◆ Today, **most deforestation is happening in the tropics.** Areas that were inaccessible in the past are now within reach as new roads are constructed through the dense forests.
    - A 2017 report by scientists at the University of Maryland showed that the tropics lost about 1,58,000 square kilometers of forest in 2017 — an area the size of Bangladesh.
- **Effect:**
  - ◆ Deforestation in tropical regions can also affect the way water vapor is produced over the canopy, which causes **reduced rainfall.**
  - ◆ Deforestation not only removes vegetation that is important for removing carbon dioxide from the air, but the act of clearing the forests also **produces greenhouse gas emissions.**
  - ◆ It is also causing **loss of biodiversity and animal life.**
  - ◆ **Hence, option D is correct.**

5. Ans: D

Explanation

- Periodic Labour Force Survey (PLFS) is conducted by the National Statistical Organization (NSO), MoSPI (Ministry of Statistics and Programme Implementation). **Hence, statement 1 is not correct.**
- The Quarterly Employment Survey (QES) is **part of the All-India Quarterly Establishment-based Employment Survey (AQEES). It is released by the Labour Bureau, Ministry of Labour and Employment. Hence, statement 2 is not correct.**
  - ◆ It covers establishments employing 10 or more workers in the organised segment in 9 sectors.
  - ◆ These **nine sectors** are Manufacturing, Construction, Trade, Transport, Education, Health, Accommodation and Restaurant, IT/ BPO and Financial Services.

6. Ans: A

Exp:

- Recently, World **Wetlands Day** was celebrated on the **2nd of February 2022** across the globe.
- This day marks the date of **the adoption of the Convention on Wetlands on 2nd February 1971** in the Iranian city of Ramsar.
- The Ramsar Convention is **an intergovernmental treaty** that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources.
- The **countries with the most Ramsar Sites are the United Kingdom (175) and Mexico (142)**, as per the Ramsar List. Bolivia has the largest area with 148,000 sq km under the Convention protection.
- It was first celebrated in 1997.
- **Theme for 2022:** Wetlands Action for People and Nature.  
**Hence, option A is correct.**

7. Ans: C

Exp:

- **New Ramsar Sites:**
  - ◆ Recently, **World Wetlands Day was celebrated on the 2<sup>nd</sup> of February 2022** across the globe.
  - ◆ On the occasion, “National Wetland Decadal Change Atlas” was prepared by the Space Applications Center (SAC - one of the major centers of ISRO).
  - ◆ Two new Ramsar sites (Wetlands of International Importance), **Khijadia Wildlife Sanctuary in Gujarat and Bakhira Wildlife Sanctuary in UP**

were also announced on the occasion. **Hence statement 2 is correct.**

● **Ramsar Listing:**

- ◆ It is like an ISO certification. They can take it off the list as well if it doesn't meet their standards continuously. It's a feather in the cap but there is a cost to it and that cost can be paid only if there is brand value.
- ◆ Ramsar tag makes it incumbent upon authority to strengthen the protection regime there and also creates defenses against encroachment. **Hence statement 1 is correct.**
- ◆ A number of species of birds prefer to avoid the Himalaya and instead choose the route passing through Afghanistan and Pakistan to enter the Indian sub-continent via Gujarat and Rajasthan. Thus, Gujarat becomes the first landing point of many international migratory species of ducks, waders, plovers, terns, gulls etc and shorebirds as well as birds of prey.
- ◆ Wetlands in India act as foraging and resting grounds for the migratory birds during winter.

8. Ans: A

Exp:

Dhole

- **Dhole (*Cuon alpinus*)** is a wild carnivorous animal and is a member of the **family Canidae** and the **class Mammalia**.
  - ◆ They are also known as **Asian wild dogs**.
- Historically, dholes purportedly occurred throughout **southern Russia, all across central Asia, south Asia and southeast Asia**.
- According to recent research and current distribution maps, they are **restricted to south and southeast Asia**, with the northernmost populations in China.
  - ◆ They have been discovered in the Bek-Tosot Conservancy in the Osh region of southern Kyrgyzstan, a few kilometres from the Tajik border. It lies in the **Pamir mountain range of Xinjiang Autonomous Region, China. Hence statement 2 is not correct.**
- **In India, they are found in three clusters** across India namely the **Western and Eastern Ghats, central Indian landscape and North East India**.
  - ◆ Karnataka, Maharashtra and Madhya Pradesh rank high in the conservation of the endangered dhole in India, **according to a study (2020)**.

- Conservation Status of Dholes:
  - ◆ IUCN List of Threatened Species: Endangered. Hence statement 1 is correct.
  - ◆ Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES): Appendix II
  - ◆ Wildlife Protection Act, 1972 : Schedule II

9. Ans: A

Exp:

- Recently, the Union Minister for Environment, Forests and Climate Change has launched the 'Action Plan for Introduction of Cheetah in India' under which 50 of these big cats will be introduced in the next five years.
  - ◆ Reintroductions of large carnivores have increasingly been recognised as a strategy to conserve threatened species and restore ecosystem functions.
  - ◆ The cheetah is the only large carnivore that has been eliminated, mainly by over-hunting in India in historical times. Hence, statement 1 is correct.
- The cheetah is one of the oldest of the big cat species, with ancestors that can be traced back more than five million years to the Miocene era.
  - ◆ The cheetah is also the world's fastest land mammal that lives in Africa and Asia.
  - ◆ The African Cheetah is bigger in size as compared to Asiatic Cheetah. The latter is smaller and paler and has more fur with a smaller head and a longer neck. Hence, statement 2 is correct.
  - ◆ The African Cheetah is listed as Vulnerable in the IUCN Red List whereas the Asiatic Cheetah is listed as Critically Endangered. Hence, statement 3 is not correct.

Hence, option A is correct.

10. Ans: D

Exp:

- There are three subspecies of swamp deer found in the Indian Subcontinent.
  - ◆ The western swamp deer (*Rucervus duvaucelii*) found in Nepal.
  - ◆ Southern swamp deer/Hard Ground Barasingha (*Rucervus duvaucelii branderi*) found in central and north India.
  - ◆ Eastern swamp deer (*Rucervus duvaucelii ranjitsinhi*) found in the Kaziranga (Assam) and Dudhwa National Parks (Uttar Pradesh). Hence, statement 1 is not correct.
- Protection Status of Swamp Deer:
  - ◆ IUCN Red List: Vulnerable. Hence, statement 2 is not correct.

- ◆ CITES: Appendix I
- ◆ Wildlife Protection Act, 1972: Schedule I

11. Ans: C

Exp:

- Tiger Population in India:
  - ◆ India is home to over 70% of the tiger population globally.
  - ◆ India is home to 51 tiger reserves spread across 18 states and the last tiger census of 2018 showed a rise in the tiger population.
    - Srivilliputhur Megamalai is the 51st Tiger Reserve in Tamil Nadu. Hence, statement 1 is correct.
    - India has achieved the remarkable feat of doubling the tiger population in 2018 itself, 4 years ahead of the targeted year 2022 of the St. Petersburg Declaration on tiger conservation. Hence, statement 2 is correct.
    - Now, the model of success of India's tiger governance is now being replicated for other wildlife like the Lion, Dolphin, Leopard, Snow Leopard and other small wild cats, while the country is on the threshold of introducing Cheetah in its historical range.
- Related Steps taken:
  - ◆ Conservation Assured | Tiger Standards (CA|TS):
    - 14 Tiger Reserves in India have already been awarded with international CA|TS accreditation and efforts are on to bring in more Tiger Reserves under CA|TS accreditation.
  - ◆ Project Tiger:
    - It is a Centrally Sponsored Scheme of the Ministry of Environment, Forests and Climate Change (MoEFCC) launched in 1973. It provides havens for tigers in the country's national parks.

12. Ans: B

Exp:

Conservation Assured | Tiger Standards (CA|TS):

- CA|TS has been agreed upon as an accreditation tool by the global coalition of Tiger Range Countries (TRCs) and has been developed by tiger and protected area experts. Hence, statement 1 is not correct.
  - ◆ There are currently 13 tiger range countries - India, Bangladesh, Bhutan, Cambodia, China, Indonesia, Lao PDR, Malaysia, Myanmar, Nepal, Russia, Thailand and Vietnam.

- ◆ CA|TS is a set of criteria which allows tiger sites to check if their management will lead to successful tiger conservation.
- The Global Tiger Forum (GTF), an international NGO working on tiger conservation, and World Wildlife Fund India are the two implementing partners of the National Tiger Conservation Authority for CATS assessment in India.
- **14 Tiger Reserves which have been accredited are:**
  - ◆ Manas, Kaziranga and Orang Tiger Reserve in Assam,
  - ◆ Satpura, Kanha and Panna Tiger Reserve in Madhya Pradesh,
  - ◆ **Pench Tiger Reserve in Maharashtra,**
  - ◆ Valmiki Tiger Reserve in Bihar,
  - ◆ **Dudhwa Tiger Reserve in Uttar Pradesh,**
  - ◆ Sunderbans Tiger Reserve in West Bengal,
  - ◆ Parambikulam Tiger Reserve in Kerala,
  - ◆ Bandipur Tiger Reserve of Karnataka
    - Mudumalai and Anamalai Tiger Reserve in Tamil Nadu. **Hence, statement 2 is correct.**

**13. Ans: B**

**Exp:**

- Located in Kerala, Wayanad Wildlife Sanctuary (WWS) is an integral part of the **Nilgiri Biosphere Reserve**. It was established in 1973. **Hence, statement 1 is correct.**
  - ◆ Nilgiri Biosphere Reserve was the first from India to be included in the UNESCO designated **World Network of Biosphere Reserves (designated in 2012)**. **Hence, statement 2 is correct.**
  - ◆ Other wildlife parks within the Reserve are: **Mudumalai Wildlife Sanctuary, Bandipur National Park, Nagarhole National Park, Mukurthi National Park and Silent Valley.**
- Spread over **344.44 sq km**, Wayanad Wildlife Sanctuary is contiguous to the tiger reserves of Nagerhole and **Bandipur** of Karnataka and **Mudumalai** of Tamil Nadu.
- **Kabini river** (a tributary of the **Cauvery river**) flows through the sanctuary. **Hence, statement 3 is not correct.**
- The forest types include South Indian Moist Deciduous forests, West coast semi-evergreen forests and plantations of teak, eucalyptus and Grewelia.
- **Elephant, Gaur, Tiger, Panther, Sambar, Spotted deer, Wild boar, Sloth bear, Nilgiri langur, Bonnet macaque, Common langur, Malabar giant squirrel** etc are the **major mammals**.

**14. Ans: C**

**Exp:**

**One Sun One World One Grid (OSOWOG):**

- It **will be the first international network of global interconnected solar power grids** which will combine large-scale solar power stations, wind farms and grids with rooftop solar and community grids to ensure a reliable, resilient and affordable supply of clean energy for all. **Hence statement 1 is correct.**
- India and the UK jointly launched One Sun One World One Grid (OSOWOG) — on the sidelines of the UN climate conference (COP26). **Hence statement 2 is correct.**
- The vision behind the OSOWOG is 'The Sun Never Sets' and is a constant at some geographical location, globally, at any given point of time.
- This is by far one of the most ambitious schemes undertaken by any country and is of global significance in terms of sharing economic benefits.
- It has been taken up under the technical assistance program of the World Bank.
- OSOWOG plan may also leverage the International Solar Alliance (ISA), co-founded by India that has 67 countries as members.

**15. Ans: D**

**Exp:**

- **Marine heatwaves** are periods of extremely high temperatures in the ocean.
- These events are **linked to coral bleaching, seagrass destruction, and loss of kelp forests**, affecting the fisheries sector adversely.
  - ◆ Study showed that 85% of the corals in the Gulf of Mannar near the Tamil Nadu coast got bleached after the marine heatwave in May 2020.
- The most common drivers of marine heatwaves include ocean currents which can build up areas of warm water and air-sea heat flux, or warming through the ocean surface from the atmosphere.
- Impacts of Marine Heatwaves:
  - ◆ **Affect Ecosystem Structure:** Marine heat waves affect ecosystem structure, by supporting certain species and suppressing others.
  - ◆ **Change Habitat Ranges of Certain Species:** Marine heatwaves can change the habitat ranges of certain species, such as the spiny sea urchin off southeastern Australia which has been expanding southward into Tasmania at the expense of kelp forests which it feeds upon.

- ◆ **Affect Biodiversity:** Biodiversity can be drastically affected by marine heatwaves.
- ◆ **Increase the Risk of Deoxygenation and Acidification:** Often they occur alongside other stressors such as ocean acidification, deoxygenation, and overfishing.
  - In such cases, **MHWs not only further damage habitats, but also increase the risk of deoxygenation and acidification.**

Hence, option D is correct.

16. Ans: C

Exp:

- **Volatile Organic Molecules (VOCs)** are **carbon-containing chemicals** released by petrol and diesel vehicles. They impact air quality and human health.
  - ◆ However, VOCs can have a **natural origin, too.**
  - ◆ **Plants emit** these chemicals **to attract pollinators, defend themselves from pests and predators** and adapt to environmental stress. **Hence, statement 1 is not correct.**
- **Effect of VOCs on Health:** VOCs can irritate the eyes, nose and throat, damage body organs and cause cancer.
  - ◆ Long-term exposure to VOCs is not good because the majority of the VOCs are **carcinogenic (cancer-causing).** **Hence, statement 2 is correct.**
  - ◆ It is also linked to medical conditions such as **asthma and heart disease.**
  - ◆ **Black carbon** is linked to health problems such as respiratory and cardiovascular disease, cancer and congenital disabilities. It also contributes to **climate change.**
- VOCs can drive the **formation of other dangerous pollutants.**
  - ◆ For instance, they react with sunlight and nitrogen dioxide to form **ground-level ozone.**
  - ◆ VOCs also trigger the **formation of Particulate Matter (PM2.5)**, a pollutant that reaches deep into the lungs, affecting their normal functioning. **Hence, statement 3 is correct.**
  - ◆ They react in the air to **produce secondary organic aerosols, minute particles suspended in the air.**
- Human-made VOCs are a cause for concern, yet they don't draw enough attention.
  - ◆ Benzene, a chemical that induces cancer, is the only VOC included in the **National ambient air-quality standards.**

- ◆ The other pollutants under ambient air-quality standards considered are PM10, PM2.5, nitrogen dioxide, sulphur dioxide, carbon monoxide, ozone, ammonia, lead, nickel and benzo(a) pyrene.

17. Ans: C

Exp:

- The **One Ocean Summit** was **organised by France** in Brest, France in cooperation with the **United Nations** and the **World Bank.** **Hence, statement 1 is correct.**
- The goal of the One Ocean Summit is to **raise the collective level of ambition of the international community on marine issues.**
  - ◆ Commitments will be made towards combating illegal fishing, decarbonising shipping and reducing **plastic pollution.**
  - ◆ Will also focus on efforts to improve governance of the high seas and coordinating international scientific research.
- A **high ambition coalition on Biodiversity Beyond National Jurisdiction (BBNJ)** has been launched at the One Ocean Summit, on 11<sup>th</sup> of February 2022. **Hence, statement 2 is correct.**
  - ◆ The coalition gathers parties which are committed, at the highest political level, to achieve an ambitious outcome of the ongoing negotiations on a **Treaty of the High Seas ("the implementing agreement on Biodiversity Beyond National Jurisdiction")**, under the auspices of the United Nations.
  - ◆ The "BBNJ Treaty", also known as the "**Treaty of the High Seas**", is an international agreement on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction, currently under negotiation at the United Nations.
    - This new instrument is being developed within the framework of the United Convention on the Law of the Sea (UNCLOS), the main international agreement governing human activities at sea.
    - It will achieve a more holistic management of high seas activities, which should better balance the conservation and sustainable use of marine resources.

18. Ans: C

Exp:

- **Eco-Sensitive Areas (ESAs)** are located within **10 kms around Protected Areas, National Parks and Wildlife Sanctuaries.** **Hence, statement 1 is correct.**

- ESAs are notified by the Ministry of Environment, Forest and Climate Change (MoEFCC) under **Environment Protection Act 1986**. Hence, **statement 2 is correct**.
- The basic aim is to regulate certain activities around National Parks and Wildlife Sanctuaries so as to minimize the negative impacts of such activities on the fragile ecosystem encompassing the protected areas.

19. Ans: A

Exp:

- The **Ministry of Environment and Forests** of India set up in March 2010 an expert panel (**Gadgil commission**) to find a strategy for conserving these Ghats.
  - ◆ The Gadgil report, published in 2011 highlighted the ecological sensitivity of the Western Ghats and the need to protect the region by restricting activities there.
- The central government-appointed **Kasturirangan committee** had come up with a **comprehensive report on the Western Ghats in 2013**, proposing several measures that six states must take to protect the Western Ghats mountain range.
- **T. S. R Subramanian Committee** was constituted under the **Ministry of Human Resource Development (MHRD)** in October, 2015. The report proposes an Education Policy, which seeks to address challenges faced by the current education system.

Hence, option A is correct.

20. Ans: D

Exp:

- **Cyclones** are rapid inward air circulation around a low-pressure area. The air circulates in an anticlockwise direction in the Northern hemisphere and clockwise in the Southern hemisphere.
  - ◆ They are usually accompanied by violent storms and bad weather.
- **Tropical cyclones** develop in the region between the Tropics of Capricorn and Cancer.
  - ◆ They are large-scale weather systems developing over tropical or subtropical waters, where they get organized into surface wind circulation.
  - ◆ The **World Meteorological Organization** uses the term '**Tropical Cyclone**' to cover **weather systems in which winds exceed 'Gale Force'** (minimum of 63 km per hour). Hence, **statement 2 is not correct**.

- **Extra Tropical cyclones** also called Temperate cyclones or **middle latitude cyclones** or Frontal cyclones or Wave Cyclones occur in temperate zones and high latitude regions, though they are known to **originate in the Polar Regions**. Hence, **statement 1 is not correct**.

21. Ans: D

Explanation:

- Recently, the United Nations General Assembly (UNGA) has granted Observer Status to the International Solar Alliance (ISA). Hence, **statement 1 is correct**.
  - ◆ It will help provide for regular and well-defined cooperation between the Alliance and the United Nations that would benefit global energy growth and development.
- The ISA is an intergovernmental treaty-based organisation with a global mandate to catalyse solar growth by helping to reduce the cost of financing and technology.
- The Headquarters is in India with its Interim Secretariat being set up in **Gurugram**. Hence, **statement 2 is correct**.
- ISA is the **nodal agency** for implementing **One Sun One World One Grid (OSOWOG)**, which seeks to transfer solar power generated in one region to feed the electricity demands of others. Hence, **statement 3 is correct**.

22. Ans: A

Exp:

- Recently, radioactive pollution in water and associated health impacts have been reported in many parts of the globe.
- Radioactivity is the phenomenon of **spontaneous emission of particles or waves from the unstable nuclei of some elements**. There are three types of radioactive emissions: Alpha, Beta and Gamma. Hence **Statement 1 is correct**.
- Alpha particles are positively charged He (Helium) atoms, beta particles are negatively charged electrons and gamma rays are neutral electromagnetic radiations.
- Radioactive elements are naturally found in the earth's crust. Uranium, thorium and actinium are three NORM (Naturally Occurring Radioactive Materials) series that contaminate water resources.
- A **small amount of radiation is found in all types of water but the extended amount of radiation is harmful to human health**. Radioactivity in drinking water can be determined by a gross alpha test. Hence **Statement 2 is not correct**.



- Radioactivity is measured in Becquerel (SI unit) or in Curie. The unit Sievert measures the quantity of radiation absorbed by human tissues.

23. Answer: A

Explanation:

- Buxa Tiger Reserve is **situated in the Alipurduar Sub-division of Jalpaiguri District, West Bengal**. It was **created in 1983** as the **15th tiger reserve of India**.
  - ◆ It was **declared as a National Park in January 1992**.
- The northern boundary of Buxa Tiger Reserve runs along the **international border with Bhutan**. The **Sinchula hill range** lies all along the northern side of Buxa National Park and the Eastern boundary touches that of the Assam State.
- The forests of the reserve can be broadly classified as the **'Moist Tropical Forest'**.
- The **main rivers** flowing across the Tiger Reserve are **Sankosh, Raidak, Jayanti, Churnia, Turturi, Phashkhawa, Dima and Nonani**. Hence, option A is correct.

24. Ans: A

Exp:

- **Great Indian Bustard (GIB)** is the **State bird of Rajasthan** and is considered India's most critically endangered bird.
  - ◆ It is considered the **flagship grassland species**, representing the health of the grassland ecology. Hence, **statement 1 is correct**.
  - ◆ Its population is **confined mostly to Rajasthan and Gujarat**. Small populations occur in Maharashtra, Karnataka and Andhra Pradesh. Hence, **statement 3 is not correct**.
  - ◆ The bird is **under constant threats due to collision/electrocution** with power transmission lines, hunting (still prevalent in Pakistan), habitat loss and alteration as a result of widespread agricultural expansion, etc.
- **Protection Status:**
  - ◆ **International Union for Conservation of Nature Red List:** Critically Endangered. Hence, **statement 2 is correct**.
  - ◆ **Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES):** Appendix 1
  - ◆ **Convention on Migratory Species (CMS):** Appendix I
  - ◆ **Wildlife (Protection) Act, 1972:** Schedule 1

25. Ans: D

Exp:

- The UNs Charter established six main organs of the United Nations, including the United Nations Security Council (UNSC). **Article 23 of the UN Charter** concerns the **composition of the UNSC**. Hence, **statement 1 is correct**.
  - ◆ The UNSC has been given primary responsibility for maintaining international peace and security to the Security Council, which may meet whenever peace is threatened.
- The UNSC is composed of 15 members, 5 permanent and 10 non-permanent.
  - ◆ The **ten non-permanent members are elected for two-year terms** by the UN General Assembly.
  - ◆ As stipulated in rule 144 of the rules of procedure, a retiring member is not eligible for immediate re-election.
  - ◆ In accordance with rule 92 of the rules of procedure, the **election is held by secret ballot and there are no nominations**. Under rule 83 of the rules of procedure, the non-permanent members of the Security Council are **elected by a two-thirds majority**. Hence, **statement 2 and statement 3 are correct**.

26. Ans: A

Exp:

- The **Nagoya Protocol** applies to genetic resources that are covered by the CBD, and to the benefits arising from their utilization. The Nagoya Protocol also covers traditional knowledge (TK) associated with genetic resources that are covered by the CBD and the benefits arising from its utilization.
- The CBD's 10th Conference of the Parties, in Nagoya 2010 adopted an international legally binding protocol on access to genetic resources and benefit-sharing. Hence, **option A is correct**.

27. Ans: C

Exp:

- The **Panna Tiger Reserve** was established in 1981 and is **situated in the Vindhya mountain range** in the northern part of Madhya Pradesh. Hence, **statement 1 is correct**.
  - ◆ Ken river (a tributary of the Yamuna River) flows through the reserve.
  - ◆ The region is also famous for **Panna diamond mining**. Hence, **statement 2 is correct**.



- Ken-Betwa river interlinking project will be located within the tiger reserve.

28. Ans: B

Exp:

- **Olive Ridley Turtles:**
  - ◆ The Olive ridley turtles are the smallest and most abundant of all sea turtles found in the world.
  - ◆ They are **found in warm waters of the Pacific, Atlantic and Indian oceans. Hence, statement 1 is correct.**
  - ◆ The Odisha's **Gahirmatha Marine Sanctuary is known as the world's largest rookery** (colony of breeding animals) of sea turtles.
- Olive ridleys are **best known for their unique mass nesting called Arribada**, where thousands of females come together on the same beach to lay eggs. **Hence, statement 2 is not correct.**
  - ◆ They lay their eggs over a period of five to seven days in conical nests about one and a half feet deep which they dig with their hind flippers.
- **Operation Olivia:** Every year, the **Indian Coast Guard's "Operation Olivia", initiated in the early 1980s**, helps **protect Olive Ridley turtles** as they congregate along the Odisha coast for breeding and nesting from November to December. It also intercepts unlawful trawling activities. **Hence, statement 3 is correct.**

29. Ans: A

Exp:

- **The Adaptation Fund under Kyoto Protocol** aims to finance concrete projects and programmes that help vulnerable communities in developing countries that are Parties to the **Kyoto Protocol** to adapt to climate change. **Hence, statement 1 is correct.**
- The **World Bank serves as the interim trustee** of the **Adaptation Fund** by invitation of the Parties to the Kyoto Protocol.
  - ◆ On behalf of the Fund, the World Bank performs two core functions: it sells the Certified Emission Reduction certificates that help support the fund and manages the Adaptation Fund trust fund. **Hence, statement 2 is not correct.**

30. Ans: C

Explanation

- **Flex-fuel vehicles (FFV):** They have engines that can run on flexible fuel — a combination of petrol and ethanol, which can include up to **100% ethanol. Hence, statement 1 is correct.**

- **Flex Fuel Strong Hybrid Electric Vehicles (FFV-SHEV):** When FFV is integrated along with strong **hybrid electric technology**, it is referred as FFV-SHEVs.

- **Strong hybrid** is another term for full hybrid vehicles, which have the capability to run solely on **either electric or petrol modes. Hence, statement 2 is correct.**

- ◆ In contrast, **mild hybrids** cannot run purely on one of these modes and use the secondary mode merely as a supplement to the main mode of propulsion.

31. Ans: B

Exp:

- **Pangolins** are scaly anteater mammals and they have large, protective keratin scales covering their skin. **They are the only known mammals with this feature. Hence, statement 1 is correct.**

- ◆ It uses these scales as armour to defend itself against predators by rolling into a ball when threatened.

- ◆ Insectivore- Pangolins are nocturnal, and their diet consists of mainly ants and termites, which they capture using their long tongues.

- Out of the eight species of pangolin, the **Indian Pangolin** (*Manis crassicaudata*) and the Chinese Pangolin (*Manis pentadactyla*) are found in India.

- ◆ The Indian Pangolin is **widely distributed in India, except the arid region, high Himalayas and the North-East. Hence, statement 2 is not correct.**

- ◆ The species is also found in Bangladesh, Pakistan, Nepal and Sri Lanka.

- **Conservation Status:**

- ◆ Wildlife Protection Act, 1972: Schedule I

- ◆ **IUCN Red List: Endangered. Hence, statement 3 is correct.**

- Chinese Pangolin is 'critically endangered'

- ◆ CITES: Appendix I

- **Hence, option B is correct.**

32. Ans: C

Exp:

- The **Bharat Stage (BS)** are **emission standards instituted by the Government of India** to regulate the output of air pollutants from motor vehicles.

- ◆ India **directly shifted from BS-IV to BS-VI norms.** The switch to BS-VI vehicles was to happen in 2022 but looking at the poor air condition, the move was advanced by four years (2020).

- Air pollutants in BS-VI fuel are much less as compared to BS-IV fuel.
  - ◆ With BS-VI fuel, for every one kilometre, a car will emit 80% less particulate matter and nearly 70% less nitrogen oxide.
  - ◆ In BS-VI fuel, the volume of Particulate Matter 2.5 ranges from 20 to 40 micrograms per cubic metre whereas in BS-IV fuel it is up to 120 micrograms per cubic metre.
  - ◆ BS-VI fuel will bring down sulphur content by 5 times from the current BS-IV levels. It has 10 ppm of sulphur as against 50 ppm in BS-IV.
    - Hence, statement 1 is correct.
- The Environment Ministry is responsible for deciding the fuel standard in the country. The **Central Pollution Control Board** implements these standards. Hence, statement 2 is correct.

33. Ans: C

Exp:

**Renewable Energy (RE) Capacity of India:**

- The country's installed Renewable Energy (RE) capacity stands at 150.54 GW (solar: 48.55 GW, wind: 40.03 GW, Small hydro Power: 4.83, Bio-power: 10.62, Large Hydro: 46.51 GW) as on 30th Nov. 2021 while its nuclear energy based installed electricity capacity stands at 6.78 GW.
  - ◆ India has the 4<sup>th</sup> largest wind power capacity in the world.
  - ◆ This brings the total non-fossil based installed energy capacity to 157.32 GW which is 40.1% of the total installed electricity capacity of 392.01 GW.
- At the UNFCCC Conference of Parties (CoP) 26 India is committed to achieving 500 GW of installed electricity capacity from non-fossil fuel sources by the year 2030. Hence Statement 1 is correct.
- The **One Sun, One World, One Grid (OSOWOG)** was also jointly released by India and the UK at the Conference of Parties (CoP) 26 Climate Meet in Glasgow. Hence Statement 2 is correct.

34. Ans: C

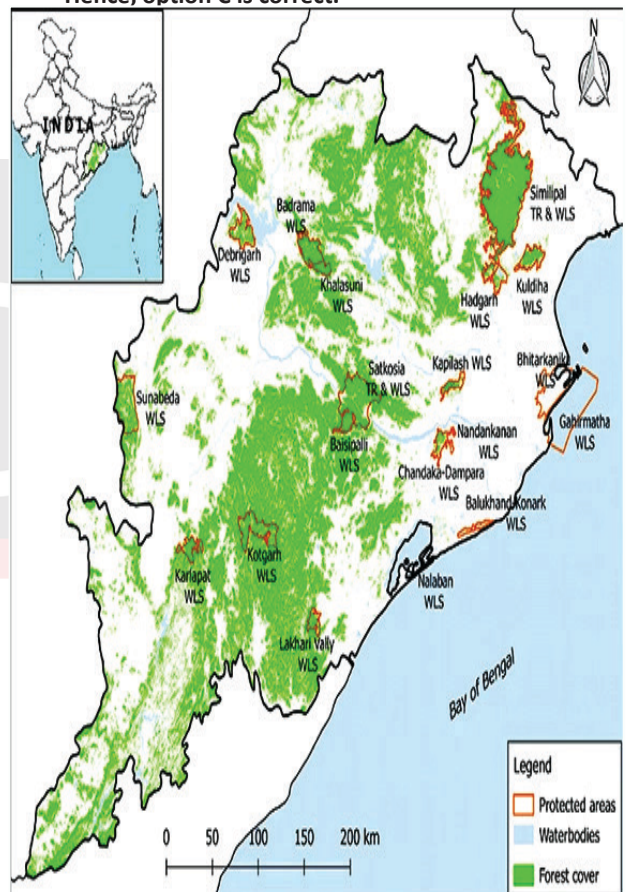
Exp:

**Nandankanan Zoological Park:**

- It is 15 kms from Odisha's capital, Bhubaneswar. It was inaugurated in 1960.
- **First zoo in the country** to become a member of the **World Association of Zoos & Aquariums (WAZA)**.

- ◆ WAZA is the global alliance of regional associations, national federations, zoos and aquariums, dedicated to the care and conservation of animals and their habitats around the world.
- It is recognized as a leading zoo for the breeding of the Indian pangolin and white tiger.
  - ◆ Leopards, mouse deer, lions, rats and vultures are also bred here.
- It was the **world's first captive crocodile breeding centre, where gharials were bred in captivity in 1980**.
  - ◆ The State Botanical Garden of Nandankanan is one of the pioneering plant conservation and nature education centres of Odisha.

Hence, option C is correct.



35. Ans: C

Exp:

- Recently, the researchers have discovered the first dinosaur species named 'Issi Saaneq' that lived on Greenland 214 million years ago (Late Triassic epoch).
  - ◆ This medium-sized, long-necked dinosaur was a predecessor of the sauropods, the biggest land animals ever to have thundered across our planet.

- Issi Saaneq differs from all other sauropodomorphs discovered so far, but has similarities with dinosaurs found in Brazil, such as the Macrocollum and Unaysaurus, which are almost 15 million years older.
  - ◆ The name of the new dinosaur (Issi Saaneq) pays tribute to Greenland's Inuit language and means "coldbone".

Hence, option C is correct.

36. Ans: D

Exp:

- **Air Quality Index (AQI)** is an index for reporting daily air quality. It displays the **changes in air pollution in the atmosphere**.
- It focuses on **health effects one might experience within a few hours or days after breathing polluted air**.
- AQI keeps a tab on **8 major air pollutants in the atmosphere namely**,
  - ◆ Ground-level ozone,
  - ◆ PM10,
  - ◆ PM2.5,
  - ◆ Carbon monoxide,
  - ◆ Sulfur dioxide,
  - ◆ Nitrogen dioxide,
  - ◆ Ammonia,
  - ◆ Lead,
- Ground-level ozone and airborne particles are the two pollutants that pose the greatest threat to human health in India. Hence, option D is correct.

37. Ans: C

Exp:

- **Sundarban National Park** is located in the south-east of Kolkata in the District of West Bengal and forms part of the Gangetic Delta.
  - ◆ The Sundarbans are **mangrove forest**, on the delta of the **Ganges, Brahmaputra** and Meghna rivers on the Bay of Bengal. Hence, statement 1 is correct.
- The area is known for its wide range of fauna. It is home to many rare and globally threatened wildlife species such as the estuarine crocodile, Royal Bengal Tiger, Water monitor lizard, Gangetic dolphin, and olive ridley turtles.
- India's Sundarban National Park is the only listed site under this **World Heritage Marine Programme**. Hence, statement 2 is correct.

- ◆ It is a global collection of unique ocean places stretching from the tropics to the poles.
- ◆ Today, the List includes **50 unique ocean places across 37 countries** – recognized for their **unique marine biodiversity, singular ecosystem, unique geological processes or incomparable beauty**.



38. Ans: D

Exp:

- Recently, the Ministry of Jal Shakti released a guide for the safe rescue and release of stranded **Ganges River Dolphins**.
  - ◆ The document has been prepared by the Turtle Survival Alliance and the Environment, Forest and Climate Change Department (EFCCD) of the Uttar Pradesh Government.
  - ◆ It was **recognised as the National Aquatic Animal in 2009**, by the Government of India. Hence, statement 1 is correct.
- The Ganges River Dolphin was officially discovered in 1801.
  - ◆ They live in the Ganges-Brahmaputra-Meghna and Karnaphuli-Sangu river systems of Nepal, India, and Bangladesh.
  - ◆ It can **only live in freshwater** and is essentially blind and hunts by emitting ultrasonic sounds. Hence, statement 2 is correct.
- **Conservation Status:**
  - ◆ Indian Wildlife (Protection), Act 1972: Schedule I.
  - ◆ International Union for the Conservation of Nature (IUCN): **Endangered**. Hence, statement 3 is correct.
  - ◆ Convention on International Trade in Endangered Species (CITES): Appendix I (most endangered).

39. Ans: C

Exp:

- The scientific name of leopard is *Panthera pardus*.
  - ◆ The leopard is the **smallest of the Big Cats (Of genus Panthera namely the Tiger, Lion, Jaguar, Leopard, and Snow Leopard)**, and known for its ability to adapt in a variety of habitats.
  - ◆ It is a nocturnal animal, the **leopard hunts by night**.
  - ◆ It **feeds on smaller species of herbivores** found in its range, such as the **chital, hog deer and wild boar**.
  - ◆ **Melanism** is a common occurrence in leopards, wherein the entire skin of the animal is black in colour, including its spots.
    - A **melanistic leopard is often called black panther** or jaguar, and mistakenly thought to be a different species.
  - ◆ **Habitat:**
    - It occurs in a wide range in **sub-Saharan Africa, in small parts of Western and Central Asia, on the Indian subcontinent** to Southeast and East Asia. **Hence, statement 1 is not correct.**
    - The **Indian leopard (*Panthera pardus fusca*)** is a leopard widely distributed on the Indian subcontinent.
  - ◆ As per a recent report '**Status of leopards in India, 2018**' released by the Ministry of Environment, Forest and Climate Change, there has been a **"60% increase in the population count of leopards in India from 2014 estimates"**. **Hence, statement 3 is correct.**
    - The 2014 estimates placed the population of leopards at nearly 8,000 which has increased to 12,852.
    - The **largest number of leopards have been estimated in Madhya Pradesh** (3,421) followed by Karnataka (1,783) and Maharashtra (1,690).
- **Conservation Status:**
  - ◆ **IUCN Red List: Vulnerable**
  - ◆ CITES: Appendix-I
  - ◆ Indian Wildlife (Protection) Act, 1972: Schedule-I
  - ◆ **Hence, statement 2 is not correct.**

40. Ans: A

Explanation

- A mass extinction event is **when species vanish much faster than they are replaced**.

- ◆ This is usually **defined as about 75% of the world's species being lost in a 'short' amount of geological time** - less than 2.8 million years.

Hence, **statement 1 is correct.**

- Earth has witnessed five mass extinction events until now. They can be traced in the following periods of geological timeline:
  - ◆ **First Mass Extinction:** The **Ordovician mass extinction** that occurred about 445 million years ago killed about 85% of all species.
  - ◆ **Second Mass Extinction:** The **Devonian mass extinction** (about 375 million years ago) wiped out about 75% of the world's species.
  - ◆ **Third Mass Extinction:** The **Permian mass extinction** (about 250 million years ago) also known as the Great Dying caused the extinction of over 95% of all species.
  - ◆ **Fourth Mass Extinction:** The **Triassic mass extinction** (about 200 million years ago) eliminated about 80% of Earth's species, including some dinosaurs.
  - ◆ **Fifth Mass Extinction:** This **Cretaceous mass extinction** (about 65 million years ago) is known for wiping out non-avian dinosaurs.
  - ◆ **Hence, statement 2 is not correct.**

41. Ans: D

Exp:

- **Stubble (parali) burning** is the act of setting fire to crop residue to remove them from the field to sow the next crop.
  - ◆ In order to plant the next winter crop (Rabi crop), farmers in Haryana and Punjab have to move in a very short interval and if they are late, due to short winters these days, they might face considerable losses. Therefore, burning is the cheapest and fastest way to get rid of the stubble.
  - ◆ It begins around October and peaks in November, coinciding with the withdrawal of southwest monsoon.
- **Effects of Stubble Burning:**
  - ◆ **Pollution:** Emits large amounts of **toxic pollutants in the atmosphere** which contain harmful gases like methane (CH<sub>4</sub>), Carbon Monoxide (CO), Volatile Organic Compound (VOC) and **carcinogenic polycyclic aromatic hydrocarbons**. **Hence, statement 1 is correct.**

- These pollutants disperse in the surroundings, may undergo a physical and chemical transformation and eventually adversely affect human health by causing a thick blanket of smog.
- **Soil Fertility:** Burning husk on the ground destroys the nutrients in the soil, making it less fertile. Hence, statement 2 is correct.
- **Heat Penetration:** Heat generated by stubble burning penetrates into the soil, leading to the loss of moisture and useful microbes. Hence, statement 3 is correct.

42. Ans: C

Exp:

- The **desert locust** (*Schistocerca gregaria*) is a short-horned grasshopper.
  - ◆ Harmless when solitary, locusts undergo a **behavioural change** when their population builds up rapidly.
  - ◆ They enter the '**gregarious phase**' by forming huge swarms that can travel up to 150 km per day, eating up every bit of greenery on their way.
- **Effect of Climate Change:** Change in cyclonic patterns over the Arabian Sea is behind the locust invasions in east Africa, west and south Asia, in 2020.
  - ◆ Unusual rainfall in Iran helped in their breeding.
  - ◆ Locusts are known to be passive flyers and generally follow the wind.
  - ◆ Their movement has been aided by westerly winds, which were further strengthened by the low-pressure area created by **Cyclone Amphan** (2019) in the Bay of Bengal.
  - ◆ Hence, statement 1 is correct.
- Locust infestations can harm livelihoods and be a threat to regional investments in ensuring food security. Hence statement 2 is correct.

43. Ans: B

Exp:

- Recently, **Arunachal Pradesh has approved** the large, brightly coloured **Kaiser-i-Hind as the State butterfly**. Kaiser-i-Hind literally means Emperor of India.
- It is one of the very rare and elusive swallowtail butterflies which are found at medium and higher elevations.
  - ◆ It flies high in the canopy of broad leaved temperate evergreen forests found in the Eastern and Western Himalayas.

- This butterfly with a 90-120 mm wingspan is found in (West Bengal, Meghalaya, Assam, Sikkim and Manipur) along the Eastern Himalayas.

- ◆ The butterfly also flutters in Nepal, Bhutan, Myanmar, Laos, Vietnam and southern China.

Hence, option B is correct.

44. Ans: D

Exp:

- Recently, Punjab's wildlife preservation wing has batted for conservation of Indus river dolphins and also their natural habitat.
  - ◆ The Indus river dolphin was declared the **State aquatic animal of Punjab** in 2019. Hence statement 1 is not correct.
  - ◆ The **Ganges river dolphin** is the national aquatic animal of India.
- They can only be found in the lower parts of the Indus River in Pakistan and in River Beas, a tributary of the Indus River in Punjab, India. Hence statement 2 is not correct.
- **Conservation Status:**
  - ◆ International Union for the Conservation of Nature (IUCN): Endangered.
  - ◆ Convention on International Trade in Endangered Species (CITES): Appendix
  - ◆ Indian Wildlife (Protection), Act 1972: Schedule I

45. Ans: A

Exp:

- Amazon is the **world's largest tropical rainforest** occupying the drainage basin of the Amazon River and its tributaries in northern South America. Hence statement 1 is correct.
- 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.
- The Amazon is a vast biome that spans **eight rapidly developing countries**—Brazil, Bolivia, Peru, Ecuador, Colombia, Venezuela, Guyana, and Suriname—and **French Guiana**, an overseas territory of France. Hence statement 2 is not correct.

- The Amazon rainforests cover about 80% of the Amazon basin and they are home to nearly a fifth of the world's land species and is also home to about 30 million people including hundreds of indigenous groups and several isolated tribes.



46. Ans: B

Exp:

- **SAFAR (System of Air Quality and Weather Forecast and Research)** is a national initiative introduced by the **Ministry of Earth Sciences (MoES)** to measure the air quality of a metropolitan city, by measuring the overall pollution level and the location-specific air quality of the city. **Hence, statement 1 is not correct.**
- The system is indigenously developed by the Indian Institute of Tropical Meteorology (IITM), Pune and is operationalized by the India Meteorological Department (IMD).
  - ◆ It is an integral part of **India's first Air Quality Early Warning System** operational in Delhi.
- It monitors all weather parameters like **temperature, rainfall, humidity, wind speed, and wind direction, UV radiation, and solar radiation.** **Hence, statement 2 is correct.**
- The **World Meteorological Organization** has recognized SAFAR as a prototype activity on the basis of the high-quality control and standards maintained in its implementation.

● **Pollutants Monitored:**

- ◆ **PM2.5, PM10, Ozone, Carbon Monoxide (CO), Nitrogen Oxides (NOx), Sulfur Dioxide (SO<sub>2</sub>), Benzene, Toluene, Xylene, and Mercury.**

47. Ans: A

Exp:

- Chilika is Asia's largest and the world's second-largest lagoon.
- It lies on the east coast of India in the state of Odisha, separated from the mighty Bay of Bengal by a small strip of sand.
- It spreads over Puri, Khurda, and Ganjam districts of Odisha on the east coast of India, at the mouth of the Daya River, flowing into the Bay of Bengal, covering an area of over 1,100 square kilometers.
- It is the largest wintering ground for migratory birds on the Indian sub-continent and is home to a number of threatened species of plants and animals.
- In 1981, Chilika Lake was designated the first Indian wetland of international importance under the Ramsar Convention.
- A 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 Chilika Lake.

**Hence, option A is correct.**

48. Ans: C

Exp:

- The **Great Indian Bustard (GIB)**, the **state bird of Rajasthan**, is considered India's most critically endangered bird. **Hence, statement 1 is correct.**
- It is considered the flagship grassland species, representing the health of the grassland ecology.
- Its population is **confined mostly to Rajasthan and Gujarat**. Small populations occur in Maharashtra, Karnataka and Andhra Pradesh. **Hence, statement 2 is not correct.**
- The bird is under constant threats due to collision/electrocution with power transmission lines, hunting (still prevalent in Pakistan), habitat loss and alteration as a result of widespread agricultural expansion, etc.
- **Protection Status:**
  - ◆ **International Union for Conservation of Nature Red List: Critically Endangered.** **Hence, statement 3 is correct.**

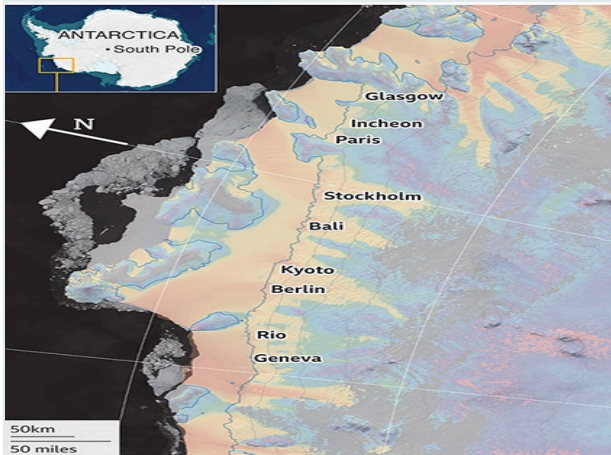
- ◆ Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES): Appendix 1
- ◆ Convention on Migratory Species (CMS): Appendix I
- ◆ Wildlife (Protection) Act, 1972: Schedule 1

49. Ans: D

Exp:

- Recently, the 100-km long body of ice in Antarctica, which has been experiencing rapid melting, was formally named Glasgow after the Glasgow climate summit.
- The 26<sup>th</sup> session of the Conference of the Parties (COP 26) to the United Nations Framework Convention on Climate Change (UNFCCC) is being held in **Glasgow**, UK.
  - ◆ The **Getz basin is part of Antarctica's** largest ice shelf. The shelf is subject to more changeable oceanic forcing - a process where relatively warm deep ocean water melts the glaciers from below - than other Antarctic shelves.
  - ◆ Besides Glasgow, the eight newly named glaciers are Geneva, Rio, Berlin, Kyoto, **Bali**, Stockholm, **Paris** and **Incheon** – all named after cities hosting important UN climate meetings.

Hence, option D is correct.



50. Ans: C

Exp:

- The United Nations Environment Programme (UNEP) is a leading global environmental authority established on 5<sup>th</sup> June 1972.
- It sets the global environmental agenda, promotes sustainable development within the United Nations system, and serves as an authoritative advocate for global environment protection.

● **Headquarters:**

- ◆ Nairobi, Kenya.

● **Major Reports:**

- ◆ Emission Gap Report, Adaptation Gap Report, **Global Environment Outlook**, Frontiers, Invest into Healthy Planet.

● **Major Campaigns:**

- ◆ Beat Pollution, UN75, World Environment Day, Wild for Life.

Hence, option C is correct.

51. Ans: A

Exp:

- The **Indian peafowl** is a native of India and some parts of Pakistan and Sri Lanka.
  - ◆ The species are currently habituated more in central Kerala, followed by southeast and northwest parts of the state.
- **Concerns:**
  - ◆ They are a threat to paddy farmers in Kerala. They destroy its seeds and cause man-animal conflict.
  - ◆ Agriculture expansion and deforestation have caused other species to 'invade human territory'.
  - ◆ The growing population of peafowls **signals climate change. They are known to grow and thrive in dry conditions. Hence, statement 1 is correct.**
- **Protection Status:**
  - ◆ IUCN: Least Concern. Hence, **statement 2 is not correct.**
  - ◆ Wildlife (Protection) Act, 1972: Schedule I

52. Ans: B

Exp:

- The concept of human rights in general emerged after the Second World War (1939-45), but the **right to a healthy environment**, as one of those human rights, **was never a priority. Hence, statement 1 is not correct.**
- The **right to a clean environment** is rooted in the **1972 Stockholm Declaration**, popularly called as the Magna Carta of human environment. **Hence, statement 2 is correct.**
  - ◆ It contained principles and recommendations for environmental policy.
- The Constitutional (**forty-second Amendment**) Act, 1976 incorporated two significant articles viz. **Article 48-A and 51A (g)** thereby making the **Indian Constitution the first in the world conferring constitutional status to the environment protection. Hence, statement 3 is correct.**

- ◆ **Article 48-A:** The State shall endeavour to protect and improve the environment and to safeguard the forests and wildlife of the country.
- ◆ **Article 51A(g):** It is a duty of every citizen to protect and preserve the environment.

53. Ans: D

Exp:

- **Endosulfan** is an **organochlorine insecticide** which was first introduced in the 1950s and is commonly known by its trade name Thiodan.
  - ◆ **Usage:** Sprayed on crops like cotton, cashew, fruits, tea, paddy, tobacco etc. for control of pests such as whiteflies, aphids, beetles, worms etc. **Hence, statement 1 is correct.**
- Endosulfan in the environment gets **accumulated in food chains** leading to higher doses causing problems.
  - ◆ If Endosulfan is released to water, it is **expected to absorb to the sediment and may bioconcentrate** in aquatic organisms.
  - ◆ **Humans and Animals:**
    - The endosulfan ingestion results in **diseases ranging from physical deformities, cancer, birth disorders and damage to the brain and nervous system.**
  - ◆ The Supreme Court in India has banned the manufacture, sale, use, and export of endosulfan throughout the country, citing its harmful health effects in 2011.
  - ◆ Endosulfan is listed under both the **Rotterdam Convention on the Prior Informed Consent and the Stockholm Convention on Persistent Organic Pollutants. Hence, statement 3 is correct.**

54. Ans: D

Exp:

- To facilitate the provision of **climate finance**, the **United Nations Framework Convention on Climate Change (UNFCCC)** has established the following financial mechanism to provide financial resources to developing country Parties.
  - ◆ **The Adaptation Fund under Kyoto Protocol:** It aims to finance concrete projects and programmes that help vulnerable communities in developing countries that are Parties to the Kyoto Protocol to adapt to climate change.
  - ◆ **Green Climate Fund:** It is the financial mechanism of the UNFCCC, established in 2010.

- India has been pushing for rich countries to meet their Paris Accord climate finance commitment of USD 100 billion per year.

◆ **Global Environment Fund (GEF):** GEF has served as an operating entity of the financial mechanism since the Convention came into force in 1994.

- It is a private equity fund focused on seeking long term financial returns by investments in clean energy under climate change.
- GEF also maintains two additional funds, the **Special Climate Change Fund (SCCF)** and the **Least Developed Countries Fund (LDCF).**

Hence, option D is correct.

55. Ans: D

Exp:

- Recently, a newly discovered plant **Allium negianum, in Uttarakhand** has been confirmed to belong to the genus that includes **many staple foods such as onion and garlic.**
- Allium is one of the largest genera in Amaryllidaceae.
  - ◆ Amaryllidaceae is a family of herbaceous (connected with plants that have soft stems), mainly perennial and bulbous flowering plants.
- The genus Allium contains about 1,100 species worldwide, including many staple foods like onion, garlic, scallion, shallot and chives.
- The genus naturally occurs in dry seasons in the northern hemisphere and South Africa but the newly-identified species is restricted to the region of the western Himalaya.
- The scientific name Allium negianum **honours the late Dr. Kuldeep Singh Negi**, an eminent explorer and Allium collector from India.
  - ◆ They are useful for **various medicinal purposes.**

Hence, option D is correct.

56. Ans: C

Exp:

- E-Waste is short for Electronic-Waste and the term is used to describe old, end-of-life or discarded electronic appliances. It includes their components, consumables, parts and spares.
  - ◆ It is categorised into 21 types under two broad categories:
    - Information technology and communication equipment.
    - Consumer electrical and electronics.



- Laws to manage e-waste have been in place in India since 2011, mandating that only authorised dismantlers and recyclers collect e-waste. E-waste (Management) Rules, 2016 was enacted in 2017.
- India's **first e-waste clinic** for segregating, processing and disposal of waste from household and commercial units has been **set-up in Bhopal, Madhya Pradesh. Hence, statement 2 is correct.**
- Originally, the **Basel Convention (1992)** did not mention e-waste but later it addressed the issues of e-waste in 2006 (COP8).
  - ◆ The **Nairobi Declaration** was adopted at **COP9 of the Basel Convention on the Control of the Trans-boundary Movement of Hazardous Waste.** It aimed at creating innovative solutions for the **environmentally sound management of electronic wastes. Hence, statement 1 is correct.**

57. Ans: C

Exp:

- Recently, a report from the **World Meteorological Organisation (WMO)** stated that Africa's rare glaciers will disappear in the next two decades due to climate change.
  - ◆ Their **current glacial retreat rates are higher than the global average.** If this continues, it will lead to total de-glaciation by the 2040s. **Hence, statement 1 is correct.**
- As per the report, Africa is the continent that **contributes least to global warming** yet it is **going to suffer the most. Hence, statement 2 is correct.**
  - ◆ While African nations contribute less than 4% of global greenhouse gas emissions, the report underscored the outsize impact that changes in the climate are having on the continent's 1.3 billion people.
- The last three mountain glaciers in Africa (Mount Kilimanjaro (Tanzania), Mount Kenya (Kenya) and the Ruwenzori Mountains (Uganda)) are receding at such a rapid pace that they could disappear within two decades.

58. Ans: B

Exp:

- The **hornbills** are a family of birds found in **tropical and subtropical Africa and Asia. hence, statement 1 is correct.**
- India is home to nine species of hornbills.
  - ◆ The **northeastern region has the highest diversity** of hornbill species within India. **Hence, statement 2 is not correct.**

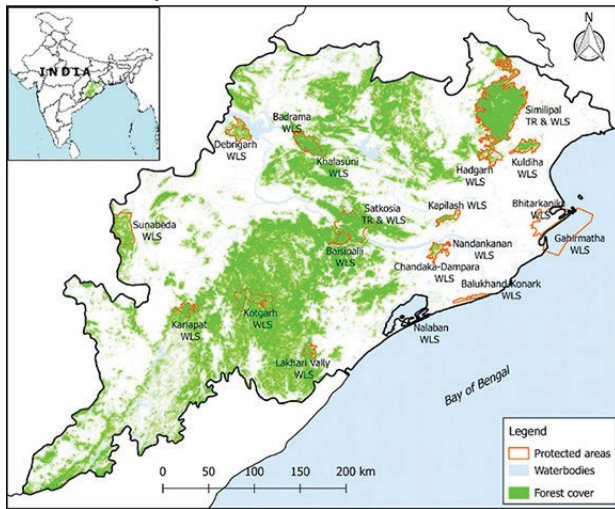
- Hornbills are the cultural symbols of some ethnic communities in the northeast, specifically the Nyishi of Arunachal Pradesh.
  - ◆ The **Hornbill festival celebrated in Nagaland** is named after the bird – Hornbill which is the most revered and admired bird for the **Nagas. Hence, statement 3 is not correct.**
- Hornbills have a symbiotic relationship with several canopy trees in tropical forests. The forest patches that have rare trees like Canarium, attract hornbills in large numbers (for food).
  - ◆ In turn, hornbills end up dispersing seeds of a diverse array of plant species in higher numbers in these patches.

59. Ans: D

Exp:

- Recently, the Odisha Government has decided to relocate around 420 families from four zero-connectivity villages in **Debrigarh wildlife sanctuary.**
  - ◆ It is **situated in the Bargarh district of Odisha near Hirkud dam** (Mahanadi River) and covers an area of 346.91 square kilometers.
    - It is bounded on the east and north by the huge Hirkud reservoir.
  - ◆ It is an important site for in situ conservation of wildlife and its habitat in the state of Odisha.
- **Gahirmatha** Marine Sanctuary is the **mass nesting spot in the Indian Ocean region** and the only turtle sanctuary in Odisha.
  - ◆ It is the world's largest nesting beach of Olive Ridley Sea Turtles.
- **Nandankanan** Zoological Park is **located near Bhubaneswar, Odisha.**
  - ◆ Unlike other zoos in the country, **Nandankanan is built right inside the forest** and set in a completely natural environment.
  - ◆ Nandankanan is among the six participating zoos for the conservation breeding of White-backed vultures.
- **Baisipalli** Wildlife Sanctuary gets its name from the 22 settlements existing within its span. It was given the status of sanctuary in May 1981.
- It is **located where the Mahanadi River passes through a gorge in the Eastern Ghats** mountains in Nayagarh District.
- The whole area is a part of the Deccan Peninsula Biogeographic Zone, Eastern Plateau province and Eastern Ghat sub-division.

Hence, option D is correct.



60. Ans: A

Exp:

- **Namdapha National Park** was declared a **National Park in 1983**. In the same year, it was also declared as a **Tiger Reserve**.
- It lies at the **international border between India and Myanmar** in the state of **Arunachal Pradesh**.
  - ◆ Namdapha is **surrounded by the Patkai hills to the south** and south-east and by the **Himalaya in the north**.
  - ◆ Namdapha is in fact the name of a river originating in the Park and it meets Noa-Dehing river. The **Noa-Dehing river, is a tributary of the Brahmaputra** and flows in a **North-South direction in the middle of the National Park**.
- The National Park enjoys a subtropical climate. The mountainous part has a mountain type of climate while the low lying plains and valleys experience tropical climate.
  - ◆ The vegetation is characteristic of tropical evergreen forests (Tropical Rain Forests).
  - ◆ It is the only park in the World to have the four species of big cat namely the Tiger, Leopard, Snow Leopard and Clouded Leopard.
  - ◆ Hoolock Gibbons, the only 'ape' species found in India is found in this National Park.

Hence, option A is correct.

61. Ans: C

Exp:

- **Net-Zero Emissions** refers to achieving an overall balance between greenhouse gas emissions produced

and greenhouse gas emissions taken out of the atmosphere. **Hence, statement 1 is correct.**

- ◆ First, human-caused emissions (like those from fossil-fueled vehicles and factories) should be reduced as close to zero as possible.
- ◆ Second, any remaining GHGs should be balanced with an equivalent amount of carbon removal, for example by restoring forests.
- As of June 2020, twenty countries and regions have adopted net-zero targets.
  - ◆ The Kingdom of Bhutan is already carbon-negative, i.e. absorbs more CO<sub>2</sub> than it emits.
- India's per capita CO<sub>2</sub> emissions – at 1.8 tonnes per person in 2015 – are around a ninth of those in the USA and around a third of the global average of 4.8 tonnes per person.
  - ◆ However, overall, India is now the planet's **third-largest emitter of CO<sub>2</sub>, behind China and the USA**. Hence, **statement 2 is correct**.
- Recently, Indian Railways (IR) has announced that it is likely to become world's first 'net-zero' carbon emitter by 2030.
  - ◆ IR is taking a multi-pronged approach to go green and decarbonise - from increasing its sourcing of Renewable Energy (RE) to electrifying its traction network and reducing its energy consumption

62. Ans: A

Exp:

**About Kaziranga National Park**

- **Location:**
  - ◆ 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**.
- **Legal Status:**
  - ◆ It was declared as a **National Park in 1974**.
  - ◆ It has been declared a **tiger reserve since 2007**.
- **International Status:**
  - ◆ It was declared a **UNESCO World Heritage Site in 1985**.
  - ◆ It is recognized as an **Important Bird Area** by BirdLife International.
- **Biodiversity:**
  - ◆ It is the **home of the world's most one-horned rhinos**.

○ **Pobitora Wildlife Sanctuary has the highest density** of one-horned rhinos in the world and the second-highest number of Rhinos in Assam after Kaziranga National Park.

◆ Much of the focus of conservation efforts in Kaziranga is focused on the **'big four' species - Rhino, Elephant, Royal Bengal tiger and Asiatic water buffalo.**

○ The 2018 census had yielded 2,413 rhinos and approximately 1,100 elephants.

○ As per the figures of tiger census conducted in 2014, **Kaziranga had the third-highest population in India** after **Jim Corbett National Park** in Uttarakhand and **Bandipur National Park** in Karnataka.

◆ Kaziranga is also **home to 9 of the 14 species of primates** found in the Indian subcontinent.

● **Rivers and Highways:**

◆ **National Highway 37** passes through the parking area.

◆ The park also has more than 250 seasonal water bodies, besides the **Diphlu River** running through it.

Hence, option A is correct.

63. Ans: X

Exp:

● The **World Meteorological Congress** is the supreme body of the **World Meteorological Organization (WMO).**

◆ WMO is a specialised agency of the United Nations for meteorology, operational hydrology and related geophysical sciences. India is a member. Hence, statement 1 is correct.

● WMO produces the **State of the Global Climate Report.**

◆ The report is published annually to keep a track of global warming. **Hence, statement 2 is correct.**

64. Ans: C

Exp:

● Recently, the **fourth general assembly** of the **International Solar Alliance (ISA)** was held.

◆ A total of 108 countries participated in the assembly, including 74 member countries, 34 observer and prospective countries, 23 partner organisations and 33 special invitee organisations.

● The ISA is an intergovernmental treaty-based organisation with a global mandate to catalyse solar growth by helping to reduce the cost of financing and technology.

◆ ISA, co-founded by India and France during the 2015 climate change conference in Paris has assumed centre-stage for India's attempts at a global climate leadership role.

● ISA is the **nodal agency for implementing One Sun One World One Grid (OSOWOG)**, which seeks to transfer solar power generated in one region to feed the electricity demands of others. **Hence, statement 1 is correct.**

● NISE is an autonomous institution of the Ministry of New and Renewable (MNRE) and is the apex National R&D institution in the field of Solar Energy.

● New ISA programmes launched on management of solar PV panels & battery usage waste and solar hydrogen programme.

● The **new Hydrogen initiative** is aimed at **enabling the use of solar electricity to produce hydrogen** at a more affordable rate than what is available currently (USD 5 per KG), by bringing it down to USD 2 per KG. **Hence, statement 2 is correct.**

65. Ans: A

Exp:

● Recently, a report (Tightening the Net) published by Oxfam International has said that announcing Net Zero Carbon Targets may be a dangerous distraction from the priority of cutting carbon emissions.

● Over 100 countries have set or are considering net-zero emissions or neutrality targets.

Hence, option A is correct.

66. Ans: C

Exp:

● **About Climate Vulnerability Index:**

◆ The report titled **"Mapping India's Climate Vulnerability – A District-level Assessment"** has been released by the **Council on Energy, Environment and Water (CEEW)** (not-for-profit policy research institution).

◆ The report has also launched the first-of-its-kind **Climate Vulnerability Index.**

◆ The index has **analysed 640 districts in India** and found that **463 of these are vulnerable to extreme floods, droughts and cyclones.**

Hence, option C is correct.

**67. Ans: D****Exp:**

- Recently, A troop of Gray langurs (*Semnopithecus entellus*) with their pelage (fur or hair) coloured blue was spotted in an industrial neighbourhood of Ankleshwar in Gujarat.
  - ◆ Also called Hanuman, Langur, named after the Hindu god, Hanuman.
    - Its 16 subspecies' range extends from the Himalayas in the north to peninsular India in the south.
  - ◆ It is grey washed with buff or silvery shades. Their hands and feet are black and they have long tails for balancing on tree limbs.
  - ◆ It is found both in forests and near human habitations.
    - They inhabit areas between 2,200-4,000 metres above mean sea level in the subtropical, tropical moist temperate, alpine, coniferous and broadleaved forests and scrublands. Hence, statement 2 is not correct.
  - ◆ It is distributed in a varied habitat including dry savannah and tropical rainforests.
    - In the Indian Subcontinent, their distribution is reported in Bhutan, northern India and Nepal.
  - ◆ **Protection Status:**
    - IUCN Red List: Least Concern
    - CITES: Appendix-I
    - Wildlife Protection Act, 1972 : Schedule-I

**Hence, statement 1 is not correct.****68. Ans: B****Exp:**

- **New Zealand** has become the **first country to pass laws requiring banks, insurers and investment managers to report the impacts of climate change on their business.**
- The new laws will require financial firms to explain how they would manage climate-related risks and opportunities, and the disclosure requirements will be based on standards from New Zealand's independent accounting body.
  - ◆ The law will force financial firms to assess not only their own investments, but also to evaluate the companies they are lending money to, in terms of their environmental impact.

- The **disclosures will become mandatory** for financial years beginning in 2023.

**Hence, option B is correct.****69. Ans: C****Explanation**

- The Emissions Gap Report is published by the United Nations Environment Programme (UNEP).
- Recently the **twelfth edition of the Emissions Gap Report 2021** has been released.
- It informs that the **new national climate pledges** combined with other mitigation measures put the world on track for a **global temperature rise of 2.7°C** by the end of the century.

**Hence, option C is correct.****70. Ans: C****Exp:****Polluter Pays:**

- It is **one of the principles of Climate Finance** along with Common but Differentiated Responsibility and Respective Capability (CBDR-RC), Additionality, Adequacy & Precaution and Predictability. **Hence, statement 1 is correct.**
- The '**polluters pays**' principle is the commonly accepted practice according to which those who produce pollution should bear the costs of managing it to prevent damage to human health or the environment.
  - ◆ This principle **underpins most of the regulation** of pollution affecting land, water and air formally known as the **1992 Rio Declaration**. **Hence, statement 2 is correct.**
- It has also been applied more specifically to emissions of greenhouse gases which cause climate change.

**71. Ans: C****Exp:**

- The **Lukha River was considered toxic** beyond redemption a decade ago **owing to contamination due to acid mine drainage and run-off from the coal mines**. **Hence, statement 1 is correct.**
- **Phytoremediation** method was used to detoxify the river, **where Algae was used to remove major toxic contents** from the water. **Hence, statement 2 is correct.**
- The pilot project was undertaken under the District Mineral Fund after reports of low pH levels affecting the aquatic life in the river.

- ◆ Most living organisms, especially aquatic life, function at the optimal pH range of 6.5 to 8.5.
- ◆ pH is a measure of how acidic/basic water is. The range goes from 0 to 14, with 7 being neutral. pHs of less than 7 indicate acidity, whereas a pH of greater than 7 indicates a base. The pH of water is a very important measurement concerning water quality.

72. Ans: B

Exp:

- **Hemipteran insects**, also called **true bugs**, have mouthparts used for **piercing and sucking** and have two pairs of wings.
  - ◆ They range in size from 1 mm to around 15 cm.
- Hemiptera is the order of insects that comprises over 80,000 species within groups such as the **cicadas**, aphids, planthoppers, **leafhoppers**, bed bugs and shield bugs.
- **Beetles belong to order coleoptera** and **scorpionflies belong to mecoptera** order.
  - ◆ Both beetles and scorpionflies have chewing types of mouth parts.

Hence, option B is correct.

73. Ans: B

Exp:

- **The Kunming Declaration** was adopted by over 100 countries at the ongoing **15<sup>th</sup> Conference of the Parties** to the **United Nations Convention on Biological Diversity** in China. The Kunming Declaration calls for **“urgent and integrated action”** to reflect **biodiversity considerations in all sectors** of the global economy. Hence, **statement 1 is not correct.**
  - ◆ The **Treaty on the Non-Proliferation of Nuclear Weapons**, commonly known as the **Non-Proliferation Treaty or NPT**, is an international treaty whose objective is to **prevent the spread of nuclear weapons and weapons technology.**
- **China** has also pledged to **inject USD 233 million into a new fund** to protect biodiversity in developing countries. The fund is being referred to by China as **Kunming Biodiversity Fund.** Hence, **statement 2 is correct.**

74. Ans: D

Exp:

- Aerial Seeding is a plantation technique wherein seed balls — seeds covered with a mixture of clay, compost, char and other components — are sprayed using aerial devices, including planes, helicopters or drones.

- ◆ The plant species which are native to the area and hardy, with seeds that are of an appropriate size for preparing seedballs are usually used for aerial seeding, with a higher survival percentage.
- ◆ Seeds balls/pellets are dispersed in a targeted area by low-flying drones, with the coating providing the required weight for seeds to airdrop on a predetermined location rather than getting deterred by the wind.
- ◆ These pellets sprout when there is enough rain, with nutrients present within them helping in initial growth.

● **Advantages of Aerial Seeding:**

- ◆ **Access to Inaccessible Areas:** Areas that are inaccessible, having steep slopes or no forest routes, can be targeted using this method.
- ◆ **No Extra Attention Required:** The process of the seed's germination and growth is such that it requires no attention after it is dispersed and thus seed pellets are known as the “fire and forget” way of planting.
- ◆ **Eliminate Need of Ploughing:** They eliminate any need for ploughing and do not need to be planted since they are already surrounded by soil, nutrients, and microorganisms.
- ◆ The clay shell also protects them from birds, ants and rats.
- **Prevents Soil Runoff:** Aerial application does not cause soil compaction, hence prevents soil runoff.
  - ◆ This type of seeding technique will be most useful for tropical forests because they absorb carbon much faster than other forest types and also support much higher biodiversity.

Hence, option D is correct.

75. Ans: C

Exp:

- Recently, the National Tiger Conservation Authority (NTCA) has designated the combined areas of the Guru Ghasidas National Park and Tamor Pingla Wildlife Sanctuary as a Tiger Reserve.
  - ◆ It is located in the northern part of Chhattisgarh, bordering Madhya Pradesh and Jharkhand.
  - ◆ Approval was granted under Section 38V(1) of the Wildlife (Protection) Act, 1972.
  - ◆ This will be the **fourth Tiger Reserve in Chhattisgarh**, after the **Udanti-Sitanadi, Achanakmar sssand Indravati Reserves.** Hence, **statement 1 is not correct.**

- ◆ It connects Jharkhand and Madhya Pradesh and provides a corridor for tigers to move between the Bandhavgarh (Madhya Pradesh) and Palamau Tiger Reserves (Jharkhand). Hence, statement 3 is correct.
- ◆ Guru Ghasidas National Park was the last known habitat of the Asiatic cheetah in the country. Hence, statement 2 is correct.

76. Ans: B

Exp:

- Sand and dust storms are common meteorological hazards in arid and semi-arid regions.
  - ◆ They are usually caused by thunderstorms – or strong pressure gradients associated with cyclones – which increase wind speed over a wide area.

Impacts of Sandstorms:

- **Negative:**
- **Affect the Source of Freshwater:**
  - ◆ Very high dust deposition also occurs in the Himalaya-Hindu Kush mountain range and the Tibetan Plateau, the so-called 'third pole' that are the sources for fresh water for more than 1.3 billion people in Asia.
- **Increases Melting of Ice:**
  - ◆ The deposition of dust on glaciers induces a warming effect, increasing the melting of ice, with direct and indirect impacts on society through numerous issues, including food security, energy production, agriculture, water stress and flood regimes. Hence, statement 2 is correct.
- **On Farmland:**
  - ◆ Dust deposition impacted large portions of farmland in Turkmenistan, Pakistan and Uzbekistan.
    - Much of this dust is characterised by high salt content, making it toxic for plants.
  - ◆ It reduces yield, posing a significant threat to the production of irrigated cotton and other crops. Hence, statement 1 is correct.
- **Positive:**
  - ◆ They can increase the nutrient content in the areas of deposition and benefit vegetation.
  - ◆ Dust deposited on water bodies can alter their chemical characteristics, triggering both positive as well as adverse outcomes.

- ◆ Dust particles that carry iron can enrich parts of oceans, improving the phytoplankton balance and impacting marine food webs. Hence, statement 3 is not correct.

Hence, option B is correct.

77. Ans: D

Exp:

- Bhitarkanika National Park has the second-largest mangrove forest in India and is a Ramsar site. It was declared as a Bhitarkanika National Park in the year of 1988.
- Bhitarkanika is located in the estuary of Brahmani, Baitarani, Dhamra, and Mahanadi river systems. It is located in Kendrapara district of Odisha.
- It is one of Odisha's finest biodiversity hotspots and is famous for its mangroves, migratory birds, turtles, estuarine crocodiles, and countless creeks.
  - ◆ It is said to house 70% of the country's estuarine or saltwater crocodiles, conservation of which was started way back in 1975.

Hence, option D is correct.

78. Ans: B

Exp:

- Sea turtles are larger in size compared to terrapins (freshwater turtles) and tortoises. Hence, statement 1 is not correct.
- There are five species in Indian waters i.e. Olive Ridley, Green turtle, Loggerhead, Hawksbill, Leatherback.
  - ◆ Olive ridley turtles are the smallest and most abundant of all sea turtles found in the world, inhabiting warm waters of the Pacific, Atlantic and Indian oceans. Hence, statement 2 is correct.
  - ◆ The Olive Ridley, Leatherback and Loggerhead are listed as 'Vulnerable' on the IUCN Red List of Threatened Species.
  - ◆ The Hawksbill turtle is listed as 'Critically Endangered' and the Green Turtle is listed as 'Endangered'.
    - They are protected in Indian Wildlife Protection Act of 1972, under Schedule I.

79. Ans: C

Exp:

- "Bonn Challenge" is a global effort to bring 150 million hectares of the world's deforested and degraded land into restoration by 2020, and 350 million hectares by 2030. Hence, statement 1 is correct.

- **LEAF (Lowering Emissions by Accelerating Forest Finance)** Coalition was announced at the Leaders Summit on Climate, 2021.
  - ◆ The **LEAF coalition will be one of the largest ever public-private efforts to protect tropical forests** and intend to mobilize at least USD 1 billion in financing to countries committed to protecting their tropical forests.
  - ◆ It is a collective of the governments of the USA, United Kingdom and Norway. **Hence, statement 2 is correct.**

80. Ans: A

Exp:

- A raptor is a bird of prey. A bird of prey is a carnivore (meat eater) that kills and eats mammals, reptiles, amphibians, insects, rodents as well as other birds.
  - ◆ All raptors have a hooked beak, strong feet with sharp talons, keen eyesight, and a carnivorous diet.
- Raptors prey on a wide range of vertebrates and thus, **facilitate long-distance seed dispersal**. This indirectly increases **seed production and pest control**. **Hence, statement 1 is correct.**
- Indonesia has the most raptor species, followed by Colombia, Ecuador and Peru.
  - ◆ **Examples:** Owls, vultures, hawks, falcons, eagles, kites, hawks, accipiters, harriers, and osprey.
- **Raptors MoU (Global):** The **Memorandum of Understanding on the Conservation of Migratory Birds of Prey in Africa and Eurasia** is also known as Raptors MoU.
  - ◆ It is an agreement under Convention on the Conservation of Migratory Species of Wild Animals (CMS). **CMS or Bonn Convention** provides a global platform for the **conservation and sustainable use of migratory animals** and their habitats. **Hence, statement 2 is correct.**
  - ◆ It is not legally binding. **Hence, statement 3 is not correct.**

81. Ans: B

Exp:

- The world's largest and most inclusive environmental decision-making forum '**IUCN World Conservation Congress 2020**' is being held in **Marseille, France**.
  - ◆ It took critical policy decisions to address conservation priorities including the ongoing biodiversity crisis.

- The **International Union for the Conservation of Nature (IUCN)** conducts the **World Conservation Congress** which is held every four years in a different location around the globe. **Hence, statement 1 is correct.**
- The first **World Conservation Congress** was conducted in the **United States in 1948**. **Hence, statement 2 is not correct.**
- The **IUCN Red List update** says that despite global improvement at the species level, the number of species that are at high risk continues to grow.
  - ◆ Indonesia's **Komodo dragon (Varanus komodoensis)** is the world's largest living lizard and it has been **moved from vulnerable to endangered**. **Hence, statement 3 is correct.**
  - ◆ The species is increasingly threatened by the impacts of climate change, with rising sea levels expected to shrink its tiny habitat by at least 30% over the next 45 years.

82. Ans: (b)

Exp:

- Manda buffalo, found mainly in the Koraput region, has been recognised as the 19th native breed of buffaloes in the country.
- Native to the **Eastern Ghats**, Mandas are small sized sturdy buffaloes having a unique coat colour of ash grey and grey with copper colour hair. **Hence, statement 1 is not correct.**
- The Manda are **resistant to parasitic infections, less prone to diseases** and can live, produce and reproduce at low or nil input systems. **Hence, statement 2 is correct.**

83. Ans: C

Exp:

- **Deepor Beel** (Beel means wetland or large aquatic body in Assamese) located about 10 km Southwest of Guwahati city is considered one of the large and **important riverine wetlands in the Brahmaputra Valley of lower Assam**. **Hence, statement 1 is correct.**
- Deepor Beel is one of the largest freshwater lakes in Assam and the State's only Ramsar site besides being an Important Bird Area by Birdlife International. **Hence, statement 2 is correct.**

84. Ans: A

Exp:

- The **Pilibhit Tiger Reserve** is located in Pilibhit district, Lakhimpur Kheri District and Bahraich District of Uttar Pradesh.

- ◆ It was designated as a Tiger Reserve in 2014 and was India's 45<sup>th</sup> Tiger Reserve Project.
- It forms part of **Terai Arc Landscape** in the **upper Gangetic Plain**. Hence, **statement 1 is correct**.
  - ◆ The northern edge of the reserve lies along the Indo-Nepal border while the southern boundary is marked by the river Sharada and Khakra.
- **Corridor Linkages:**
  - ◆ Pilibhit is an important habitat for tigers owing to its connection with several tiger habitats within the State and outside. They are used by tigers and other wild animals.
  - ◆ **The important linkages are:**
    - **Surahi range - Corbett**
    - **Lagga-Bagga - Shuklaphanta National Park (Nepal)**
    - **Kishanpur Wildlife Sanctuary – Dudhwa.**

Hence, **statement 2 is not correct.**



85. Ans: B

Exp:

- **Permafrost** is any ground that remains completely frozen - 32°F (0°C) or colder - for at least two years straight.
  - ◆ These permanently frozen grounds are most common in regions with high mountains and in Earth's higher latitudes - near the North and South Poles.
  - ◆ Permafrost covers about 15% of the land area of the globe.
  - ◆ Although the ground is frozen, permafrost **regions are not always covered in snow**. Hence, **statement 1 is not correct**.

- Landscapes with large stretches of permafrost are often called tundra. The word tundra is a Finnish word referring to a treeless plain. Tundra is found at high latitudes and at high altitudes, where the permafrost has a very thin active layer
- According to the latest IPCC report, increasing global warming will result in **reductions in Arctic permafrost** and the thawing of the ground is **expected to release greenhouse gases like methane and carbon dioxide**.
  - ◆ Permafrost entombed and froze the organic material in the ground.
  - ◆ If the ground begins to thaw, this material will become available for microorganisms to break down.
  - ◆ In some environments, the microorganisms will release carbon dioxide, and in others release methane which is about 25 to 30 times more potent as a **greenhouse gas than carbon dioxide**. Hence, **statement 2 is correct**.

86. Ans: D

Exp:

- The **United Nations Framework Convention on Climate Change (UNFCCC)** formally incorporates mobility in the context of climate change in the **2010 Cancun Adaptation Framework**, calling on countries for “measures to enhance understanding, coordination and cooperation with regard to climate induced displacement, migration, and planned relocation,” while “taking into account their common but differentiated responsibilities”
- The **Sendai Framework** outlines targets and priorities for action to prevent and reduce disaster risks, including through governance, investment in disaster reduction for resilience, and disaster preparedness, recovery, rehabilitation, and reconstruction.
  - ◆ The Sendai Framework articulates the **need to include migrants in disaster risk reduction and management in three places**.
- The Preamble of the **Paris Agreement** states that the “Parties should, when taking action to address climate change, respect, promote and consider their **respective obligations on migrants**”.
- The UNFCCC Task Force on Displacement, established under the **Warsaw Mechanism**.
  - ◆ The **Warsaw International Mechanism** for Loss and Damage focuses on preparing for and addressing loss and damage from both sudden- and slow onset climate change impacts, including effects on mobility.



- The **COP24 Decision**, informed by a report from the **UNFCCC Task Force on Displacement**, invites UNFCCC parties to facilitate orderly, safe, regular and responsible migration and mobility in the context of climate change, by considering the needs of migrants and displaced persons, communities of origin, transit and destination, and by enhancing opportunities for regular migration pathways, including through labor mobility.
- Global Compact for Safe, Orderly, and Regular Migration recognizes the need to strengthen joint analysis and sharing of information to better map, understand, predict, and address migration movements, such as those that may result from sudden-onset and slow-onset natural disasters and the adverse effects of climate change, as well as develop adaptation and resilience strategies, taking into account the potential implications on migration.
- Global Compact on Refugees provides specific commitments to address the drivers of environmental mobility and develop policies aimed at ensuring greater protection for those affected by these movements.

Hence, option D is correct.

87. Ans: D

Exp:

- Arsenic is an **odourless and tasteless metalloid** widely distributed in the earth's crust. Hence, **statement 1 is correct**.
  - ◆ It is naturally present at high levels in the earth crust and groundwater of a number of countries. It is highly toxic in its inorganic form.
- **Impacts of Arsenic:**
  - ◆ It leads to adverse health effects through inhibition of essential enzymes, which ultimately leads to death from multi-system organ failure.
  - ◆ **Long-term exposure to arsenic** from drinking-water and food can cause cancer and **skin lesions**. It has also been associated with cardiovascular disease and diabetes. Hence, **statement 3 is correct**.
  - ◆ In utero and **early childhood exposure** has been linked to **negative impacts on cognitive development** and increased deaths in young adults. Hence, **Statement 2 is correct**.

88. Ans: C

Exp:

- Similipal Tiger Reserve was formally designated a tiger reserve in 1956 and brought under Project Tiger in the

year 1973. It was declared a biosphere reserve by the Government of India in June, 1994.

- ◆ It has been part of the **UNESCO World Network of Biosphere Reserve** since 2009. Hence, **statement 1 is correct**.
- It is part of the Similipal-Kuldiha-Hadgarh Elephant Reserve popularly known as **Mayurbhanj Elephant Reserve**. Hence, **statement 2 is correct**.
  - ◆ It includes 3 protected areas i.e. **Similipal Tiger Reserve**, Hadagarh Wildlife sanctuary and Kuldiha wildlife sanctuary.
- It is situated in the northern part of Odisha's Mayurbhanj district. Geographically, it lies in the eastern end of the eastern ghat.

89. Ans: B

Exp:

- Every year, **16<sup>th</sup> September** is observed as the **International Day for the Preservation of the Ozone layer** (World Ozone Day).
- **Ozone** is a special form of oxygen with the chemical formula O<sub>3</sub>. Most ozone resides high up in the atmosphere, between 10 and 40 km above Earth's surface. This region is called the **stratosphere and it contains about 90% of all the ozone** in the atmosphere. Hence, **statement 1 is correct**.
- The ozone in stratosphere is destroyed by man-made chemicals referred to as Ozone-Depleting Substances (ODS), including chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), halons, methyl bromide, carbon tetrachloride, and methyl chloroform. Hence, **statement 2 is correct**.
- After the **Montreal Protocol** on Substances that deplete the ozone layer signed by almost every country in 1987, the **United Nation General Assembly**, in 1994, proclaimed this day as the **International Day for the Prevention of the Ozone Layer**.
- In 2016 as a continuation of the global effort the Parties to the Montreal Protocol **reached agreement at their 28th Meeting of the Parties in Kigali, Rwanda** to phase-down **hydrofluorocarbons (HFCs)**. Hence, **statement 3 is not correct**.
  - ◆ Recently, the Indian Government approved the ratification of the Kigali Amendment to the Montreal Protocol.

90. Ans: B

Exp:

- Recently, **Mura-Drava-Danube (MDD)** was declared as the world's first **'five-country biosphere reserve'** by



the United Nations Educational, Scientific and Cultural Organization (UNESCO). **Hence, option B is correct.**

- The biosphere reserve covers 700 kilometres of the Mura, Drava and Danube rivers and stretches across Austria, Slovenia, Croatia, Hungary and Serbia.
- The total area of the reserve is a million hectares - in the so-called '**Amazon of Europe**', which is now the largest riverine protected area in Europe.
- The biosphere "represented an important contribution to the European Green Deal (climate action plan) and contributed to the implementation of the EU Biodiversity Strategy in the Mura-Drava-Danube region."
- The strategy's aim is to revitalise 25,000 km of rivers and protect 30% of the European Union's land area by 2030.

**91. Ans: C**

**Exp:**

- **Toxic 3 Os:** Oxybenzone (OBZ), Octocrylene (OCR) and octinoxate (OMC) known as the 3 Os are UltraViolet (UV) filters commonly added to chemical sunscreens.
  - ◆ These are active ingredients present in more than two-thirds of all sunscreens and they pose a threat to public health, marine life and coral reefs.
- **Octocrylene** in sun protection products degrades into benzophenone.
  - ◆ **Benzophenone is a carcinogen** that can also interfere with key hormones and reproductive organs.
  - ◆ They cause human cell damage that **has been linked to cancer**, disrupt hormones, have been found in breast milk, blood and urine and are known allergens. **Hence, statement 1 is correct.**
- **Oxybenzone** is particularly **toxic to corals** at concentrations as low as a few parts per trillion.
  - ◆ They wash off people's bodies when they swim and contaminate through waste water runoff and cause 'zombie' coral which looks healthy but is unable to reproduce, **coral bleaching as well as other issues. Hence, statement 2 is correct.**

**Hence, option C is correct.**

**92. Ans: C**

**Exp:**

- Recently, the US President has announced the Global Methane Pledge, which is an **US-EU led effort to cut methane emissions** by a third by the end of this decade. **Hence, statement 1 is correct.**

- The announcement has come ahead of 26th Conference of the Parties (COP26) of United Nations Framework Convention on Climate Change (UNFCCC) in Glasgow, UK.
- This will also help in **abiding by the targets of the Paris climate deal. Hence, statement 2 is correct.**
- The pact between the US and the EU sets a target of cutting at least 30% from global methane emissions, based on 2020 levels, by 2030.
- If adopted around the world, this would reduce global heating by 0.2C by the 2040s, compared with likely temperature rises by then.
- The world is now about 1.2C hotter now than in pre-industrial times.

**93. Ans: B**

**Exp:**

- **Sea cucumbers** are **marine invertebrates** that live on the seafloor **found generally in tropical regions.** They're named for their unusual oblong shape that resembles a fat cucumber. **Hence, statement 1 is not correct.**
  - ◆ This class falls under the Echinodermata phylum, which also includes many other well-known marine invertebrates, such as sea stars, sea urchins and sand dollars.
- **They are an integral part of the coral ecosystem** as one of the main **by-products of the sea cucumbers digestion of sand is calcium carbonate** and this is essential for the survival of the coral reefs. **Hence, statement 2 is correct.**
  - ◆ **They act like garbage collectors of the ocean world**, and they **recycle nutrients**, thus playing an important role in keeping coral reefs in good condition. **Hence, statement 3 is correct.**

**94. Ans: D**

**Exp:**

- Mammoth, (genus Mammuthus), any member of an **extinct group of elephants found as fossils in Pleistocene deposits** over every continent except Australia and South America and in early Holocene deposits of North America. **Hence, statement 1 is correct.**
- The woolly, Northern, or Siberian mammoth (Mammuthus primigenius) is by far the best-known of all mammoths.
  - ◆ The relative abundance and, at times, excellent preservation of this species's carcasses found in the permanently frozen ground of Siberia has provided much information about mammoths' structure and habits.

- It is believed that mammoths disappeared because of a change in climate, disease, hunting by humans, or perhaps some combination of these.
- **De-extinction of Woolly Mammoths can lead to:**
  - ◆ Restoration of Ecosystem: When mammoths disappeared from the Arctic some 4,000 years ago, shrubs overtook what was previously grassland.
  - ◆ Mammoth-like creatures could help restore this ecosystem by compressing shrubs, knocking over trees, and fertilising grasses with their faeces.
  - ◆ **Reduce Climate Change:** If the current Siberian permafrost melts, it will release potent greenhouse gases.
    - De-extinction will prevent the permafrost from melting. Compared to tundra, grassland might reflect more light and keep the ground cooler. **Hence, statement 2 is correct.**
  - ◆ The CRISPR gene editing technology will be used to modify Asian elephant embryos.
    - **Asian elephants** are the **mammoth's closest living relative** so their genomes resemble those of woolly mammoths. **Hence, statement 3 is correct.**

95. Ans: D

Exp:

- **Humboldt penguins** (*Spheniscus Humboldtii*) are a medium-sized species with an average height of just over 2 ft.
  - ◆ They have large, bare skin patches around their eyes, an adaptation to help keep them cool.
- Humboldt penguins are **endemic to the Pacific coasts of Chile and Peru**. **Hence, statement 1 is not correct.**
  - ◆ They are so named because their habitat is located near the Humboldt Current, a large oceanic upwelling characterised by cold waters.
- They are one of the most popular zoo penguins due to their **ability to withstand warmer climates**. **Hence, statement 2 is not correct.**
  - ◆ Threats to Humboldt Penguins include entanglement in fishing nets, loss of key breeding sites, harvesting of guano for use as fertiliser, and being hunted by introduced species such as cats and dogs.
- **Protection Status:**
  - ◆ **IUCN: Vulnerable**. **Hence, statement 3 is correct.**
  - ◆ **CITES: Appendix I**

96. Ans: D

Exp:

- Recently, the Indian Institute of Technology (IIT), Guwahati, has developed a **super-hydrophobic cotton composite with Metal-Organic Framework (MOF)** that can **clean-up marine oil-spill**.
  - It is a novel MOF composite, which is a highly porous and water-repellent material and can absorb oil selectively from an oil-water mixture.
    - ◆ This MOF composite has great capability for selective separation of the oils from oil/water mixtures and the separation efficiency lies between 95% and 98%, irrespective of the chemical composition and density of the oils.
    - ◆ It can also absorb large volumes of oils and can be reused for a minimum of 10 times so that the sorbents can provide more recovery of the spilled oil.
  - It will clean-up the spilled oil from environmental water (river, sea or ocean water) during oil transportation with high efficiency and large absorption capacity, thus reducing environmental water pollution.
    - ◆ It is environmentally friendly and cost effective.
- Hence, option D is correct.**

97. Ans: A

Exp:

- Greater One-Horned Rhinoceros are also known as Indian rhino.
  - ◆ It is the largest of the rhino species (the other being white and black rhinos in Africa and Javan and Sumatran rhino species in Asia).
  - ◆ It is identified by a single black horn and a grey-brown hide with skin folds.
- India is **home to the largest number of Greater One-Horned Rhinoceros** in the world. **Hence, statement 1 is correct.**
  - ◆ At present, there are about 2,600 Indian rhinos in India, with more than 90% of the population concentrated in Assam's Kaziranga National Park.
- The Greater One-Horned Rhinoceros species is restricted to small habitats in Indo-Nepal terai and northern West Bengal and Assam.
  - ◆ In India, rhinos are mainly found in **Kaziranga National Park, Pobitora WLS, Orang National Park, Manas National Park** in Assam, **Jaldapara National Park** and **Gorumara National Park** in West Bengal and **Dudhwa Tiger Reserve** in Uttar Pradesh. **Hence, statement 2 is not correct.**

- Protection Status of Greater One-Horned Rhinoceros:
  - ◆ IUCN Red List: **Vulnerable. Hence, statement 3 is not correct.**
  - ◆ CITES: Appendix-I
  - ◆ Wildlife Protection Act, 1972: Schedule I.

98. Ans: C

Exp:

- Recently, Foundation for Environment Education (FEE), Denmark has awarded the Blue Flag Certification to Kovalam (Tamil Nadu) and Eden (Puducherry), taking the total number of such beaches in the country to 10.
- A waving "Blue Flag" is **an indication of 100% compliance to the 33 stringent criteria and sound health of the beach. Hence, statement 1 is correct.**
- It is an internationally recognised eco-label that is accorded based on 33 criterias. These criterias are divided into 4 major heads namely,
  - ◆ Environmental education and information
  - ◆ Bathing water quality
  - ◆ Environmental management
  - ◆ Conservation and safety services in the beaches
- Blue Flag beaches are considered the cleanest beaches of the world. It is an eco-tourism model endeavouring to provide the tourists/beachgoers clean and hygienic bathing water, facilities, a safe and healthy environment and sustainable development of the area.
  - ◆ It is accorded by the international jury composed of eminent members - United Nations Environment Programme (UNEP), United Nations World Tourism Organisation (UNWTO), Denmark-based NGO Foundation for Environmental Education (FEE) and International Union for Conservation of Nature (IUCN).
- On the lines of **Blue Flag certification**, India has also launched its **own eco-label BEAMS (Beach Environment & Aesthetics Management Services). Hence, statement 2 is correct.**

99. Ans: D

Exp:

- **About Factors Causing Rapid Melting of Arctic Sea Ice:**
  - ◆ **Albedo Feedback Loop:**
    - Ice is more reflective (has a higher albedo) than land or water surfaces, this is one of several reasons for the Arctic's warming about **three times faster than the planet as a whole.**

- Therefore, as global ice cover decreases, the reflectivity of Earth's surface decreases, more incoming solar radiation is absorbed by the surface, and the surface warms.

Hence, **statement 1 is correct.**

- **Darker Ocean Surface:**

- ◆ The Arctic's bright ice is replaced by a darker open ocean surface, less of the sun's radiation is reflected back to space, **driving additional heating and ice loss. Hence, statement 2 is correct.**

- **Counterclockwise Ice Circulation:**

- ◆ **Cyclones** entering the Arctic from Siberia generated counterclockwise winds and ice drifts.
- ◆ This pattern generally reduces the amount of sea ice moving out of the Arctic through the **Fram Strait, east of Greenland.** This likely contributed to the record low summer sea ice conditions observed in the Greenland Sea. **Hence, statement 3 is correct.**

100. Ans: D

Exp:

**Impact of Melting Arctic Ice:**

- **Global Climate Change:**

- ◆ The Arctic and Antarctic act like the world's refrigerator. They balance out other parts of the world that absorb heat. The loss of ice and the warming waters will **affect sea levels, salinity levels, and current and precipitation patterns. Hence, statement 1 is correct.**

- **Danger to Coastal Communities:**

- ◆ Global average sea level has risen by about 7-8 inches since 1900, and it's getting worse.
- ◆ Rising seas endanger coastal cities and small island nations by **exacerbating Coastal Flooding and storm surge. Hence, statement 3 is correct.**

- **Food Security:**

- ◆ **Polar vortices**, increased heat waves, and unpredictability of weather **caused by ice loss** are already causing significant damage to crops on which global food systems depend. **Hence, statement 2 is correct.**

- **Loss of Methane Store:**

- ◆ Permafrost in the Arctic region (ground that is permanently frozen) stores large amounts of methane, which is a greenhouse gas that contributes to climate change.

- ◆ As more quickly the arctic ice is lost, more rapidly permafrost will melt. This will result in a vicious cycle that may result in a climate catastrophe.

- **Biodiversity Threat:**

- ◆ Melting of the Arctic ice puts the Arctic region's vibrant biodiversity under serious threat.

101. Ans: A

Exp:

- Recently, the **Botanical Survey of India (BSI)**, in its new **publication Plant Discoveries 2020** has added 267 new taxa/ species to the country's flora. **Hence, statement 1 is correct.**
- The new Discovery to the flora of India include 119 species of seed plants, 57 species of fungi, 44 species of lichens, 21 species of algae, 18 species of microbes, five species of bryophytes and three species of fern and fern allies.
  - ◆ India has about 45,000 species of plants, already identified and classified, which account for about 7% of the total plant species of the world.
  - ◆ About 28% of the Indian plants are endemic to the country.
- **Geographical Distribution of Species:**
  - ◆ **22% of the discoveries were made from the Western Ghats** followed by Western Himalayas (15%), Eastern Himalayas (14%) and **Northeast Ranges (12%)**. **Hence, statement 2 is not correct.**
  - ◆ The West coast contributed 10% while the East Coast contributed (9%) in total discoveries; Eastern Ghats and South Deccan contributed 4% of each while Central Highland and North Deccan added 3% each.

102. Ans: D

Exp:

- Blue foods are food derived from **aquatic animals, plants or algae** that are caught or cultivated in **freshwater and marine environments**. **Hence, statement 1 is correct.**
- They are found to **rank more highly than terrestrial animal-source foods** in terms of their **nutritional benefits and potential for sustainability gains**. **Hence, statement 2 is correct.**
  - ◆ Many blue food species are **rich in important nutrients** like omega-3 fatty acids, vitamins and minerals.
- On average, the major species produced in **aquaculture**, such as tilapia, salmon, catfish and carp, were found to

have **lower environmental footprints** comparable to terrestrial meat.

- The production of blue food **generates the fewest greenhouse gas and nutrient emissions** and **uses the least land and water**. **Hence, statement 3 is correct.**

103. Ans: A

Exp:

- In September 2015, at the United Nations Sustainable Development Summit, Member States formally adopted the 2030 Agenda for Sustainable Development in New York.
- The Sustainable Development Goals or Global Goals are a collection of 17 interlinked global goals designed to be a "blueprint to achieve a better and more sustainable future for all".

- ◆ **Sustainable Development Goal 4 (SDG 4)** is the **education goal**.

- It aims to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all." **Hence, pair 1 correctly matched.**

- ◆ **Sustainable Development Goal (SDG 12): Sustainable consumption and production** is about promoting resource and energy efficiency, sustainable infrastructure, and providing access to basic services, green and decent jobs and a better quality of life for all. **Hence, pair 2 is not correctly matched.**

- Its implementation helps to achieve overall development plans, reduce future economic, environmental and social costs, strengthen economic competitiveness and reduce poverty.

- ◆ **Sustainable Development Goal (SDG 17):** It refers to the need for **cross sector and cross country collaboration** in pursuit of all the goals by the year 2030. **Hence, pair 3 is not correctly matched.**

- It seeks to promote international trade, and help developing countries increase their exports to ensure a universal rules-based and equitable trading system that is fair, open and beneficial to all.

**Hence, option A is correct.**

104. Ans: C

Exp:

- Presently, there is no law covering oil spill as such and its consequential environmental damage in India but India has "the **National Oil Spill Disaster Contingency**

Plan of 1996 (NOS-DCP)" to handle such situations. Hence, statement 1 is not correct.

- ◆ It gives the **Indian Coast Guard** the mandate to coordinate with state departments, ministries, port authorities and environmental agencies to assist in oil spill cleaning operations. Hence, statement 2 is correct.
- In 2015 India ratified the **International Convention on Civil Liability for Bunker Oil Pollution Damage, 2001 (Bunker Convention)**. Convention ensures adequate, prompt and effective compensation for damage caused by oil spills. Hence, statement 3 is correct.
  - ◆ It was administered by the **International Maritime Organization (IMO)**.

105. Ans: C

Exp:

- The **tundra climate region occurs between 60° and 75° of latitude**, mostly along the Arctic coast of North America and Eurasia and on the coastal margins of Greenland. Hence, statement 1 is not correct.
- Tundra winters are long, dark, and cold, with mean temperatures below 0°C for 6 to 10 months of the year. There is a layer of permanently frozen ground below the surface, called **permafrost**. Hence, statement 3 is correct.
- Structurally, the Tundra is a treeless expanse that supports communities of sedges and heaths as well as dwarf shrubs.
- **Almost all tundra is located in the Northern Hemisphere** (the half of Earth above the equator); small areas do exist in Antarctica in the Southern Hemisphere.
  - ◆ Antarctica is much colder than the Arctic and the ground is usually covered by ice. Conditions are seldom right for tundra to form there. Hence, statement 2 is correct.

106. Ans: A

Exp:

- Recently, the **Geological Survey of India (GSI)** and the Indian Institute of Technology, Roorkee have discovered a **new extinct species of hybodont shark** from the **Jaisalmer Basin of Rajasthan**.
  - ◆ The newly discovered crushing teeth from Jaisalmer represents a new species named by the research team as *Strophodusjaisalmerensis*.
- The genus *Strophodus* has been identified for the first time from the Indian subcontinent and is only the third such record from Asia, the other two being from Japan and Thailand.

- ◆ These sharks have been reported for the first time from the Jurassic rocks (approximately, between 160 and 168 million years old) of the Jaisalmer region of Rajasthan.
- Hybodonts dominated both marine and freshwater environments during the Triassic and early Jurassic periods.
  - ◆ However, hybodont sharks started to decline in marine environments from the Middle Jurassic onwards until they formed a relatively minor component of open-marine shark assemblages.
  - ◆ They finally became extinct at the end of the Cretaceous time 65 million years ago.

Hence, option A is correct.

107. Ans: A

Exp:

- The **Terai Arc Landscape** is an 810 km stretch between the river **Yamuna in the west** and the **river Bhagmati in the east**. Hence, statement 1 is not correct.
  - ◆ It is spread across the Indian states of Uttarakhand, Uttar Pradesh and Bihar, and the low lying hills of Nepal.
- It boasts of some of India's most well-known Tiger Reserves and Protected Areas such as **Corbett Tiger Reserve (Uttarakhand)**, Rajaji National Park (Uttarakhand), **Dudhwa Tiger Reserve (Uttar Pradesh)**, Valmiki Tiger Reserve (Bihar). Hence, statement 2 is correct.
- The forests are home to three flagship species, the Bengal tiger (*Panthera tigris*), the greater one horned rhino (*Rhinoceros unicornis*) and the Asian elephant (*Elephas maximus*).

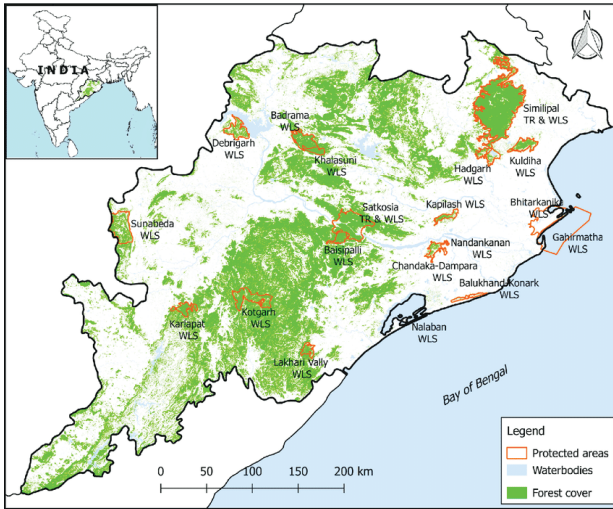
108. Ans: C

Exp:

- Paradip Port is a **natural, deep-water port** on the East coast of India, situated at the **confluence of the Mahanadi river and the Bay of Bengal**, in Odisha. Hence, statement 1 is correct.
  - ◆ Located 210 nautical miles south of Kolkata and 260 nautical miles north of Visakhapatnam.
- It is administered by the Paradip Port Trust (PPT), administering under the Major Port Trusts Act, 1963 functioning under the Ministry of Ports, Shipping and Waterways.
  - ◆ PPT was commissioned in 1966 as a mono commodity port for export of iron ore. Hence, statement 2 is correct.

109. Ans: A

Exp:



- **Baisipalli Sanctuary:** It gets its name from the 22 settlements existing within its span.
  - ◆ It is located where the Mahanadi River passes through a gorge in the Eastern Ghats mountains in Nayagarh District.
  - ◆ The whole area is a part of the Deccan Peninsula Biogeographic Zone, Eastern Plateau province and Eastern Ghat sub-division.
- **Nalbanda Bird Sanctuary:** It is the core area of the Ramsar designated wetlands of Chilika Lake. It was declared a bird sanctuary under the Wildlife Protection Act in 1972. In the heart of the park, one can see thousands of birds descending during the migratory season. The island disappears during monsoon season due to inundation only to emerge again in post-monsoon.
- **Similipal Tiger Reserve:** It is situated in the northern part of Odisha's Mayurbhanj district. Geographically, it lies in the eastern end of the eastern ghat.
  - ◆ It was formally designated a tiger reserve in 1956 and brought under Project Tiger in the year 1973.
  - ◆ It is part of the Similipal-Kuldih-Hadgarh Elephant Reserve popularly known as Mayurbhanj Elephant Reserve.
  - ◆ The Government of Odisha declared Similipal as a wildlife sanctuary in 1979.
- **Gahirmatha Marine Sanctuary:** It is the mass nesting spot in the Indian Ocean region and the only turtle sanctuary in Odisha.

- ◆ It is the world's largest nesting beach of Olive Ridley Sea Turtles.
- ◆ Gahirmatha was declared a turtle sanctuary in 1997.
- ◆ Gahirmatha Marine Sanctuary is one of the three parts of the Bhitarkanika National Park.

Hence, option A is correct.

110. Ans: C

Exp:

- **Raptors MoU (Global):** The Memorandum of Understanding on the Conservation of Migratory Birds of Prey in Africa and Eurasia is also known as Raptors MoU.
  - ◆ It is an agreement under Convention on the Conservation of Migratory Species of Wild Animals (CMS). CMS or Bonn Convention provides a global platform for the conservation and sustainable use of migratory animals and their habitats.
  - ◆ It is not legally binding.
  - ◆ India is a signatory to Raptors MoU. Hence, statement 1 is correct.
- For the conservation of vultures, India has launched a **Vulture Action Plan 2020-25**.
  - ◆ India is also a part of the **SAVE (Saving Asia's Vultures from Extinction) consortium**. Hence, statement 2 is correct.
    - The Jatayu Conservation Breeding Centre in Pinjore (Haryana) is the world's largest facility within the state's Bir Shikargah Wildlife Sanctuary for the breeding and conservation of Indian vulture species.

111. Ans: D

Exp:

- At the IUCN World Conservation Congress in Marseille, **IUCN and the German development agency GIZ** on behalf of the **Federal Ministry for Economic Cooperation and Development (BMZ)** announced a new programme to strengthen the resilience of community-based tourism in and around protected and conserved areas worldwide. Hence, statement 1 is correct.
  - ◆ Through the programme, the German government is investing up to 17 million Euros to boost the recovery from the impacts of COVID-19 on people and nature.

- The Sustainable Tourism Initiative is funded by Germany and includes implementing partners such as the **United Nations Educational, Scientific and Cultural Organization (UNESCO)** and the **Worldwide Fund for Nature (WWF)**. Hence, **statement 3 is correct**.
  - ◆ It will use tourism as an **instrument to contribute to sustainable development in developing and emerging countries**. Hence, **statement 2 is correct**.
  - ◆ To pilot the initiative, IUCN will work with two World Heritage sites and five other protected areas in Peru and Vietnam to increase the resilience of the community-based tourism sector to future disruptions.

112. Ans: B

Exp:

- The **pangolin**, also called scaly **anteater**, is an elongated, armour-plated insectivore mammal.
  - ◆ Seven species of pangolin are found across the world, of which, **two are found in India**, namely **Indian pangolin** (*Manis crassicaudata*) and **Chinese pangolin** (*Manis pentadactyla*). Hence, **statement 2 is not correct**.
  - ◆ The Indian Pangolin is found throughout the country **south of the Himalayas**, excluding the **north-eastern region** while the Chinese Pangolin ranges through **Assam and the eastern Himalayas**. Hence, **statement 1 is correct**.
    - The Chinese pangolin is distinguished from other Asian pangolins by its almost helmeted appearance, smaller scales than the Indian pangolin.
- As per **International Union for Conservation of Nature (IUCN)**, the pangolin is part of the “red list”.
  - ◆ While the **Indian pangolin is listed as “endangered”** and the Chinese pangolin has been listed as “critically endangered”. Hence, **statement 3 is correct**.
  - ◆ All pangolin species are listed in Convention on International Trade in Endangered Species (CITES) Appendix I.
  - ◆ In India, pangolins, both Indian and Chinese, are protected under Schedule 1 of the Wildlife (Protection) Act 1972.

113. Ans: C

Exp:

- **Ozone (composed of three atoms of oxygen)** is a gas that occurs both in the Earth’s upper atmosphere and at ground level. Ozone can be “good” or “bad” for

health and the environment, depending on its location in the atmosphere.

- The ‘good’ **ozone** present in the **earth’s stratosphere layer** protects human beings from **harmful Ultraviolet (UV) radiation** whereas the ground level ozone is highly reactive and can have adverse impacts on human health. Hence, **statement 1 is not correct but statement 2 is correct**.
  - ◆ Ground level ozone is dangerous for those suffering from respiratory conditions and asthma.
- **Ground-level ozone** is a **colorless and highly irritating gas** that forms just above the earth’s surface.
  - ◆ It is called a “secondary” pollutant because it is **produced when two primary pollutants react in sunlight and stagnant air**.
    - These two primary pollutants are **nitrogen oxides (NOx)** and **volatile organic compounds (VOCs)**. Hence, **statement 3 is correct**.

114. Ans: D

Exp:

- Recently, the **official length of Mammoth Cave has been extended to 420 miles**.
  - ◆ The **additional mileage (8 miles)** was mapped and **documented by the Cave Research Foundation**.
- **Mammoth Cave National Park**, located in the state of **Kentucky (US)**, has the **world’s largest network of natural caves and underground passageways**, which are characteristic **examples of limestone formations (karst topography)**. Hence, **statements 1 and 2 are correct**.
  - ◆ It is a **World Heritage Site** (designated in 1981).
  - ◆ It became an **International Biosphere Reserve in 1990**. Hence, **statement 3 is correct**.

115. Ans: A

Exp:

- **Biochemical Oxygen Demand (BOD)** is the **amount of Dissolved Oxygen (DO) needed by bacteria in decomposing the organic wastes** present in water. It is expressed in milligrams of oxygen per litre of water.
  - ◆ **Chemical Oxygen Demand (COD)** measures the **amount of oxygen in parts per million** required to **oxidise organic** (biodegradable and non-biodegradable) and oxidizable inorganic compounds in the water sample. Hence, **statement 1 is not correct**.



- Water pollution by organic wastes is measured in terms of BOD.
  - ◆ **The higher value of BOD indicates low DO content of water. Hence, statement 2 is correct.**
  - ◆ Since BOD is limited to biodegradable materials, it is not a reliable method of measuring water pollution.

116. Ans: A

Exp:



- **Dibru-Saikhowa National Park** is located in Dibrugarh and Tinsukia districts, Assam. It was designated a Biosphere Reserve in July 1997.
- **Deepor Beel** is located to the south-west of Guwahati city, in Kamrup Metropolitan district of Assam. It is a permanent freshwater lake, in a former channel of the Brahmaputra River, to the south of the main river.
- **Nameri National Park** is located in the foothills of the eastern Himalayas in the Sonitpur District of Assam. Nameri shares its northern boundary with the Pakhui Wildlife Sanctuary of Arunachal Pradesh.
- **Manas National Park** is a UNESCO Natural World Heritage site, a Project Tiger reserve, an elephant reserve and a biosphere reserve in Assam. It is located in the Himalayan foothills, it is contiguous with the Royal Manas National Park in Bhutan.

Hence, option A is correct.

117. Ans: C

Exp:

- The World Heritage Convention 1972 is **governed by the World Heritage Committee supported by the UNESCO World Heritage Centre**, the secretariat for the Convention, and **three technical advisory bodies** to the Committee:
  - ◆ **International Union for Conservation of Nature (IUCN).** Hence, statement 1 is correct.

- ◆ **International Council on Monuments and Sites (ICOMOS)**
- ◆ **International Centre for the Study of the Preservation and Restoration Cultural Property (ICCROM)**
- **UNESCO seeks to build peace through international cooperation** in Education, the Sciences and Culture. It was founded in 1945 and is **located in Paris, France.**
  - ◆ **Major Initiatives:**
    - **Man and Biosphere Programme**
    - **World Heritage Programme**
    - **Global Geopark Network**
    - **Network of Creative Cities**
    - **Atlas of World Languages in Danger**

Hence, statement 2 is correct.

118. Ans: C

Exp:

- Recently, **Ladakh has adopted Snow Leopard and Black-Necked Crane, as State animal and State bird**, two years after it was carved out as a separate Union Territory (UT) from the erstwhile State of J&K (Jammu and Kashmir).
- **Snow leopards** act as an indicator of the health of the mountain ecosystem in which they live, due to their position as the top predator in the food web.
  - ◆ **They're found in:**
    - **Western Himalayas:** Jammu and Kashmir, Himachal Pradesh.
    - **Eastern Himalayas:** Uttarakhand and Sikkim and Arunachal Pradesh.
  - ◆ **Hemis, Ladakh is known as the Snow Leopard capital of the world.**
  - ◆ **IUCN Red List:** Vulnerable
- The **black-necked crane** (*Grus nigricollis*), also known as Tibetan crane, is a large bird and medium-sized crane.
  - ◆ They are found in high altitude wetlands of the Tibetan plateau, Sichuan (China), and eastern Ladakh (India) are the main breeding ground of the species; the birds spend winter at lower altitudes.
  - ◆ **IUCN Red List:** Near Threatened
- **Himachal Pradesh:** Snow Leopard (state animal), Western Tragopan (state bird)
  - ◆ **Sikkim:** Red Panda (state animal), Blood Pheasant (state bird)
  - ◆ **J&K:** Kashmir Stag (state animal), Black-necked Crane (state bird)

Hence, option C is correct.

**119. Ans: C****Exp:**

- The inappropriate or excessive use of artificial light – known as Light Pollution (LP).
- The Skyglow is an omnipresent sheet of light across the night sky in and around. **Components of light pollution** include:
  - ◆ **Glare:** Excessive brightness that causes visual discomfort
  - ◆ **Skyglow:** Brightening of the night sky over inhabited areas
  - ◆ **Light trespass:** Light falling where it is not intended or needed
  - ◆ **Clutter:** Bright, confusing and excessive groupings of light sources.

**Hence, statement 1 is correct.**

- Light pollution can have serious environmental consequences for humans, wildlife, and our climate, in the following ways:
  - ◆ **Disrupting the ecosystem and wildlife:** Plants and animals depend on **Earth's daily cycle of light and dark rhythm to govern life-sustaining behaviours** such as reproduction, nourishment, sleep and protection from predators.
  - ◆ **Harming human health:** Like most life on Earth, humans adhere to a **Circadian Rhythm — our biological clock** — a sleep-wake pattern governed by the day-night cycle. Artificial light at night can disrupt that cycle.

**Hence, statement 2 is correct.****120. Ans: B****Exp:**

- **Harmful Algal Blooms**, or HABs, occur when **colonies of algae grow out of control** and produce toxic or harmful effects on people, fish, shellfish, marine mammals and birds.
  - ◆ While **many people call these blooms 'red tides'**, scientists prefer the term harmful algal bloom.
- One of the best known HABs in the US **occurs nearly every summer along Florida's Gulf Coast.**
  - ◆ This type of bloom is caused by a species of dinoflagellate known as **Karenia brevis**.
- On the other hand, blooms in freshwater lakes and reservoirs are most commonly caused by blue-green algae (also known as cyanobacteria).
  - ◆ Blue-green algae blooms have a direct relation to agricultural and urban runoff. Nutrient pollution encourages the growth of cyanobacteria.

**Hence, option B is correct.****121. Ans: D****Exp:**

- Swinhoe's Softshell Turtle is also known as the **Hoan Kiem turtle or Yangtze giant softshell turtle.**
  - ◆ In Vietnam, these animals have **great cultural significance** as people in Hanoi revere this creature as a **living god**.

**Hence, statement 1 is correct.**

- Some researchers have highlighted their **importance to the seafloor biosystem**, where they contribute by enriching soil nutrients and facilitating seed dispersion. **Hence, statement 2 is correct.**
- **Protection Status:**
  - ◆ **IUCN Red List:** Critically Endangered
  - ◆ **CITES:** Appendix II**Hence, statement 3 is correct.**

**122. Ans: C****Exp:**

- The **Intergovernmental Panel on Climate Change** is the international body for assessing the science related to climate change.
  - ◆ It was set up in 1988 by the **World Meteorological Organization (WMO)** and **United Nations Environment Programme (UNEP)** to provide policymakers with regular assessments of the scientific basis of climate change, its impacts and future risks, and options for adaptation and mitigation. **Hence, statement 1 is correct.**

- Recently, the IPCC released the first part of its **Sixth Assessment Report (AR6)** titled Climate Change 2021: The Physical Science Basis.

- ◆ As per the report, the average surface temperature of the Earth will cross 1.5 °C over pre-industrial levels in the next 20 years (By 2040) and 2°C by the middle of the century without sharp reduction of emissions.
- ◆ This is the **first time that the IPCC has said that the 1.5°C warming of the earth is inevitable even in the best case scenario.** **Hence, statement 2 is correct.**

**123. Ans: C****Exp:**

- India is the **only home to the majestic Asiatic Lion**, which **inhabits the protected territory of Sasan-Gir National Park (Gujarat).** **Hence, statement 2 is correct.**
- **Protection Status:**
  - ◆ **IUCN Red List:** Endangered.

◆ **CITES:** Appendix I for populations of India, all other populations are included in Appendix II.

◆ **Wildlife (Protection) Act 1972:** Schedule I

Hence, statement 1 is not correct.

- The **Project Lion** was launched in **2020** by the Union Ministry of Environment, Forests and Climate Change (MoEFCC) **for the conservation of the Asiatic Lion.**

◆ It focuses on the last remaining wild population in Gujarat's Asiatic Lion Landscape (ALL).

◆ It was launched on the lines of Project Tiger and Project Elephant.

Hence, statement 3 is correct.

124. Ans: B

Exp:

- **Kaziranga National Park** 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.** Hence, statement 1 is correct.

- It was declared as a National Park in 1974.

◆ It has been declared a Tiger Reserve since 2007. It has a total tiger reserve area of 1,030 sq km with a core area of 430 sq. km.

- Kaziranga National Park was declared a **UNESCO World Heritage Site** in 1985. Hence, statement 3 is correct.

◆ It is also recognized as An Important Bird Area by Bird Life International.

- It is **home to the largest number of one-horned rhinos** in the world.

◆ **Pobitora Wildlife Sanctuary has the highest density of one-horned rhinos** in the world and second highest number of Rhinos in Assam after Kaziranga National Park. Hence, statement 2 is not correct.

125. Ans: B

Exp:

- The Greater Adjutant is a member of the stork family, Ciconiidae.

◆ There are about 20 species in the family.

◆ They are long-necked large birds.

- Once found across South and Southeast Asia, the Greater Adjutant is one of the most threatened stork species in the world.

◆ There are only **three known breeding grounds** – one in **Cambodia** and two in India (**Assam and Bihar**). Hence, statement 1 is not correct.

● **Protection Status:**

◆ **IUCN Red List:** Endangered. Hence, statement 2 is correct.

◆ **Wildlife (Protection) Act 1972:** Schedule IV.

126. Ans: B

Exp

- The slender lorises (Loris) are a genus of loris **native to India and Sri Lanka.** Hence, statement 1 is correct.

● Slender lorises spend most of their life in trees, traveling along the tops of branches with slow and precise movements.

● They generally feed on insects, reptiles, plant shoots, and fruit.

● They are found in tropical rainforests, scrub forests, semi-deciduous forests, and swamps.

● There are two species of Slender Loris, the only members of the genus 'Loris':

◆ Red Slender Loris (Loris tardigradus)

◆ Grey Slender Loris (Loris lydekkerianus).

● It is believed that they have **medicinal properties and they are captured and sold.** Since there is great demand for keeping these animals as pets, they are illegally smuggled. Hence, statement 2 is correct.

● Habitat loss, electrocution of live wires and road accidents are other threats that have caused its populations to dwindle.

● **Protection Status:**

◆ **IUCN:** Endangered,

◆ **Wildlife (Protection) Act of India, 1972:** Schedule I

◆ **CITES:** Appendix II

Hence, statement 3 is not correct.

127. Ans: C

Exp

- The Sundarbans ecoregion is located in the **tidally active lower deltaic plain of the Ganges–Brahmaputra–Meghna (GBM) basin.**

● It hosts the **largest contiguous mangrove forest** and the **only mangrove tiger habitat in the world.** Hence, statement 1 is correct.

◆ Mangrove forests perform **multiple ecological functions** such as production of woody trees, provision of habitat, food and spawning grounds for fin-fish and shellfish, provision of habitat for birds and other valuable fauna; protection of coastlines and accretion of sediment to form new land.

- Spread over parts of **Bangladesh and India, the Protected Areas (PA)** within the forested parts are designated by the **United Nations Educational, Scientific and Cultural Organisation (UNESCO)** as **World Heritage Sites** in both countries. **Hence, statement 2 is correct.**
- The natural areas spanning **10,000 square kilometres** across the two countries are also **Ramsar Sites or Wetlands** of International Importance.
- The **cleared forest tracts** in the two countries are now collectively home to over 7.5 million people.
- The area is known for its wide range of fauna, including 260 bird species and is home to many rare and globally threatened wildlife species such as the Estuarine Crocodile, Royal Bengal Tiger, Water Monitor Lizard, Gangetic Dolphin and Olive Ridley Turtles.

128. Ans: B

Exp:

- **Central Pollution Control Board (CPCB)** is a statutory organisation which was constituted in September, 1974 under the **Water (Prevention and Control of Pollution) Act, 1974**. **Hence, statement 1 is not correct.**
  - ◆ It was also entrusted with the powers and functions under the **Air (Prevention and Control of Pollution) Act, 1981**.
  - ◆ It serves as a field formation and also provides technical services to the **Ministry of Environment, Forest and Climate Change** of the provisions of the **Environment (Protection) Act, 1986**. **Hence, statement 2 is correct.**
  - ◆ **Principal Functions of the CPCB:**
    - To promote cleanliness of streams and wells in different areas of the States by prevention, control and abatement of water pollution.
    - To improve the quality of air and to prevent, control or abate air pollution in the country.

129. Ans: D

Exp:

- The **1989 Montreal Protocol is not a climate agreement**. It is instead aimed at protecting the earth from Ozone-Depleting Substances (ODSs) like the ChloroFluoroCarbons (CFCs), that were earlier used in the air-conditioning and refrigerant industry. **Hence, statement 1 is not correct.**
  - ◆ The Montreal Protocol led to the replacement of CFCs with Hydrofluorocarbons (HFCs) which do not destroy the Ozone layer.

- But they were later found to be extremely potent in causing Global Warming. So, the HFCs solved one problem, but were contributing in a major way to another.
- ◆ But these could not be eliminated under the original provisions of Montreal Protocol which was meant to phase-out ODSs only.
- The **Kigali Amendment** enabled the Montreal Protocol to **mandate the elimination of HFCs** as well. **Hence, statement 2 is not correct.**

130. Ans: A

Exp:

- Recently, a team of researchers have discovered a new species of cascade frog in **Arunachal Pradesh** named **Adi Cascade Frog**.
- It has been named **Adi Cascade Frog (Amolops Adicola)** **after the indigenous Adi tribe** living in the **Adi hills** of Arunachal Pradesh. The literal meaning of **Adi** is "hill" or "mountain top". **Hence, statement 1 is correct.**
- Cascade frogs are named so because of their **preference of small waterfalls or cascades** in flowing hill streams. **Hence, statement 2 is not correct.**

131. Ans: D

Exp:

- **World Meteorological Organization** is an intergovernmental organization with a membership of 192 Member States and Territories. India is a member.
  - ◆ It originated from the International Meteorological Organization (IMO), which was established after the **1873 Vienna International Meteorological Congress**.
- **WMO was established by the ratification of the WMO Convention** on 23<sup>rd</sup> March 1950, **WMO became the specialized agency of the United Nations for meteorology** (weather and climate), operational hydrology and related geophysical sciences. **Hence, statement 1 is correct but statement 2 is not correct.**
- **Headquarters:** Geneva, Switzerland.
- **Reports released by WMO:**
  - ◆ **State of the Global Climate**. **Hence, statement 3 is correct.**
  - ◆ **Greenhouse Gas Bulletin**

132. Ans: C

Exp:

- A heat wave 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 requires that temperatures should reach at least 40°C in the plains and at least 30°C in the hilly regions, and should reflect an increase of at least 5°C-6°C above the normal temperature to be classified as a heatwave.
- Heat wave is a condition of air temperature which becomes fatal to the human body when exposed. **Hence, statement 1 is correct.**
- In India, heat waves typically occur between March and June, and in some rare cases even extend till July. **Hence, statement 2 is correct.**

133. Ans: B

Exp:

- **Jim Corbett Tiger Reserve** is located in Nainital district of Uttarakhand. The Project Tiger was launched in 1973 in **Corbett National Park (first National Park of India), which is part of Corbett Tiger Reserve.**
  - ◆ The national park was established in 1936 as Hailey National Park to protect the endangered Bengal tiger.
  - ◆ It is named after Jim Corbett who played a key role in its establishment.
- The core area forms the Corbett National Park while the buffer contains reserve forests as well as the Sonanadi Wildlife Sanctuary.
- The entire area of the reserve is mountainous and **falls in the Shivalik and Outer Himalaya geological provinces.**
- Ramganga, Sonanadi, Mandal, Palain and Kosi are the major rivers flowing through the Reserve. **Hence, option B is correct.**

134. Ans: C

Exp:

- Corals are made up of **genetically identical organisms called polyps.** These polyps have **microscopic algae called zooxanthellae** living within their tissues.
  - ◆ The corals and algae have a mutualistic relationship.
  - ◆ The coral **provides the zooxanthellae with the compounds** necessary for **photosynthesis.** In return, the **zooxanthellae supply the coral with organic products of photosynthesis,** like carbohydrates, which are utilized by the coral polyps for the synthesis of their calcium carbonate skeletons. **Hence, statement 1 is correct.**
  - ◆ In addition to providing corals with essential nutrients, **zooxanthellae are responsible for the unique and beautiful colors of corals.** **Hence, statement 2 is correct.**

- ◆ They are also called the **“rainforests of the seas”.**
- ◆ There are two **types of corals:**
  - **Hard, shallow-water corals**—the kind that builds reefs.
  - **Soft corals and deepwater corals** that live in dark cold waters.

135. Ans: C

Exp:

- **Coral Bleaching** happens when **sea temperatures get too high or low,** causing the algae (zooxanthellae) to get **‘stressed out’ and leave the coral.** This then turns the coral white and, with its main source of food gone, it is left very vulnerable. **Hence, statement 1 is correct.**
- The **rising acidity of the oceans** threatens coral reefs by making it harder for corals to build their skeletons. **Hence, statement 2 is correct.**
- Overfishing can affect the **reef’s ecological balance and biodiversity.**
  - ◆ Fishing with **dynamite, cyanide, bottom trawling and Muro Ami** (banging on the reef with sticks) can **damage entire reefs** and is unsustainable.
- Unregulated recreational activities and tourism cause damage to the very environment upon which the industries depend.
- Coastal areas have some of the fastest rates of growth in tropical countries. Sensitive habitats are destroyed or disturbed by the dredging of deep-water channels or marinas, and through the dumping of waste materials.
- Urban and industrial waste, sewage, agrochemicals, and oil pollution are poisoning reefs.

136. Ans: C

Exp:

- **Permafrost is any ground that remains completely frozen—32°F (0°C) or colder—for at least two years straight.** **Hence, statement 1 is correct.**
  - ◆ It is made of a combination of soil, rocks and sand that are held together by ice.
  - ◆ Permafrost covers large regions of the Earth. Almost a quarter of the land area in the Northern Hemisphere has permafrost underneath. Although the ground is frozen, permafrost regions are not always covered in snow.
- **Thawing of Permafrost:**
  - ◆ **Damage Infrastructure:** Many villages are built on permafrost. When permafrost is frozen, it’s harder than concrete. However, thawing permafrost can destroy houses, roads and other infrastructure.

- ◆ **Release Greenhouse Gas:** As permafrost thaws, microbes begin decomposing this material. This process releases greenhouse gases like carbon dioxide and methane to the atmosphere.
- ◆ **Diseases:** When permafrost thaws, so do ancient bacteria and viruses in the ice and soil. These newly-unfrozen microbes could make humans and animals very sick. **Hence, statement 2 is correct.**

**137. Ans: B**

**Exp:**

- The 1989 Montreal Protocol is aimed at protecting the earth from Ozone-Depleting Substances (ODSs) like the ChloroFluoroCarbons (CFCs), that were earlier used in the air-conditioning and refrigerant industry.
- The Montreal Protocol led to the replacement of CFCs with **Hydrofluorocarbons (HFCs) which do not destroy the Ozone layer.**
  - ◆ But they were later found to be **extremely potent in causing Global Warming.** So, the HFCs solved one problem, but were contributing in a major way to another.
- The Kigali Amendment enabled the Montreal Protocol to mandate the elimination of HFCs.
  - ◆ In October 2016, with the United States' leadership, 197 countries adopted an amendment to phase down HFCs under the Montreal Protocol in Kigali, Rwanda.

**Hence, option B is correct.**

**138. Ans: C**

**Exp:**

- An oil spill refers to any uncontrolled release of crude oil, gasoline, fuels, or other oil by-products into the environment.
  - ◆ Oil spills can pollute land, air, or water, though it is mostly used for oceanic oil spills.
- **Environmental Impacts:**
  - ◆ **Threat to Indigenous people:** Oil pollution poses health hazards for the indigenous population who depend on seafood.
  - ◆ **Harmful to aquatic life:** Oil on ocean surfaces is harmful to many forms of aquatic life because it prevents sufficient amounts of sunlight from penetrating the surface, and it also reduces the level of dissolved oxygen.
  - ◆ **Hypothermia:** Crude oil ruins the insulating and waterproofing properties of feathers and fur of birds, and thus oil-coated birds and marine

mammals may die from hypothermia (decrease in body temperature to below-normal levels).

- ◆ **Threat to Mangroves:** Saltwater marshes and Mangroves frequently suffer from oil spills.

**Hence, option C is correct.**

**139. Ans: D**

**Exp:**

- **Harmful Algal Blooms, or HABs,** occur when **colonies of algae grow out of control and produce toxic or harmful effects** on people, fish, shellfish, marine mammals and birds. **Hence, statement 1 is correct.**
  - ◆ While **many people call these blooms 'red tides'**, scientists prefer the term harmful algal bloom.
- One of the best known HABs in the US occurs nearly every summer along Florida's Gulf Coast.
  - ◆ This type of bloom is caused by a species of dinoflagellate known as *Karenia brevis*.
- On the other hand, **blooms in freshwater lakes and reservoirs are most commonly caused by blue-green algae** (also known as cyanobacteria). **Hence, statement 2 is correct.**
  - ◆ Blue-green algae blooms have a direct relation to agricultural and urban runoff. Nutrient pollution encourages the growth of cyanobacteria.
- **Causes of Algal Blooms:**
  - ◆ **Eutrophication:**
    - Nutrients promote and support the growth of algae and Cyanobacteria. The Eutrophication (nutrient enrichment) of waterways is considered as a major factor.
  - ◆ **Temperature:**
    - **Algal blooms are more likely to happen in summer** or fall but can occur any time of year. **Hence, statement 3 is correct.**

**140. Ans: C**

**Exp:**

- The Arctic is a polar region located at the northernmost part of Earth.
  - ◆ The Arctic consists of the Arctic Ocean, adjacent seas, and parts of Alaska (United States), Canada, Finland, Greenland (Denmark), Iceland, Norway, Russia, and Sweden.
- Land within the Arctic region has seasonally varying snow and ice cover.
  - ◆ The **Arctic and Antarctic** act like the world's refrigerator. Since they are covered in white snow and **ice that reflect heat back into space (Albedo)**

effect), they balance out other parts of the world that absorb heat. Hence, statement 1 is correct.

- Sea ice is a highway for Inuit, who use it to travel and hunt.
  - ◆ The term **Inuit** refers broadly to the **Arctic indigenous population** of Alaska, Canada, and Greenland. Hence, statement 2 is correct.

141. Ans: D

Exp:

- Leopards (*Panthera pardus*) are either light colored (pale yellow to deep gold or tawny) with black rosettes or with black fur.
  - ◆ The melanistic leopards, which are either all-black or very dark in coloration, are known as **Black Panthers**.
- Black Panthers are mainly in Southwestern China, Burma, Nepal, Southern India, Indonesia, and the southern part of Malaysia.
  - ◆ In India they can be spotted in the states of Karnataka, Tamil Nadu, Kerala, Maharashtra etc. Hence, statement 1 is not correct.
- **Protection Status:**
  - ◆ **IUCN Red List: Vulnerable.** Hence, statement 2 is not correct.
  - ◆ **CITES: Appendix I.**
  - ◆ **Wildlife (Protection) Act, 1972: Schedule I.**

142. Ans: C

Exp:

- There are many international chemical conventions restricting or even banning the production, use, and trade of certain hazardous chemicals.
- The **Minamata Convention on Mercury** is a global treaty to protect human health and the environment from the adverse effects of mercury and its compounds.
  - ◆ More than 140 countries including India have ratified the Convention. Hence, pair 1 is not correctly matched.
- **Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal.** India ratified the Convention. Hence, pair 2 is correctly matched.
- **Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides** in International Trade. India ratified the Convention in 2005. Hence, pair 3 is not correctly matched.

- **Stockholm Convention on Persistent Organic Pollutants (POPs):** To protect human health and the environment from the harmful effects of POPs (i.e. toxic chemicals).

- ◆ India has ratified and acceded to the convention. Hence, pair 4 is correctly matched.

143. Ans: A

Exp:

- The Yak belong to the Bovini tribe, which also includes bison, buffaloes, and cattle. It can tolerate temperatures as low as -40 degrees Celsius.
  - ◆ Yaks are highly valued by Himalayan peoples. According to Tibetan legend, the first yaks were domesticated by Tibetan Buddhism founder Guru Rinpoche.
- They are **endemic to the Tibetan Plateau** and the adjacent high-altitude regions. Hence, statement 1 is correct.
  - ◆ Yaks are most comfortable above 14,000 feet. They climb to an elevation of 20,000 when foraging and usually don't descend any lower than 12,000 feet.
- The yak-rearing states of India are **Arunachal Pradesh, Sikkim, Uttarakhand, Himachal Pradesh and Jammu & Kashmir.** Hence, statement 2 is not correct.
  - ◆ The countrywide population trend shows that the yak population has been decreasing at an alarming rate. The total yak population in India is about 58,000.
- **Protection Status of Wild Yak (*Bos mutus*):**
  - ◆ **IUCN Red list status: Vulnerable.** Hence, statement 3 is correct.
    - IUCN considers the wild species of yak under *Bos mutus*, while the domestic form is considered under *Bos grunniens*.

144. Ans: D

Exp:

- The word "**Cryptogamae**" implies '**hidden reproduction**', referring to the fact that they **do not produce any reproductive structure, seed, or flower**. Thus, a cryptogam is a plant that reproduces with the help of spores. Hence, statement 1 is correct.
- They are called "**flowerless**" or "**seedless plants**" or '**lower plants**'. They need a moist environment to survive. Hence, statement 2 is correct.
- These are present in **aquatic and terrestrial places**. **Algae**, bryophytes, lichens, ferns and fungi are the best-known groups of cryptogams. Hence, statement 3 is correct.

145. Ans: C

Exp:

- The **Convention on Biological Diversity (CBD)**, a legally binding treaty to conserve biodiversity has been in force since 1993. **Hence, statement 1 is correct.**
- **It has 3 main objectives:**
  - ◆ The conservation of biological diversity.
  - ◆ The sustainable use of the components of biological diversity.
  - ◆ The fair and equitable sharing of the benefits arising out of the utilization of genetic resources.
- The CBD Secretariat is based in **Montreal, Canada** and it operates under the United Nations Environment Programme. **Hence, statement 2 is correct.**
- The CBD at COP-10 also adopted a ten-year framework for action by all countries to save biodiversity.
  - ◆ Officially known as **“Strategic Plan for Biodiversity 2011-2020”**, it provided a set of 20 ambitious yet achievable targets collectively known as the **Aichi Targets** for biodiversity. **Hence, statement 3 is correct.**

146. Ans: C

Exp:

**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. Hence the mangrove root system absorbs oxygen from the atmosphere.
  - ◆ **Mangroves have special roots for this purpose called breathing roots or pneumatophores.**
  - ◆ These roots have numerous pores through which oxygen enters the underground tissues.
- **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 C is correct.**

147. Ans: C

Exp:

- **Mangroves** can be found in over 118 countries and territories in the **tropical and subtropical regions of the world.** **Hence, statement 1 is not correct.**
- According to the **State of Forest Report 2019**, mangrove cover in the country is 4,975 sq km, which is 0.15% of the country's total geographical area.
  - ◆ **Mangrove cover in the country has increased by 54 sq km (1.10%)** as compared to the previous assessment (2017). **Hence, statement 2 is not correct.**
- The deltas of the Ganges, Mahanadi, Krishna, Godavari, and the Cauvery rivers contain mangrove forests.
  - ◆ The backwaters in Kerala have a high density of mangrove forest.
  - ◆ The Sundarbans in West Bengal is the largest mangrove region in the world and a UNESCO World Heritage Site.
  - ◆ The Bhitarkanika mangrove system in Odisha is India's second largest mangrove forest.
  - ◆ Pichavaram in Tamil Nadu has a vast expanse of water covered with mangrove forests. It is home to many aquatic bird species.
- **West Bengal has 42.45% of India's mangrove cover**, followed by Gujarat 23.66% and A&N Islands 12.39%. **Hence, statement 3 is correct.**

148. Ans: C

Exp:

- **Common But Differentiated Responsibilities (CBDR)** is a principle within the **United Nations Framework Convention on Climate Change (UNFCCC).** **Hence, statement 1 is correct.**
  - ◆ It acknowledges different capabilities and differing responsibilities of individual countries in addressing climate change.
  - ◆ The principle of 'common but differentiated responsibility' evolved from the notion of the 'common heritage of mankind'.
- The **principle of CBDR is enshrined in Earth Summit 1992**, held in Rio de Janeiro, Brazil. **Hence, statement 2 is correct.**
- **CBDR is based on two elements of responsibilities:**
  - ◆ One is the common responsibility of all the states to cater to the concerns of environmental protection and sustainable development.



- ◆ Another is of differentiated responsibility enabling the states to act, for environment protection, in their national capacity and as per their national priority.

149. Ans: B

Exp:

- The **Earth Overshoot Day, 2021 marks the date when humanity's demand for ecological resources** (fish and forests, for instance) and **services in a given year exceeds what the Earth can regenerate in that year. Hence, statement 1 is correct.**
- The concept of Earth Overshoot Day was first conceived by Andrew Simms of the UK think tank **New Economics Foundation**, which partnered with **Global Footprint Network** in 2006 to launch the first global Earth Overshoot Day campaign. **Hence, statement 2 is not correct.**
  - ◆ Global Footprint Network is an international non profit organization founded in the year 2003. It's key strategy has been to make available robust Ecological Footprint data.
  - ◆ The **ecological footprint** is a metric that comprehensively compares human demand on nature against nature's capacity to regenerate. **Hence, statement 3 is correct.**
- Earth Overshoot Day is computed by dividing the planet's biocapacity (the amount of ecological resources Earth is able to generate that year), by humanity's Ecological Footprint (humanity's demand for that year), and multiplying by 365, the number of days in a year:
  - ◆  $(\text{Earth's Biocapacity}/\text{Humanity's Ecological Footprint}) \times 365 = \text{Earth Overshoot Day}$

150. Ans: C

Exp:

- **Cloudbursts** are short-duration, intense rainfall events over a small area.
  - ◆ It is a weather phenomenon with unexpected precipitation exceeding 100mm/h over a geographical region of approximately 20-30 square km.
  - ◆ In the Indian Subcontinent, it generally **occurs when a monsoon cloud drifts northwards**, from the Bay of Bengal or the Arabian Sea across the plains then on to the Himalaya that sometimes brings 75 millimetres of rain per hour. **Hence, statement 2 is correct.**

#### ● Occurrence of cloudbursts:

- ◆ The **relative humidity and cloud cover is at the maximum level with low temperature** and slow winds because of which a high amount of clouds may get condensed at a very rapid rate and result in a cloudburst. **Hence, statement 1 is correct.**
  - As temperatures increase, the atmosphere can hold more and more moisture and this moisture comes down as a short very intense rainfall for a short duration probably half an hour or one hour resulting in flash floods in the mountainous areas and urban floods in the cities.

#### ● Cloudburst are Different from Rainfall:

- ◆ Rain is condensed water falling from a cloud while cloudburst is a sudden heavy rainstorm.
- ◆ Rain over 100mm per hour is categorised as a cloudburst.

151. Ans: D

Exp:

- The tiger is a unique animal that plays a pivotal role in the health and diversity of an ecosystem.
  - ◆ It is a top predator which is at the apex of the food chain and keeps the population of wild ungulates (primarily large mammals) in check.
  - ◆ Tiger helps in maintaining the balance between prey herbivores and the vegetation upon which they feed.
  - ◆ Thus, **Tiger conservation is a symbol of the conservation of forests. Hence, statement 1 is correct.**
- **St. Petersburg Declaration** was adopted In **November 2010**, by the leaders of **13 tiger range countries (TRCs)** assembled at an International Tiger Forum in **St. Petersburg, Russia.**
  - ◆ It aimed at promoting a global system to protect the natural habitat of tigers and raise awareness among people on white tiger conservation. **Hence, statement 2 is correct.**
- The **International Tiger Day celebrated on 29th July** is an annual event marked to raise awareness about tiger conservation.
  - ◆ The first international Tiger's day was celebrated in 2010 at the **St. Petersburg Tiger Summit. Hence, statement 3 is correct.**

152. Ans: B

Exp:

- **Conservation Status of Tiger:**
  - ◆ Indian **Wildlife (Protection) Act, 1972: Schedule I**
  - ◆ **International Union for Conservation of Nature (IUCN) Red List: Endangered.**
  - ◆ **Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES): Appendix I.**

Hence, option B is correct.

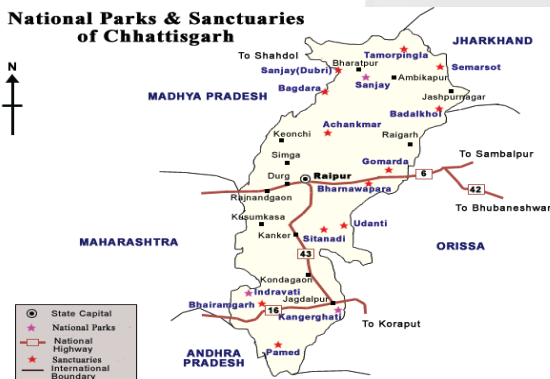
153. Ans: D

Exp:

- **Protected Areas are located in Chhattisgarh are:**
  - ◆ **Achanakmar Tiger Reserve.**
  - ◆ **Indravati Tiger Reserve.**
  - ◆ **Sitanadi-Udanti Tiger Reserve**
  - ◆ **Kanger Valley National Park**
  - ◆ **Badalkhol Tamor Pingla Elephant Reserve.**

Hence, option D is correct.

**National Parks & Sanctuaries of Chhattisgarh**



154. Ans: A

Exp:

- **The Last Ice Area** is located north of Greenland and Ellesmere Island in the **Canadian territory of Nunavut.**
  - ◆ This area was believed to be strong enough to withstand global warming.
    - The total disappearance of summer ice in the Arctic was estimated by the year 2040, however the 'Last Ice Area' was the exception.
  - ◆ Recently, the region has started melting, earlier than what the scientists had expected.
  - ◆ The World Wildlife Fund (WWF)-Canada was believed to be the first to call this area the 'Last Ice Area'.

Hence, option A is correct.

155. Ans:C

Exp:

- 'Navegaon-Nagzira Tiger Reserve' is situated in **Gondia and Bhandara districts of Maharashtra.**
- Strategically, the Tiger Reserve is located in the heart of central Indian Tiger landscape which contributes almost one sixth of the total tiger population of the country.
- It was designated as the 46th Tiger Reserve of India in December 2013.
- It comprises the notified area of Navegaon National Park, Navegaon Wildlife Sanctuary, Nagzira Wildlife Sanctuary, New Nagzira Wildlife Sanctuary and Koka Wildlife Sanctuary.
- NNTR has connectivity with the major tiger reserves in Central India like, Kanha and Pench tiger reserve in Madhya Pradesh, Tadoba-Andhari Tiger reserve in Maharashtra, Indravati Tiger Reserve in Chhattisgarh, Indirectly with the Kawal and Nagarjuna Sagar in Telangana and Andhra Pradesh and, Achanakmar Tiger reserve in Chhattisgarh.
- It is also connected to important tiger bearing areas like Umred-Karhandla sanctuary and Brahampuri Division (Maharashtra).

Hence, option C is correct.

156. Ans: C

Exp:

- The Indian Farmers Fertiliser Cooperative Limited (IFFCO) introduced the world's first Nano Urea Liquid for farmers across the world.
- Nano Urea Liquid is a nutrient (liquid) to provide nitrogen to plants as an alternative to the conventional urea.
  - ◆ It is developed to replace conventional urea and it can curtail the requirement of the same by at least 50%.
  - ◆ It contains 40,000 mg/L of nitrogen in a 500 ml bottle which is equivalent to the impact of nitrogen nutrient provided by one bag of conventional urea.
  - ◆ **Conventional urea is effective 30-40% in delivering nitrogen to plants, while the effectiveness of the Nano Urea Liquid is over 80%. Hence, statement 1 is correct.**
    - Its effectiveness has been tested in over 11,000 farmers' fields for 94 crops like rice and wheat.

- An average 8% increase in yield has been witnessed.

- Nano Urea Liquid has been **indigenously developed at Nano Biotechnology Research Centre**, Kalol, Gujrat in line with Atmanirbhar Bharat and Atmanirbhar Krishi. **Hence, statement 2 is correct.**

157. Ans: B

Exp:

- 'Blue-finned Mahseer' is mainly found in the **Mota Mola river east of Pune**. This species is **also found in other rivers** of the Deccan Plateau. **Hence, statement 1 is not correct.**
  - ◆ The species is migratory; moving upstream during rains. It prefers clean, fast flowing and well oxygenated waters
- Recently, the International Union for Conservation of Nature (IUCN) has moved Blue-finned Mahseer from **Endangered to the Least Concern' status** on its Red List. **Hence, statement 2 is not correct.**
- The species is threatened by **habitat manipulation, over harvesting and competition** from other fish species. **Hence, statement 3 is correct.**
- **Significance:**
  - ◆ It is very sensitive to dissolved oxygen levels, water temperature and sudden climatic changes. It just cannot bear pollution.
  - ◆ They have cultural and religious significance as well as they are protected in 'temple sanctuaries' across India.

158. Ans: A

Exp:

- **Sea Snot** is **marine mucilage (thick and gluey substance)** which looks like a viscous, brown and foamy substance. **Hence, statement 1 is correct.**
- It is formed when **algae are overloaded with nutrients** as a result of water pollution combined with the effects of climate change. **Hence, statement 2 is correct.**
  - ◆ The nutrient overload occurs when algae feast on warm weather caused by global warming.
- **Threat to Marine Ecosystem:**
  - ◆ It has **caused mass deaths among the fish population, and also killed other aquatic organisms** such as corals and sponges. Hence, statement 3 is not correct.

159. Ans: C

Exp:

- The Government of India has advanced the target for **20% ethanol blending in petrol (also called E20) to 2025** from 2030. **Hence, statement 1 is correct.**

- ◆ Currently, 8.5% of ethanol is blended with petrol in India.

#### ● Objectives of Ethanol Blending:

- ◆ Increased use of ethanol **can help reduce the oil import bill**. India's net import cost stands at USD 551 billion in 2020-21.
  - The E20 program can save the country USD 4 billion (Rs 30,000 crore) per annum. **Hence, statement 2 is correct.**
- ◆ Use of ethanol-blended petrol **decreases emissions** such as carbon monoxide (CO), hydrocarbons (HC) and nitrogen oxides (NOx). **Hence, statement 3 is not correct.**
- Recently, The central government has released an expert committee report on the Roadmap for Ethanol Blending in India by 2025.
  - ◆ The roadmap proposes a gradual rollout of ethanol-blended fuel to achieve E10 fuel supply by April 2022 and phased rollout of E20 from April 2023 to April 2025.

160. Ans: A

Exp:

- Gharials, sometimes called gavials, are a type of Asian crocodylian distinguished by their long, thin snouts. Crocodylians are a group of reptiles that includes crocodiles, alligators, caimans, and more.
- Fresh waters of the northern part of India is the natural habitat of the Gharials.
  - ◆ **Primary Habitat: Chambal river** (a tributary of Yamuna). **Hence, statement 1 is not correct.**
  - ◆ **Secondary Habitat:** Ghagra, Gandak river, Girwa river (Uttar Pradesh), the Ramganga river (Uttarakhand) and the Sone river (Bihar).
- Gharial (*Gavialis gangeticus*) are listed as **Critically Endangered** in the IUCN Red List. **Hence, statement 2 is correct.**

161. Ans: B

Exp:

- Rare Earth Elements are called 'rare earth' because earlier it was **difficult to extract them** from their oxides forms technologically. **Hence, statement 1 is correct.**
  - ◆ They occur in many minerals but typically in low concentrations to be refined in an economical manner.
- China at one point produced 90% of the rare earths the world needs. Today, however, it has come down to 60% and the remaining is produced by other countries, including the Quad (Australia, India, Japan and United States).

- ◆ So the dominant share of processed Rare Earths lies with China. **Hence, statement 2 is not correct.**
- They are a set of **seventeen metallic (not the non-metallic) elements**. These include the fifteen lanthanides on the periodic table in addition to scandium and yttrium that show similar physical and chemical properties to the lanthanides. They are also called the **rare-earth metals**. **Hence, statement 3 is not correct.**

162. Ans: B

Exp:

- The Olive ridley turtles are the **smallest and most abundant of all sea turtles** found in the world. **Hence, statement 1 is not correct.**
  - These turtles are carnivores and get their name from their olive colored carapace. They migrate thousands of kilometers between feeding and mating grounds in the course of a year.
  - They are best known for their **unique mass nesting called Arribada**, where thousands of females come together on the same beach to lay eggs. **Hence, statement 2 is correct.**
  - They are found in warm waters of the Pacific, Atlantic and Indian oceans.
  - The Odisha's Gahirmatha Marine Sanctuary is known as the world's largest rookery of sea turtles.
  - **Protection Status:**
    - ◆ **IUCN Red List: Vulnerable**
    - ◆ **CITES: Appendix I**
    - ◆ **Wildlife (Protection) Act, 1972: Schedule I**
- Hence, statement 3 is correct.**

163. Ans: C

Exp:

- The Government of India has implemented the **E-waste (Management) Rules (2016)** which enforces the **Extended Producer Responsibility (EPR)**.
  - ◆ Under EPR principle the producers have been made responsible to collect a certain percentage of E-waste generated from their goods once they have reached their "end-of-life". **Hence, statement 1 is correct.**
- **Management of E-waste (International Convention):**
  - ◆ **Basel Convention on the Control of the Transboundary Movement of Hazardous Waste, 1992.**
    - Originally the **Basel Convention** did not mention e-waste but later it addressed the issues of e-waste in 2006 (COP8).

- The convention seeks to ensure environmentally sound management; prevention of illegal traffic to developing countries and; building capacity to better manage e-waste.
- The **Nairobi Declaration** was adopted at COP9 of the Basel Convention. It aimed at creating innovative solutions for the environmentally sound management of electronic wastes. **Hence, statement 2 is correct.**

164. Ans: B

Exp:

- **Black Softshell Turtle (Nilssonina nigricans)** looks almost the same as the Indian peacock softshell turtle (Nilssonina hurum), which is classified as Endangered in the IUCN Red List.
  - **Habitat:** A freshwater species and there are 29 species of freshwater turtles and tortoises found in India.
  - They are found in ponds of temples in northeastern India and Bangladesh. Its distribution range also includes the Brahmaputra River and its tributaries. **Hence, statement 2 is correct**
  - **Protection Status:**
    - ◆ **IUCN Red List: Critically Endangered**
    - ◆ **CITES: Appendix I**
    - ◆ **Wildlife (Protection) Act, 1972: No legal protection**
- Hence, statement 1 is not correct.**

165. Ans: C

Exp:

- The **Great Barrier Reef** is the world's most extensive and spectacular coral reef ecosystem composed of over 2,900 individual reefs and 900 islands.
  - ◆ The reef is **located in the Coral Sea** (North-East Coast), off the coast of Queensland, **Australia**. **Hence, statement 1 is correct.**
  - ◆ It can be seen from outer space and is the world's biggest single structure made by living organisms.
- This reef structure is **composed of and built by billions of tiny organisms, known as coral polyps**. **Hence, statement 2 is correct.**
  - ◆ They are made up of genetically identical organisms called polyps, which are tiny, soft-bodied organisms. At their base is a hard, protective limestone skeleton called a calicle, which forms the structure of coral reefs.

- ◆ These polyps have microscopic algae called zooxanthellae living within their tissues. The corals and algae have a mutualistic (symbiotic) relationship.
- ◆ It was selected as a World Heritage Site in 1981.

166. Ans: B

Exp:

- The **Pygmy Hog Conservation Programme (PHCP)** is a **collaboration** among Durrell Wildlife Conservation Trust of UK, Assam Forest Department, Wild Pig Specialist Group of International Union for Conservation of Nature (IUCN) and Ministry of Environment, Forest and Climate Change.
    - ◆ It is currently being **implemented by NGOs - Aaranyak and EcoSystems India**. Hence, **statement 1 is not correct**.
  - Conservation of pygmy hog was initiated by noted naturalist Gerald Durrell and his trust in 1971.
  - **Protection Status:**
    - ◆ **IUCN Red List: Endangered**
    - ◆ **CITES: Appendix I**
    - ◆ **Wildlife (Protection) Act, 1972: Schedule I**
- Hence, **statement 2 is correct**.

167. Ans: B

Exp:

- Recently, Indian Prime Minister virtually inaugurated a Japanese 'Zen Garden - Kaizen Academy' at the Ahmedabad Management Association (AMA) in Gujarat.
- It is a joint endeavour of the Japan Information and Study Centre at the AMA and the Indo-Japan Friendship Association (IJFA), Gujarat. It is supported by the Hyogo **International Association (HIA) Japan**. Hence, **statement 1 is correct**.
  - ◆ It has traditional Japanese elements such as Red Bridge Guzei, Shoji Interior, Glory of Tori, a 3D art mural, fusion Chabutaro, Taki waterfall, Tsukubai basin and Kimono scroll.
  - ◆ It will propagate Japan's work culture in India and increase business interactions between Japan and India.
- **Zen** is a **Japanese school of Mahayana Buddhism** emphasizing the value of meditation and intuition rather than ritual worship or study of scriptures. Zen in Japan is meditation in India. Hence, **statement 2 is correct**.

- **Kaizen** translates to '**change for the better**' or '**continuous improvement**'. Kaizen is a Japanese business philosophy that focuses on gradually improving productivity by involving all employees and by making the work environment more efficient. Hence, **statement 3 is not correct**.

168. Ans: B

Exp:

- **Hispid Hare or Assam Rabbit** (*Caprolagus hispidus*) is found mainly in the southern **foothills of the central Himalayas**. Hence, **statement 1 is correct**.
  - ◆ The habitat of hispid hares is highly fragmented due to increasing agriculture, flood control, and human development.
  - ◆ It occupies tracts of early successional tall grasslands, locally termed elephant grass.
- The **Barnadi Wildlife Sanctuary** was established **specifically to protect** the Pygmy Hog (*Sus salvanius*) and Hispid Hare (*Caprolagus hispidus*). Hence, **statement 2 is not correct**.
  - ◆ It is located in northern Assam's Baksa and Udalguri districts bordering Bhutan.
  - ◆ The Sanctuary is bordered by the Barnadi river and Nalapara river to the west and east respectively.
- **Protection Status of Hispid Hare:**
  - ◆ **CITES: Appendix I**
  - ◆ **Schedule I of Wildlife Protection Act of 1972**
  - ◆ **IUCN Red List: Endangered**. Hence, **statement 3 is correct**.

169. Ans: B

Exp:

- 'Energy Compacts' (a platform to unite and connect commitments and actions) are being mobilized by **UN-Energy** and will continue to be mobilized and updated throughout the **current Decade of Action**.
- These are **ongoing or new commitments** with clear, underlying actions that will advance progress on one or more of SDG7's three core targets. Hence, **statement 2 is correct**.
  - ◆ **SDG7** calls for "**affordable, reliable, sustainable and modern energy for all**" by 2030.
  - ◆ **SDG 7 three core targets:** Access to energy, Renewable energy, Energy efficiency.
- These are **voluntary commitments from Member States and non-state actors**, such as companies, regional/local governments, NGOs, and others.

- ◆ Since affordable, clean energy is a prerequisite for achieving all other SDGs and the Paris Agreement, actions defined in an Energy Compact can be directly linked to Nationally Determined Contributions considered as SDG Acceleration Actions.
- Difference between Energy Compacts (EC) and the Nationally Determined Contributions (NDCs):
  - ◆ NDCs address Member States' national climate ambitions and targets that are **legally required under the Paris Agreement**, focusing on a country's emissions profile from the economy as a whole.
  - ◆ EC includes a **variety of voluntary commitments**, actions, initiatives, and partnerships focused specifically on the **energy system and SDG7**. **Hence, statement 1 is not correct.**
    - They will cover the SDG7 targets, including those that are not reflected in a country's NDCs, such as clean cooking access.
  - ◆ EC is also open to all stakeholders in the global movement on SDG7, including businesses, organizations, and subnational authorities, and will have annual mechanisms to track progress on the commitments.

170. Ans: C

Exp:

- Recently, the **Ramgarh Vishdhari wildlife sanctuary** received a nod from the **National Tiger Conservation Authority's (NTCA)** technical committee to become the 4th Tiger reserve of Rajasthan.
  - ◆ This will be the **52<sup>nd</sup> Tiger Reserve of India**. **Hence, statement 1 is correct.**
- The Global Tiger Day, celebrated on 29<sup>th</sup> July, is an annual event marked to raise awareness about tiger conservation.
- Ramgarh Vishdhari wildlife sanctuary is located at a distance of 45 Km from Bundi City on Bundi-Nainwa Road near Village Ramgarh, District Bundi, Rajasthan. **Hence, statement 2 is correct.**
- The total area of 1,017 sq. km has been identified as the reserve area comprising two forest blocks of Bhilwara, territorial forest block of Bundi and Indargarh, which falls under the buffer zone of Ranthambore Tiger Reserve (RTR).

171. Ans: C

Exp:

- **Project Tiger** was launched in 1973 with 9 tiger reserves for conserving our national animal, the tiger.

- ◆ It is an ongoing **Centrally Sponsored Scheme** of the **Ministry of Environment, Forests and Climate Change**.
- The National Tiger Conservation Authority's (NTCA) was launched in 2005, following the recommendations of the Tiger Task Force.
  - ◆ It is a **statutory body** of the Ministry, with an overarching supervisory/coordination role, performing functions as provided in the Wildlife (Protection) Act, 1972. **Hence, statement 1 is correct.**
- **M-STripes** (Monitoring System for Tigers - Intensive Protection and Ecological Status) is an **app based monitoring system**, launched across Indian tiger reserves by the **NTCA** in 2010. **Hence, statement 2 is correct.**
- **Protection Status of Tiger:**
  - ◆ Indian Wildlife (Protection) Act, 1972: Schedule I
  - ◆ International Union for Conservation of Nature (IUCN) Red List: Endangered.
  - ◆ Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES): Appendix I.

172. Ans: C

Exp:

- **National Bamboo Mission** was restructured in 2018-19 for the holistic development of the complete value chain of the bamboo sector and is being implemented in a hub & spoke model.
  - ◆ "Hub & Spoke" model wherein the Mentor Institution, called the "Hub" is centralized and will have the responsibility of guiding the Mentee institution through the secondary branches the "Spoke" i.e. through the services provided to the mentee for self improvement.
  - ◆ Objectives are to connect farmers to markets so as to enable farmer producers to get a ready market for the bamboo grown and to increase the supply of appropriate raw material to the domestic industry.
  - ◆ It also endeavours to upgrade skills of traditional bamboo craftsmen as per the requirement of contemporary markets with a tie-up with enterprises and premier institutes.
  - ◆ **Nodal Ministry:** Ministry of Agriculture and Farmers Welfare. **Hence, statement 1 is correct.**

- India is the world's second-largest cultivator of bamboo after China, with 136 species and 23 genera spread over 13.96 million hectares, according to the State of Environment report 2018.
- **Green Gold**, as bamboo is often known, is found everywhere in India.
  - ◆ Known as 'poor man's timber', bamboo is omnipresent in tribal cultures and community living. Rural communities engage with bamboo handicrafts, textiles, artifacts, and household utilities.
  - ◆ Bamboo is **removed from 'Tree' Category** (Indian Forest Act 1927 was amended in 2017). **Hence, statement 2 is correct.**

**173. Ans: C**

**Exp:**

- Recently, the Assam government notified **Dehing Patkai as the 7th National Park** of the state.
- It is located within the larger Dehing Patkai Elephant Reserve, which spreads across the coal- and oil-rich districts of Upper Assam (Dibrugarh and Tinsukia districts).
- The oldest refinery of Asia in Digboi and 'open cast' coal mining at Lido are located near the sanctuary.
- The Dehing Patkai Wildlife Sanctuary is also known as the Jeyapore Rainforest.
- Dehing is the name of the river that flows through this forest and Patkai is the hill at the foot of which the sanctuary lies.

**Hence, option C is correct.**

**174. Ans: A**

**Exp:**

- **Agasthya hill** is a 1,868-metre tall peak **within Neyyar Wildlife Sanctuary, in the Western Ghats of Kerala**. The peak lies on the border of Kerala and Tamil Nadu. This peak is a part of the Agasthyamala Biosphere Reserve. **Hence, statement 2 is not correct.**
- The peak is named after Hindu sage Agastya, who is considered to be one of the seven rishis (Saptarishi) of Hindu Puranas. It is a pilgrimage centre for devotees.
- The Thamirabarani River is a perennial river which originates from the eastern side of the range and flows into the Tirunelveli district of Tamil Nadu.
- Agasthyamala Biosphere Reserve is listed on **UNESCO World Network of Biosphere Reserves (2016)**. **Hence, statement 1 is correct.**

**175. Ans: B**

**Exp:**

- **The Network for Greening the Financial System** is a global network of central banks and supervisory authorities advocating a more sustainable financial system. **Hence, statement 1 is not correct.**
  - ◆ It aims to analyse the consequences of climate change for the financial system and to redirect global financial flows in order to enable low-carbon economic growth.
- It was created at the **Paris One Planet Summit in December 2017** and its secretariat is hosted by the Banque de France. **Hence, statement 2 is correct.**

**176. Ans: C**

**Exp:**

- The Asiatic Lion (also known as the Persian Lion or Indian Lion) is a member of the Panthera Leo Leo subspecies that is restricted to India. Asiatic lions are slightly smaller than African lions.
- Its previous habitats consisted of West Asia and the Middle East before it became extinct in these regions.
  - ◆ Asiatic lions were once distributed to the state of West Bengal in east and Rewa in Madhya Pradesh, in central India.
  - ◆ At present **Gir National Park and Wildlife Sanctuary is the only abode of the Asiatic lion**. **Hence, statement 1 is correct.**
- Asiatic lions are listed as **Endangered** in the **IUCN Red List**. **Hence, statement 2 is correct.**
  - ◆ They are listed in Appendix I under CITES.
  - ◆ They are protected under Schedule I of the Wildlife (Protection) Act 1972.

**177. Ans: A**

**Exp:**

- **Eco-Sensitive Zones (ESZs)** or Ecologically Fragile Areas are areas within **10 kms around Protected Areas, National Parks and Wildlife Sanctuaries**. **Hence, statement 1 is correct.**
  - ◆ In case of places with sensitive corridors, connectivity and ecologically important patches, crucial for landscape linkage, even areas beyond 10 km width can be included in the eco-sensitive zone.
- ESZs are notified by the Ministry of Environment, Forest and Climate Change (MoEFCC), under **Environment Protection Act, 1986**. **Hence, statement 2 is not correct.**

178. Ans: B

Exp:

- **Deepor Beel** (Beel means wetland or large aquatic body in Assamese) located about 10 km Southwest of Guwahati city is considered **one of the large and important riverine wetlands in the Brahmaputra Valley** of lower Assam.
  - ◆ Deepor Beel has both biological and environmental importance besides being the only major storm-water storage basin for Guwahati city.
- It is considered one of the staging sites for migratory birds in India; and **some of the large congregations of aquatic birds in Assam during winter.**
- Because of the richness of avian fauna it enjoys, Deepor Beel has been selected as **one of the Important Bird Area (IBA) sites by Birdlife International.**
- Deepor Beel has also been **designated as a Ramsar Site** in November 2002.
  - ◆ **Sur Sarovar** is located in **Uttar Pradesh.**
  - ◆ **Loktak Lake** is located in **Manipur.**
  - ◆ **Rudrasagar Lake** is in **Tripura.**

Hence, option B is correct.

179. Ans: A

Exp:

- **Project Elephant** was launched in 1992 to provide financial and technical support to wildlife management efforts by states for their free ranging populations of wild Asian Elephants. It is a Centrally Sponsored Scheme (CSS). **Hence, statement 2 is correct.**
  - ◆ **Objectives:**
    - To protect elephants, their habitat & corridors.
    - To address issues of man-animal conflict.
    - Welfare of captive elephants.
- **Elephant census** is conducted **once in 5 years** under the aegis of Project Elephant. Last Elephant Census was conducted in 2017. **Hence, statement 1 is correct.**
  - ◆ According to the Elephant Census 2017, India's Asian elephant population is 27,312.
  - ◆ The numbers are lower than from the last census estimate in 2012 (between 29,391 and 30,711).
  - ◆ **Karnataka (6049)** has the highest number of elephants, followed by Assam ( 5719) and Kerala (5706). **Hence, statement 3 is not correct.**
    - The state of Karnataka alone is home to 22% of the elephants.

- The South Indian states of Karnataka, Kerala, Andhra Pradesh and Tamil Nadu are home to nearly 44% of the elephants in India.

- There are around 32 Elephant Reserves in India. The very first elephant reserve was the Singhbhum Elephant Reserve of Jharkhand.

180. Ans: C

Exp:

- **Bishnoi Movement** is a religious sect found in the **Western Thar Desert** and northern states of India. It was founded by Guru Maharaj Jambaji in 1485 AD in the Marwar (Jodhpur) desert region of **western Rajasthan. Hence, pair 1 is correctly matched.**
  - ◆ It is a non-violent community of nature worshippers. This movement was started by sage Sombaji around 1700 AD against deforestation. After that Amrita Devi forwarded the movement.
- **Chipko Movement** was launched from Gopeshwar in **Chamoli district, Uttarakhand** in 1973 (then Uttar Pradesh).The movement was to prevent illegal cutting of trees in the Himalayan region (Uttarakhand). **Hence, pair 3 is correctly matched.**
  - ◆ **Sunderlal Bahuguna** and **Chandi Prasad Bhatt** were the leaders of this movement. The most notable characteristics of this movement were the involvement of women.
- **Appiko Movement** was launched in 1983, on the lines of Chipko Movement, Pandurang Hegde launched a movement which came to be known as Appiko Movement in **Karnataka. Hence, pair 2 is not correctly matched.**
  - ◆ Its main objectives were afforestation as well as development, conservation and proper utilization of forests in the best manner. The meaning of "appiko" is to express one's affection for a tree by embracing it.
- **Jungle Bachao Andolan** was launched by the tribal community of **Singhbhum district of Jharkhand** (then Bihar) agitating against the forest policy of the Government in 1982. **Hence, pair 4 is not correctly matched.**
  - ◆ The Government wanted to replace the natural soil, forests with the high-priced teak.

181. Ans: C

Exp:

- Recently, the **International Energy Agency (IEA)** has released the **India Energy Outlook 2021 Report** which



explores the opportunities and challenges ahead for India as it seeks to ensure reliable, affordable and sustainable energy for a growing population.

- The India Energy Outlook 2021 is a **new special report from the IEA's World Energy Outlook series**.
  - ◆ The World Energy Outlook Report is released by the IEA annually.

Hence, option C is correct.

**182. Ans: C**

**Exp:**

- **Zebrafish (Scientific Name: Danio rerio Habitat)** is a small (2-3 cm long) freshwater fish found in the tropical and subtropical regions.
  - ◆ The fish is native to **South Asia's Indo-Gangetic plains**, where they are mostly found in the paddy fields and even in stagnant water and streams. Hence, **statement 1 is correct**.
- Zebrafish are classified as a species of least concern on the IUCN's Red List of Threatened Species.
- Zebrafish have been used to study vertebrate development, evolution, genetics, and disease due to its adequate regeneration capacity of almost all its organs, including the brain, heart, eye, spinal cord.
  - ◆ Zebrafish have a similar genetic structure (around 70%) to humans.
  - ◆ As a vertebrate, the zebrafish has the **same major organs and tissues as humans**. Their muscle, blood, kidney and eyes share many features with human systems. Hence, **statement 2 is correct**.

**183. Ans: A**

**Exp:**

- The **Protected Planet Reports** are released by the United Nations Environment Programme- World Conservation Monitoring Centre (**UNEP-WCMC**) and the International Union for the Conservation of Nature (**IUCN**) with support from the National Geographic Society, a global non-profit. Hence, **statement 1 is correct**.
- These are biennial landmark publications that assess the state of protected and conserved areas around the world.
  - ◆ The **report is the first in the series to include data on OECM (Other Effective Area-based Conservation Measures) in addition to protected areas**. Hence, **statement 2 is not correct**.
    - OECM are a conservation designation for areas that are achieving the effective in-situ conservation of biodiversity outside of protected areas.

**184. Ans: A**

**Exp:**

- The **Blackbuck (Antelope cervicapra)**, or the Indian Antelope, is a species of antelope **native to India and Nepal**. Hence, **statement 1 is correct**.
  - ◆ It is widespread in Rajasthan, Gujarat, Madhya Pradesh, Tamil Nadu, Odisha, and other areas throughout peninsular India.
- It is considered as the epitome of grassland.
  - ◆ It is considered to be the fastest animal in the world next to Cheetah.
- It has been **declared as the State Animal of Punjab, Haryana, and Andhra Pradesh**. Hence, **statement 2 is correct**.
- Cultural Importance: It is a symbol of purity for Hinduism as its skin and horns are regarded as a sacred object. For Buddhism, it is a symbol of good luck.
- It is **listed as Least Concern** in the IUCN Red List. Hence, **statement 3 is not correct**.
  - ◆ Listed in Schedule I of the Wildlife Protection Act 1972.
  - ◆ CITES: Appendix III

**185. Ans: A**

**Exp:**

- Recently, a **new species of Cricket** named '**Indimimus jayanti**' was found in the Kurra caves of Chhattisgarh.
  - ◆ The new species was named after Professor Jayant Biswas, one of the leading cave explorers in the country.
  - ◆ The new species of cricket has been identified under the genus *Arachnomimus* Saussure, 1897.
    - Crickets of this genus are **commonly called spider crickets** because of their smaller body size and long legs. Hence, **statement 1 is correct**.
  - ◆ Jayanti has led to the new subgenus '*Indimimus*'.
- **Males of the new Jayanti subgenus cannot produce sound** and their females don't have ears. Hence, **statement 2 is not correct**.
  - ◆ The newly discovered subgenus, *Indimimus*, is different from the two subgenera, *Arachnomimus* and *Euarachnomimus*, because of the male genitalia structure.
  - ◆ Insects have a lock-and-key model genitalia structure which is unique to each subgenus.

186. Ans: A

Exp:

- **Convention on Biological Diversity (CBD)** is a **legally binding treaty** to conserve biodiversity that has been in force since 1993. **Hence, statement 1 is correct.**
  - ◆ Nearly all countries including India have ratified it (notably, the **US has signed but not ratified**). **Hence, statement 3 is not correct.**
- The CBD Secretariat is based in Montreal, Canada and it operates under the United Nations Environment Programme.
- A **supplementary agreement to the Convention known as the Cartagena Protocol on Biosafety** (adopted at COP5, 2000) seeks to protect biological diversity from the potential risks posed by living modified organisms resulting from modern biotechnology. **Hence, statement 2 is correct.**
- The Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization (ABS) was adopted in Nagoya, Japan at COP10.

187. Ans: C

Exp:

- **Govind Pashu Vihar National Park** is located in the **Uttarkashi district of the state of Uttarakhand**. The park lies in the **higher reaches of the Garhwal Himalayas**. **Hence, statement 1 is correct.**
  - ◆ The park was established as a Wildlife Sanctuary in the year of 1955. It was declared as a National Park in the year of 1990.
- Fauna include the Snow Leopard, Brown Bear, Musk Deer, Western Tragopan etc.
- Some of the noteworthy trees present in the sanctuary include deodar cedar, chir pine, silver fir, blue pine and several deciduous species.
- Within the park is the Har-ki-dun valley which is a known spot for trekking, while the Ruinsara high altitude lake is also popular as a tourist destination.
- The park **creates an upper water catchment of River Tons**. **Hence, statement 2 is correct.**
  - ◆ Tons river is a significant tributary of Yamuna River and reaches the upper stretches of Garhwal.

188. Ans: D

Exp:

- **Protection Status of Asian Elephants:**
  - ◆ **IUCN Red List: Endangered.**

- ◆ **CITES: Appendix I**

- ◆ India's Wildlife (Protection) Act, 1972: Schedule I

**Hence, statement 2 is not correct.**

- The **Monitoring the Illegal Killing of Elephants (MIKE) programme**, launched in 2003, is an **international collaboration** that tracks trends in information related to the **illegal killing of elephants from across Africa and Asia**, to monitor effectiveness of field conservation efforts. **Hence, statement 1 is not correct.**

189. Ans: D

Exp:

- **Kaziranga National Park and Tiger Reserve:**
  - ◆ 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**.
  - ◆ It was declared as a National Park in 1974.
  - ◆ It has been declared a tiger reserve since 2007.
  - ◆ It was declared a **UNESCO World Heritage Site in 1985**.
  - ◆ It is recognized as an Important Bird Area by BirdLife International.
  - ◆ It is the **home of the world's most one-horned rhinos**.
    - Pobitora Wildlife Sanctuary has the highest density of one-horned rhinos in the world and second highest number of Rhinos in Assam after Kaziranga National Park.
  - ◆ National **Highway 37 passes** through the park area.
  - ◆ The park also has more than 250 seasonal water bodies, besides the Diphlu River running through it.

**Hence, option D is correct.**

190. Ans: A

Exp:

- A tiny snake "**Xylophis deepaki**" has been named in honour of Indian herpetologist Deepak Veerappan for his contribution in erecting a new subfamily Xylophiinae to accommodate wood snakes.
  - ◆ The common name suggested for the species is '**Deepak's wood snake**'.
- It is a tiny snake of just 20 cm length with iridescent scales.
- It was first found on a coconut plantation in Kanyakumari.

- It is **now reported to be an endemic species of Tamil Nadu** and also been sighted in some parts of the southern Western Ghats. **Hence, option A is correct.**
  - ◆ It is found in the drier regions and in lower altitudes around Agasthyamalai hills.

**191. Ans: A**

**Exp:**

- **Navegaon-Nagzira Tiger Reserve** is situated in Gondia and Bhandara districts of Maharashtra.
  - ◆ Gondia District shares common boundaries with the state of Madhya Pradesh and Chhattisgarh in the north and eastern side respectively.
- Strategically, the Tiger Reserve is located in the heart of central Indian Tiger landscape which contributes almost one sixth of the total tiger population of the country.
- It was notified as the 46<sup>th</sup> Tiger Reserve of India in December 2013.
- NNTR comprised of the notified area of Nawegaon National Park, Nawegaon Wildlife Sanctuary, Nagzira Wildlife Sanctuary, New Nagzira Wildlife Sanctuary and Koka Wildlife Sanctuary.
 

**Hence, option A is correct.**

**192. Ans: C**

**Exp:**

- **Nongkhylllem Wildlife Sanctuary** is situated in the Ri-Bhoi district near Lailad village and spreads over an area of 29 sq. kms. Nongkhylllem Wildlife Sanctuary is one of the famous attractions of **Meghalaya**. **Hence, option C is correct.**
- The Sanctuary falls in the Eastern Himalayan Global biodiversity hotspot.
- The sanctuary supports different species of fauna such as Royal Bengal Tiger, Clouded Leopard, Indian Bison, and Himalayan Black Bear etc.
- Among the birds, the rare species which can be spotted here are Manipur Bush Quail, Rufous Necked Hornbill and Brown Hornbill.

**193. Ans: B**

**Exp:**

- **Blue Flag** beaches are considered the **cleanest beaches** of the world. **Hence, statement 2 is correct.**
  - ◆ The Blue Flag is one of the world's most recognised voluntary eco-labels awarded to beaches, marinas, and sustainable boating tourism operators.

- In order to qualify for the Blue Flag, a series of stringent environmental, educational, safety, and accessibility criteria must be met and maintained.

- ◆ There are around 33 criteria that are to be met to qualify for a Blue Flag certification,
  - Such as the water meeting certain quality standards, having waste disposal facilities, being disabled- friendly, having first aid equipment, and no access to pets in the main areas of the beach.
- ◆ **Some criteria are voluntary and some compulsory. Hence, statement 1 is not correct.**
- **There are eight beaches in India which have received Blue Flag Certification:**
  - ◆ Shivrajpur in Gujarat,
  - ◆ Ghoghla in Daman & Diu,
  - ◆ Kasarkod in Karnataka and,
  - ◆ Padubidri beach in Karnataka,
  - ◆ Kappad in Kerala,
  - ◆ Rushikonda in Andhra Pradesh,
  - ◆ Golden beach of Odisha,
  - ◆ Radhanagar beach in Andaman and Nicobar.

**Hence, statement 3 is not correct.**

**194. Ans: A**

**Exp:**

- **Saudi Arabia currently operates the largest carbon capture and utilisation plant in the world**, it also operates one of the region's most advanced CO<sub>2</sub>-enhanced oil recovery plants that captures and stores 8,00,000 tonnes of CO<sub>2</sub> annually. **Hence, statement 1 is correct.**
- Saudi Arabia under its Middle East Green Initiative **will work with the Gulf Cooperation Council** countries and regional partners (**and not UNEP**) to plant an additional 40 billion trees in the West Asian region. **Hence, statement 2 is not correct.**
  - ◆ It represents 5% of the global target of planting one trillion trees and reducing 2.5% of global carbon levels.
- Saudi Arabia will convene an annual summit called the Middle East Green Initiative which will host leaders from the government, scientists and environmentalists to discuss the details of implementation.

**195. Ans: C**

**Exp:**

- The bat species *Eudiscopus denticulus*, aptly called disk-footed bat, is very distinctive in appearance with

prominent disk-like pads in the thumb and bright orange colouration.

- ◆ It has been found roosting in internodal spaces of bamboo stems.
- This species is known to thrive in a few localities in **Southern China, Vietnam, Thailand and Myanmar. Hence, statement 1 is not correct.**
- In Meghalaya, it was recorded in the Lailad area near the Nongkhylllem Wildlife Sanctuary, about 1,000 km west of its nearest known habitat in Myanmar.
- The disk-footed bat has raised Meghalaya's bat count to 66, the most for any State in India.
  - ◆ It has also helped add a genus and species to the bat fauna of India. India has a total of 130 bat species.
- In the IUCN Red List, it is listed as **Least Concern. Hence, statement 2 is not correct.**

**196. Ans: C**

**Exp:**

- Hippopotamus, also called hippo or water horse, is an amphibious African ungulate mammal. It is considered to be the second largest land animal (after the elephant).
  - ◆ Hippos are well adapted to aquatic life. The ears, eyes, and nostrils are located high on the head so that the rest of the body may remain submerged.
  - ◆ Hippopotamuses were **extinct in northern Africa** by 1800 and south of Natal and the Transvaal by 1900. They are still fairly common in East Africa, but populations continue to decrease continent wide. **Hence, statement 1 is not correct.**
- **Protection Status:**
  - ◆ **IUCN Red List: Vulnerable**
  - ◆ **CITES: Appendix III****Hence, statement 2 is not correct.**

**197. Ans: B**

**Exp:**

- The **World Meteorological Organization (WMO)** releases the annual State of the Global Climate. **Hence, option B is correct.**
  - ◆ Recently, it has released the State of the Global Climate for 2020.
- The WMO is an intergovernmental organization with a membership of 192 Member States and Territories. India is a member.
  - ◆ It originated from the International Meteorological Organization (IMO), which was established after the 1873 Vienna International Meteorological Congress.

- The report has recorded 2020 as one of the three warmest years on record, despite a cooling La Niña event.
  - ◆ The global average temperature was about 1.2° Celsius above the pre-industrial (1850-1900) level.
  - ◆ The other two warmest years are 2016 and 2019.

**198. Ans: C**

**Exp:**

- The snow leopard is listed as **vulnerable on the IUCN-World Conservation Union's Red List** of the Threatened Species. **Hence, statement 1 is correct.**
- In addition, it is also listed in Appendix I of the Convention on International Trade of Endangered Species (CITES).
  - ◆ Making trading of animal body parts (i.e., fur, bones and meat) illegal in signatory countries.
- It is listed in **Schedule I of the Indian Wildlife (Protection) Act 1972. Hence, statement 2 is correct.**
- It is also listed in the Convention on Migratory Species (CMS), affording the highest conservation status to the species, both globally and in India.
- It is also protected by several national laws in its range of countries.

**199. Ans: B**

**Exp:**

- **Corals** are made up of genetically identical organisms called **polyps. Hence, statement 1 is correct.**
- These polyps have **microscopic algae called zooxanthellae (and not a chemical secreted by corals)** living within their tissues.
  - ◆ The corals and algae have a mutualistic relationship. **Hence, statement 3 is not correct.**
  - ◆ The coral provides the zooxanthellae with the compounds necessary for photosynthesis. In return, the zooxanthellae supply the coral with organic products of photosynthesis, like carbohydrates, which are utilized by the coral polyps for the synthesis of their calcium carbonate skeletons.
  - ◆ In addition to providing corals with essential nutrients, **zooxanthellae are responsible for the unique and beautiful colors of corals.**
- **Coral bleaching** is the loss of the algae and a **rapid whitening of the coral. Hence, statement 2 is correct.**

- ◆ This is a stress response by the coral host that can be caused by various factors such as the rise in sea surface temperature.
  - If the temperature decreases, the stressed coral can recover; if it persists, the affected colony can die.

200. Ans: C

Exp:

- **Sturgeon** is the common name for the **species of fishes** belonging to the family Acipenseridae.
  - ◆ They have existed since the time of dinosaurs, for about 200 million years. Some of the species can grow up to eight metre in length and live more than a century.
  - ◆ **They are called 'living fossils'** because their appearance has altered very little over the years. **Hence, statement 1 is correct.**
  - ◆ Other than Sturgeons, Horseshoe crab and ginkgo trees are examples of living fossils.
- There are 27 species of sturgeons and paddlefishes distributed across the Northern hemisphere. While some species inhabit only freshwater, most species are anadromous, spawning in freshwater but spending much of their life history in marine or brackish environments.
- There are **6 species of sturgeon in the Danube River. Five of them are now listed as critically endangered** in the IUCN Red List. **Hence, statement 2 is correct.**

201. Ans: D

Exp:

- The **Dzukou Valley**, popularly known as the '**valley of flower**', is located at the border of Nagaland and Manipur. It is situated at an altitude of 2,438 metres behind the Japfu mountain range, it is one of the most popular trekking spots in the North East.
  - ◆ **Dzukou valley** and **Japfu peak** are located adjacent to the Pulie Badze Wildlife Sanctuary (Nagaland).
- There are no human habitations within the forests, but they are home to rare and 'vulnerable' (as per the IUCN Red List) birds - Blyth's Tragopan (Nagaland's state bird), the Rufous-necked Hornbill and the Dark-rumped Swift, among many others. Also found in the forests are endangered Western Hoolock Gibbons.
  - ◆ It is covered with bamboo and other grass species. The valley harbours many species of flowering plants including the endemic Dzukou Lily- Liliium chitragada. **Hence, statement 1 is correct.**

- ◆ The valley is a source of conflict for ownership between local tribes and the state governments of Manipur/Nagaland. It is **home to the Angami people. Hence, statement 2 is correct.**

- The 90-sq km green valley has been prone to forest fires for decades - in 2015, 2012, 2010 and 2006. **Hence, statement 3 is correct.**

202. Ans: A

Exp:

- In the 1840s, a mystery bird was caught on an expedition to the East Indies. It was named as black-browed babbler.
  - ◆ The species was never seen in the wild again, and a stuffed specimen featuring a bright yellow glass eye was the only proof of its existence.
  - ◆ Recently, a Black-Browed Babbler (*Malacocincla perspicillata*) was rediscovered in southeastern **Kalimantan**, the part of **Borneo that is administered by Indonesia. Hence, statement 1 is correct.**
- This bird is often called 'the biggest enigma in Indonesian ornithology'.
- It is listed as **Data Deficient** in the IUCN Red List. **Hence, statement 2 is not correct.**

203. Ans: A

Exp:

- Recently, a massive fire broke out in the **Similipal Biosphere Reserve in Odisha**. The core area of the biosphere was untouched by the fire, however the fire is threatening damage to its rich biodiversity.
  - ◆ It is part of the Similipal-Kuldiha-Hadgarh Elephant Reserve popularly known as **Mayurbhanj Elephant Reserve**, which includes 3 protected areas i.e. Similipal Tiger Reserve, Hadagarh Wildlife sanctuary and Kuldiha wildlife sanctuary. **Hence, statement 1 is correct.**
- Two tribes, the **Erenga Kharias** and the **Mankirdias**, mainly inhabit the Similipal Biosphere Reserve's forests and practise traditional agricultural activities (the collection of seeds and timber). **Hence, statement 2 is not correct.**
- The Dongria Kondh population is mainly concentrated in the southern hills of the Odisha state and the Mahanadi River basin, and some are also found in the adjoining districts of the neighboring Andhra Pradesh State.

204. Ans: C

Exp

- **Asola-Bhatti Wildlife Sanctuary** covering 32.71 sq km area lies on the Southern **Delhi Ridge of Aravalli hill range**, one of the oldest mountain systems of the world, on Delhi-Haryana border. **Hence, statement 1 and 2 are correct.**

205. Ans: C

Exp

- The **Pench Tiger Reserve (PTR)** is located in Nagpur District of Maharashtra and named after the pristine Pench River.
  - ◆ The Pench river flows right through the middle of the park.
  - ◆ It descends from north to south, thereby dividing the reserve into equal eastern and western parts.
- PTR is the joint pride of both Madhya Pradesh and Maharashtra.
  - ◆ The Reserve is located in the **southern reaches of the Satpura hills** in the Seoni and **Chhindwara districts in Madhya Pradesh**, and continues in **Nagpur district in Maharashtra** as a separate Sanctuary. **Hence, statement 1 and 2 are correct.**
- It was declared a National Park by the Government of Maharashtra in 1975 and the identity of a tiger reserve was granted to it in the year 1998-1999.
  - ◆ However, PTR Madhya Pradesh was granted the same status in 1992-1993. It is one of the major Protected Areas of Satpura-Maikal ranges of the Central Highlands.

206. Ans: C

Exp:

- Whale sharks are the largest shark, and indeed **largest of any fishes alive** today and they travel large distances to find enough food to sustain their huge size, and to reproduce.
  - ◆ The whale shark is a **'filter feeder shark' which means** it does not eat meat like other sharks. Whale sharks filter sea water and feed on tiny planktons. **Hence, statement 1 is not correct.**
  - ◆ The maximum size of whale sharks is not known, but could be as large as 20m.
- Whale sharks are found in **all the tropical oceans** of the world. **Hence, statement 2 is correct.**
- It is listed as **Endangered** in the IUCN Red List. **Hence, statement 3 is correct.**

207. Ans: A

Exp

- The Prime Minister of India was conferred with the **Global Energy and Environment Leadership Award by Cambridge Energy Research Associates (CERA)**.
  - ◆ He was awarded for his commitment to expanding India's **leadership in sustainable development to meet the country's, and the world's, future energy needs. Hence, statement 1 is correct.**
- The CERAWeek Global Energy and Environment Leadership Award was instituted in 2016.
  - ◆ It recognises the commitment of leadership on the future of global energy and environment, and for offering solutions and policies for energy access, affordability and environmental stewardship.
- **Cambridge Energy Research Associates (CERA)** is a consulting company in the United States that specializes in advising governments and private companies on energy markets, geopolitics, industry trends, and strategy.
  - ◆ CERAWeek is an **annual energy conference**, organized in Houston (USA) in March, since 1983. It was founded in 1983 by Dr. Daniel Yergin. **Hence, statement 2 is not correct.**

208. Ans: A

Exp:

- **Seabuckthorn** is a **shrub** which produces an orange-yellow coloured edible berry.
  - ◆ In India, it is found above the tree line in the Himalayan region, generally in dry areas such as the **cold deserts** of Ladakh and Spiti. **Hence, statement 1 is correct.**
  - ◆ A major part is covered by this plant in Himachal Pradesh, Ladakh, Uttarakhand, Sikkim and Arunachal Pradesh.
- The **cold desert of India** is situated in the Himalayas and **stretches from Ladakh** in the north to **Kinnaur** (in the state of **Himachal Pradesh**) in the south. **Hence, statement 2 is not correct.**
  - ◆ The region has harsh climatic conditions such as very low rainfall and very high elevation (ranging from 3000 – 5000m Above Sea Level)] that adds to the coldness in its environment.
  - ◆ The soil is not very fertile and the climatic conditions allow very short growing seasons making it a bare landscape.

209. Ans: D

Exp:

- **Project RE-HAB (Reducing Elephant-Human Attacks using Bees)** has been recently launched in Karnataka which entails installing bee boxes along the periphery of the forest and the villages to mitigate human-elephant conflict.
  - ◆ It is intended to create “bee fences” to **thwart elephant attacks in human habitations using honeybees. Hence, statement 1 is correct.**
    - The bee boxes will dissuade elephants without causing any harm to them.
    - Extremely cost-effective as compared to various other measures such as digging trenches or erecting fences.
- These **spots are located on the periphery of Nagarhole National Park and Tiger Reserve**, which is a known conflict zone.
- The Project is an initiative of the **Khadi and Village Industries Commission (KVIC)**.
  - ◆ It is a sub-mission of KVIC's National Honey Mission. **Hence, statement 2 and 3 are correct.**

210. Ans: C

Exp:

- The Nagarhole National Park is also known as Rajiv Gandhi National Park.
  - ◆ It was established as a wildlife sanctuary in 1955 and was upgraded into a national park in 1988.
  - ◆ It was declared as the 37<sup>th</sup> Tiger reserve under Project Tiger in 1999.
  - ◆ There are 51 Tiger reserves in India.
    - The latest addition in this list is **Srivilliputhur Meghamalai Tiger Reserve** of Tamil Nadu, which got approval in 2021. **Hence, statement 2 is correct.**
- The **Nagarhole National Park** lies in the **Western Ghats and is a part of the Nilgiri Biosphere Reserve. Hence, statement 1 is correct.**
- The Nagarhole River flows through the park, which joins the Kabini River which also is a boundary between Nagarhole and Bandipur National Park.

211. Ans: D

Exp:

- The term heavy metal refers to any metallic chemical element that has a relatively high density ( $> 5 \text{ g/cm}^3$ ) and is toxic or poisonous at low concentrations.

- ◆ Examples of heavy metals include mercury (Hg), cadmium (Cd), arsenic (As), chromium (Cr), thallium (Tl), and lead (Pb)

- **Source of Heavy Metals:**

- ◆ Heavy metals are introduced into the environment either by natural means or by human activities.
  - **Natural Sources:** Geographical phenomena like volcanic eruptions, weathering of rocks, leaching into rivers, lakes and oceans due to action of water.
  - **Anthropogenic Sources:** These metals are released into the water through anthropogenic activities such as mining, manufacturing, electroplating, electronics, discharge from auto exhaust, domestic waste, agricultural waste and fertilizer production. **Hence, statement 1 is not correct.**

- **Effect of Heavy Metals on Human:**

- ◆ There are some essential heavy metals which the human body requires in trace amounts such as Cobalt, copper, zinc, and manganese but in the excessive amount, it can be detrimental to health.
- ◆ The **heavy metals found in drinking water** such as lead, mercury, arsenic, and cadmium have **no beneficial effects on your body. Hence, statement 2 is not correct.**
  - In fact, their accumulation inside the body can cause severe health problems.

212. Ans: C

Exp:

- The **Terai Arc Landscape (TAL)** is an 810 km stretch between the **river Yamuna in the west and the river Bagmati** in the east. **Hence, statement 1 is correct.**
  - ◆ The Bagmati River is a river in south-central Nepal and northern Bihar state.
- Comprises the Shivalik hills, the adjoining bhabhar areas and the Terai flood plains.
  - ◆ The bhabhar is that part of the Indian Northern Plains where the rivers, after descending from the mountains, deposit pebbles. It is a narrow belt, having a width of about 8 to 16 km and lying parallel to the slopes of the Shivaliks.
  - ◆ All the streams disappear in this bhabhar belt. South of this belt, the streams and rivers re-emerge and create a wet, swampy and marshy region known as terai.

- It is spread across the Indian states of Uttarakhand, Uttar Pradesh and Bihar, and the low lying hills of Nepal. Hence, statement 2 is not correct.
- It boasts of some of India's most well-known Tiger Reserves and Protected Areas such as Corbett Tiger Reserve (Uttarakhand), Rajaji National Park (Uttarakhand), Dudhwa Tiger Reserve (Uttar Pradesh), Valmiki Tiger Reserve (Bihar). Hence, statement 3 is correct.
  - ◆ In total, the landscape has 13 Protected Areas, 9 in India and 4 in Nepal, covering a total area of 49,500 km<sup>2</sup>, of which 30,000km<sup>2</sup> lies in India.
  - ◆ The forests are home to three flagship species, the Bengal tiger (*Panthera tigris*), the greater one horned rhino (*Rhinoceros unicornis*) and the Asian elephant (*Elephas maximus*).

213. Ans: C

Exp:

- Pilibhit Tiger Reserve (Uttar Pradesh) is located in Pilibhit and Shahjahanpur district of Uttar Pradesh. It was notified as Tiger Reserve in 2014.
- In 2020, it bagged international award TX2 for doubling up the number of tigers in the past four years. Hence, statement 1 is correct.
- It forms the part of Terai Arc Landscape in the upper Gangetic Plain. Hence, statement 2 is correct.
  - ◆ The northern edge of the reserve lies along the Indo-Nepal border while the southern boundary is marked by the river Sharada and Khakra.

214. Ans: C

Exp:

- Ranthambore Tiger Reserve lies in the eastern part of Rajasthan state in Karauli and Sawai Madhopur districts, at the junction of the Aravali and Vindhya hill ranges. Hence, statement 1 is not correct.
  - ◆ It comprises the Ranthambore National Park as well as Sawai Mansingh and Kailadevi Sanctuaries. Hence, statement 2 is correct.
  - ◆ This isolated area with tigers in it represents the north-western limit of the Bengal tiger's distribution range and is an outstanding example of Project Tiger's efforts for conservation in the country.
- The Chambal River forms a natural boundary of the Ranthambore national park towards the east
  - ◆ To the northeast of the Ranthambore national park, flows the river Banas, a tributary of Chambal. Hence, statement 3 is correct.

215. Ans: A

Exp:

- The Coalition for Disaster Resilient Infrastructure (CDRI) is a multi-stakeholder global partnership of national governments, UN agencies and programmes, multilateral development banks and financing mechanisms, the private sector, and knowledge institutions.
  - ◆ The Prime Minister of India launched CDRI during his speech at the UN Climate Action Summit on 23<sup>rd</sup> September 2019. Hence, statement 1 is correct.
- It aims to promote the resilience of new and existing infrastructure systems to climate and disaster risks in support of sustainable development.
- The CDRI Secretariat is based in New Delhi, India. Hence, statement 2 is not correct.

216. Ans: A

Exp:

- The largest source of climate financing in India is public funding, which is routed through budgetary allocation and several funds and schemes related to climate change established by the Government of India such as National Clean Energy Fund (NCEF) and National Adaptation Fund (NAF).
- The Government of India also provides funding through eight missions established under the National Action Plan for Climate Change.
  - ◆ The government has established a Climate Change Finance Unit (CCFU) in the Ministry of Finance, which is the nodal agency for all climate change financing matters. Hence, statement 1 is correct but statement 2 is not correct.
  - ◆ However, public funding in India is inadequate and misused. For example, NCEF funds have been used to meet budgetary shortfalls in the Ministry of New and Renewable Energy (MoNRE).
  - ◆ Additionally, there is no assessment of climate relevance of publicly funded projects in India, making it difficult to evaluate financial allocation towards climate action.

217. Ans: D

Exp:

- The Greater One-Horned Rhino is one among the five different species of Rhino. The other four are Black Rhino, White Rhino, Javan Rhino and Sumatran Rhino



- ◆ There are three species of rhino in Asia — Greater one-horned (*Rhinoceros unicornis*), Javan and Sumatran.
- ◆ **Only the Great One-Horned Rhino** is found in India. Hence, **statement 1 is correct.**
- The greater one-horned rhino (or “Indian rhino”) is the largest of the rhino species.
  - ◆ The species is restricted to small habitats in Indo-Nepal terai and northern West Bengal and Assam.
  - ◆ In India, rhinos are mainly found in **Assam, West Bengal** and **Uttar Pradesh**. Hence, **statement 2 is correct.**
- It is listed as **Vulnerable** in the IUCN Red List. Hence, **statement 3 is correct.**
  - ◆ Listed in the Appendix I of the CITES and in the Schedule I of the Wildlife Protection Act, 1972.

**218. Ans: C**

**Exp:**

- **Kaziranga National Park** 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. Hence, **statement 2 is correct.**
- The national park has been declared as a **tiger reserve** since 2007.
  - ◆ It has a total tiger reserve area of 1,030 sq km with a core area of 430 sq. km.
- It was also declared a **UNESCO World Heritage Site** in 1985. Hence, **statement 1 is correct.**
  - ◆ It is recognized as an Important Bird Area by BirdLife International.

**219. Ans: D**

**Exp:**

- ‘Net zero emissions’ refers to achieving an overall balance between greenhouse gas emissions produced and greenhouse gas emissions taken out of the atmosphere. Hence, statement 1 is not correct.
- There is global pressure on India to commit net-zero emissions by 2050. However India has not yet committed to it. Hence, **statement 2 is not correct.**

**220. Ans: D**

**Exp:**

- Net zero emissions’ refers to **achieving an overall balance between greenhouse gas emissions produced and greenhouse gas emissions taken out** of the atmosphere.

- ◆ The time frame for reaching net-zero emissions differs significantly if one is referring to CO<sub>2</sub> alone, or referring to all major GHGs (including methane, nitrous oxide, and HFCs).
- As of June 2020, twenty countries and regions have adopted net-zero targets. This list only includes countries that adopted a net-zero target in law or another policy document.
  - ◆ The **Kingdom of Bhutan is already carbon-negative**, i.e. absorbs more CO<sub>2</sub> than it emits. Hence, **statement 2 is correct.**
- **Emissions:** India’s per capita CO<sub>2</sub> emissions – at 1.8 tonnes per person in 2015 – are around a ninth of those in the USA and around a third of the global average of 4.8 tonnes per person.
  - ◆ However, overall, India is now the planet’s third-largest emitter of CO<sub>2</sub>, behind China and the USA. Hence, **statement 1 is correct.**
- Sectors that are the largest Greenhouse Gas emitters: **Energy > Industry > Forestry > Transport > Agriculture > Building**. Hence, **statement 3 is correct.**

**221. Ans: D**

**Exp:**

- There are **two subspecies of African elephants**, the Savanna (or bush) elephant and the Forest elephant. Hence, **statement 1 is correct.**
  - ◆ Savanna elephants are the larger of two.
  - ◆ The forest elephant has a more restricted natural distribution. Therefore, its decline is especially worrying.
  - ◆ While savanna elephant populations can bounce back given sufficient protection, the forest elephant is likely to recover much more slowly
- The International Union for Conservation of Nature (IUCN) has declared **African Forest** and Savanna (or bush) elephants as ‘**critically endangered**’ and ‘**endangered**’ respectively. Hence, **statement 2 is correct.**
  - ◆ Earlier, African elephants were treated as a single species, listed as Vulnerable. This is the first time the two species have been assessed separately for the IUCN Red List.
- African elephants are the largest land animals on Earth. They are slightly larger than Asian elephants.
  - ◆ They have two fingerlike features on the end of their trunk while Asian elephants have just one.

- Elephants are matriarchal, meaning they live in female-led groups.
- African elephants are **keystone species**, meaning they play a critical role in their ecosystem. Also known as “ecosystem engineers,” elephants shape their habitat in many ways. **Hence, statement 3 is correct.**
- Elephants have a longer pregnancy than any other mammal—almost 22 months. This compounds the problem of conservation since there are simply not enough calves being born to make up for the losses from poaching.

222. Ans: A

Exp:

- **Earth Hour** is the **World Wildlife Fund for Nature (WWF)’s annual initiative** that began in 2007. **Hence, statement 1 is not correct.**
  - ◆ It is held every year on the last Saturday of March.
  - ◆ It encourages people from more than 180 countries to **switch off the lights from 8.30 pm to 9.30 pm as per their local time.**
    - The idea is to **refrain from the use of non-essential lighting** to save energy in a symbolic call for environmental protection. **Hence, statement 2 is correct.**
- Earth Hour has become a catalyst for positive environmental impact, driving major legislative changes by harnessing the power of the people and collective action. It has helped:
  - ◆ Create a 3.5 million hectare marine-protected area in Argentina.
  - ◆ Ban all plastics in the Galapagos in 2014.
  - ◆ Plant 17 million trees in Kazakhstan.
  - ◆ Light up homes with solar power in India and the Philippines.
  - ◆ Push new legislation for the protection of seas and forests in Russia.

223. Ans.: B

Exp.

- India has a total of 18 Biosphere Reserves and with the **inclusion of Panna Biosphere Reserve (PBR)**, the **number of internationally designated WNBR has become 12.** In 2000, the **Nilgiri Biosphere Reserve became the 1st BR** from India to be included in the WNBR. In 2018, the **Khangchendzonga Biosphere Reserve became the 11<sup>th</sup> BR** to be included in the list. **Hence, statement 1 is not correct.**

- Bhitarkanika National Park is home to the largest congregation of the endangered Salt Water Crocodile in the country. **Hence, statement 2 is correct.**

224. Ans. B

Exp.:

- Inert waste is waste which is **neither biologically nor chemically reactive** and is waste which will not decompose or decompose very slowly. These wastes usually don't pose a threat to the environment, or the health of animals or other people and will not endanger the quality of watercourses. **Hence, statement 1 is not correct.**
- Inert waste includes, but is not limited to: construction and demolition material such as metal, wood, bricks, masonry and cement concrete; asphalt concrete; metal; tree branches; bottom ash from coal fired boilers; and waste coal fines from air pollution control equipment. **Hence, statement 2 is correct.**

225. Ans: C

Exp:

- The Himachal Pradesh government has decided to start planting seabuckthorn in the cold desert areas of the state.
  - ◆ Seabuckthorn is a shrub which produces an orange-yellow coloured edible berry.
- In India, it is found above the tree line in the Himalayan region, generally in dry areas such as the cold deserts of Ladakh and Spiti.
  - ◆ In **Himachal Pradesh**, it is **locally called chharma** and grows in the wild in Lahaul and Spiti and parts of Kinnaur. **Hence, statement 2 is correct.**
- A major part is covered by this plant in Himachal Pradesh, Ladakh, Uttarakhand, Sikkim and Arunachal Pradesh.
- The Seabuckthorn Plantation has many Ecological, Medicinal and Economical benefits.
  - ◆ Seabuckthorn is a **soil-binding plant which prevents soil-erosion, checks siltation in rivers and helps preserve floral biodiversity.** **Hence, statement 1 is correct.**
  - ◆ In the Lahaul valley, where willow trees are dying in large numbers due to pest attack, this hardy shrub is a good alternative for protecting the local ecology.
  - ◆ Grows well in dry regions and becomes much more important especially in the light of reduced water flow from Himalayan glaciers.

226. Ans: A

Exp:

- It falls in the districts of Idukki and Pathanamthitta in Kerala (**saddled in the southern region of Western Ghats**). Hence, **statement 1 is correct**.
- Declared a Sanctuary during 1950 and declared as Tiger Reserve during 1978. It gets its name from the River Periyar which has its origin deep inside the reserve
- The major rivers through the reserve are Mullayar and Periyar.
- **Fauna:**
  - ◆ **Mammals:** Tiger, Elephant, **Lion-tailed macaque, Nilgiri Tahr** etc.
  - ◆ **Birds:** Darters, Cormorants, Kingfishers, **the great Malabar Hornbill** and racket-tailed Drongos. Hence, **statement 2 is correct**.
  - ◆ **Reptiles:** Monitor Lizards, Python, King Cobra etc.
- There are six tribal communities nestled inside the reserve such as **Mannans, Paliyans, Malayarayans, Mala Pandarams, Uralis and Ulladans**. Hence, **statement 3 is not correct**.
  - ◆ The Gonds, Marati and Naikda are major tribal groups of Karnataka.

227. Ans: C

Exp:

- The fishing cat is **nocturnal** (active at night) and apart from **fish** also preys on frogs, crustaceans, **snakes**, birds, and scavenges on **carcasses of larger animals**. Hence, **statement 1 is correct**.
  - ◆ It is twice the size of a house cat.
  - ◆ The species breed all year round.
- They spend most of their lives in areas of dense vegetation close to water bodies and are excellent swimmers.
- Fishing cats have a **patchy distribution along the Eastern Ghats**. They abound in estuarine floodplains, tidal mangrove forests and also inland freshwater habitats.
  - ◆ Apart from **Sundarbans in West Bengal and Bangladesh**, fishing cats inhabit the **Chilika lagoon and surrounding wetlands in Odisha**, Coringa and Krishna mangroves in Andhra Pradesh. Hence, **statement 2 is not correct**.
- **Despite multiple threats**, the Fishing Cat was **recently downlisted to "Vulnerable"** from **"Endangered"** in the IUCN Red List species assessment. Hence, **statement 3 is not correct**.

- ◆ Listed in Appendix II of the CITES.
- ◆ Protected under Schedule I of the Indian Wildlife Protection Act, 1972

228. Ans: A

Exp:

- Recently, on the occasion of the World Wetland Day, the Minister of State for Environment, Forest and Climate Change announced the establishment of a Centre for Wetland Conservation and Management (CWCM), as a part of the National Centre for Sustainable Coastal Management (NCSCM).
- **Ramsar Convention on Wetlands**, called the Ramsar Convention, is the intergovernmental treaty that provides the framework for the conservation and wise use of wetlands and their resources. Hence, **statement 1 is correct**.
  - ◆ The Convention was adopted in the Iranian city of Ramsar in 1971 and came into force in 1975. Since then, almost 90% of UN member states, from all the world's geographic regions, have acceded to become "Contracting Parties".
  - ◆ India has 26 Ramsar Sites which are the Wetlands of International importance.
  - ◆ **Currently, two wetlands of India are in Montreux record: Keoladeo National Park (Rajasthan) and Loktak Lake (Manipur). Chilka lake (Odisha) was placed in the record but was later removed from it. Hence, statement 2 is not correct.**
- India has nearly 4.6% of its land as wetlands, covering an area of 15.26 million hectares and has 42 sites designated as Wetlands of International Importance (Ramsar Sites). Hence, **statement 3 is not correct**.
  - ◆ Wetlands declared as Ramsar sites are protected under strict guidelines of the convention.
  - ◆ There are currently over 2,300 Ramsar Sites around the world.
  - ◆ Recently, India has added Tso Kar Wetland Complex in Ladakh as its 42<sup>nd</sup> Ramsar site.

229. Ans: C

Exp:

- **Nanda Devi National Park** is situated around the peak of Nanda Devi (7816 m) in the state of Uttarakhand in northern India.
  - ◆ The park encompasses the Nanda Devi Sanctuary, a glacial basin surrounded by a ring of peaks, and **drained by the Rishi Ganga** through the Rishi Ganga Gorge. Hence, **statement 2 is not correct**.

- The Park was established as Sanjay Gandhi National Park by Notification in 1982 but was later renamed Nanda Devi National Park.
  - ◆ It was inscribed a World Heritage Site by the United Nations Educational, Scientific and Cultural Organization (UNESCO) in 1988. Hence, statement 1 is correct.
- Some 312 floral species that include 17 rare species have been found here. Fir, birch, rhododendron, and juniper are the main flora.
- The Fauna of Nanda Devi National Park include Himalayan black bear, Snow leopard, Himalayan Musk Deer etc. Hence, statement 3 is correct.

230. Ans: D

Exp:

- The researchers at IIT-D have successfully split water by a process known as Sulphur-Iodine (SI) thermochemical hydrogen cycle (SI Cycle) to generate low-cost, clean hydrogen fuel for industrial consumption. Hence, statement 2 is correct.
  - ◆ The sulfur-iodine cycle (SI cycle) is a three-step thermochemical cycle used to produce hydrogen. In this cycle, all the chemicals are recycled. The SI process requires an efficient source of heat.
  - ◆ Heat enters the cycle in high-temperature endothermic chemical reactions in the initial process and heat exits the cycle in the low-temperature exothermic reaction in the final stage of obtaining hydrogen gas.
- Hydrogen as a fuel is an environment friendly, non-toxic substance which does not cause any harm or destruction to human health.
  - ◆ The advantage of using hydrogen as an energy carrier is that when it combines with oxygen the only byproducts are water and heat.
  - ◆ No greenhouse gasses or other particulates are produced by the use of hydrogen fuel cells. Hence, statement 1 is correct.

231. Ans: C

Exp:

- The draft notification of the Ministry of Environment, Forest, and Climate Change (MoEFCC) on an Eco-Sensitive Zone (ESZ) which runs around the Wayanad Wildlife Sanctuary (WWS) has triggered protests in Wayanad (Kerala).
- Wayanad Wildlife Sanctuary is located in Kerala, Wayanad Wildlife Sanctuary (WWS) is an integral part

of the Nilgiri Biosphere Reserve. Hence, statement 1 is correct.

- ◆ Spread over 344.44 sq km, WWS is contiguous to the tiger reserves of Nagerhole and Bandipur of Karnataka and Mudumalai of Tamil Nadu.
- ◆ Kabini river (a tributary of Cauvery river) flows through the sanctuary. Hence, statement 2 is not correct.
- Nilgiri Biosphere Reserve was the first from India to be included in the UNESCO designated World Network of Biosphere Reserves (designated in 2012). Hence, statement 3 is correct.
- Other wildlife parks within the Reserve are: Mudumalai Wildlife Sanctuary, Bandipur National Park, Nagarhole National Park, Mukurthi National Park and Silent Valley.

232. Ans: A

Exp:

- The Lancet Countdown on Health and Climate Change, is an international, multidisciplinary collaboration, dedicated to monitoring the evolving health profile of climate change. Hence, statement 1 is correct.
  - ◆ It is published annually and provides an independent assessment of the delivery of commitments made by governments worldwide under the Paris Agreement. Hence, statement 2 is not correct.
- The countries considered in the modelling study represent 50% of the world's population and 70% of the world's emissions – Brazil, China, Germany, India, Indonesia, Nigeria, South Africa, the UK and the US (and not Russia).
- New research from 'The Lancet Countdown on Health and Climate Change' highlights the benefits to health if countries adopt climate plans - Nationally Determined Contributions (NDCs) - that are consistent with the Paris Agreement aim of limiting warming to "well below 2°C".

233. Ans: D

Exp:

- The Technology Information, Forecasting and Assessment Council (TIFAC) has launched the Seaweed Mission.
- When waste from agriculture, industries, aquaculture and households are let into the ocean, it causes nutrient imbalance leading to algal blooming, the sign of marine chemical damage. Seaweeds absorb the excess nutrients which result in formation of algal bloom and balance out the ecosystem. Hence, statement 1 is correct.

- The southern **Gulf of Mannar's rocky intertidal and lower intertidal regions** have rich populations of several seaweed species. **Hence, statement 2 is correct.**
- Aquatic organisms heavily rely on iron for photosynthesis. When the quantity of this mineral exceeds healthy levels and becomes dangerous to marine life, seaweeds trap it and prevent damage. Similarly, most **heavy metals found in marine ecosystems are trapped and removed by seaweeds.** **Hence, statement 3 is correct.**

**234. Ans: A**

**Exp:**

- The World Sustainable Development Summit (WSDS) is the annual flagship event of **The Energy and Resources Institute (TERI).** **Hence, statement 1 is not correct.**
  - ◆ TERI is a **non-profit research institute**, established in 1974. It conducts research work in the fields of energy, environment and sustainable development for India and the Global South.
  - ◆ It was earlier known as Delhi Sustainable Development Summit.
- It has been conceptualized as a single platform to accelerate action towards sustainable development and climate change.
  - ◆ It aims to **bring together global leaders and thinkers in the fields of sustainable development, energy and environment sectors on a common platform.** **Hence, statement 2 is correct.**
- Recently, the World Sustainable Development Summit 2021 was held.
  - ◆ The theme of the 2021 Summit was **'Redefining our common future: Safe and secure environment for all'.**

**235. Ans.B**

**Exp:**

- Recently, six elephants died of **Haemorrhagic Septicaemia (HS) in Karlapat Wildlife Sanctuary** located in Odisha's Kalahandi district.
  - ◆ Haemorrhagic Septicaemia is a disease which infects animals that come in contact with contaminated water or soil by a contagious **bacteria (Pasteurella multocida).** **Hence, statement 1 is not correct.**
- **Karlapat Wildlife Sanctuary has Dry Deciduous type of vegetation.** **Hence, statement 2 is correct.**
- Bhitarkanika National Park is home to the largest congregation of the endangered **SaltWater Crocodile** in the country. **Hence, statement 3 is correct.**

**236. Ans: D**

**Exp:**

- Recently, a group of palaeontologists have discovered fossils of **coelacanth**, a giant fish regarded as an iconic example of a **"living fossil."**
- The discovered fossil of **Coelacanth** is believed to be 66 million years old belonging to the Cretaceous era.
  - ◆ Coelacanths are elusive, deep-sea creatures, living in depths up to 2,300 feet below the surface.
  - ◆ These were thought to have gone extinct with the dinosaurs 65 million years ago. But its discovery in 1938 started a debate about how this lobe-finned fish fits into the evolution of land animals.
- ◆ **Two Species:**
  - ◆ There are **only two known species of coelacanths:** one that lives near the **Comoros Islands** off the east coast of Africa, and one found in the waters off **Sulawesi, Indonesia.** **Hence, statement 2 is not correct.**
- **Protection Status:**
  - ◆ **IUCN Status: Critically Endangered.** **Hence, statement 1 is not correct.**
    - Sulawesi Coelacanth is listed as 'vulnerable'.
  - ◆ CITES Status: Appendix I

**237. Ans: C**

**Exp:**

- Chameleons (family Chamaeleonidae) are a distinctive and highly specialized Clade of Old World Lizard with 202 species described as of June 2015.
  - ◆ They live in **warm habitats that range from Rainforest and Desert Condition** are best known for their ability to change body colour. **Hence, statement 1 is correct.**
- **Madagascar** is home to nearly **two-thirds of all chameleon species.** **Hence, statement 3 is not correct.**
  - ◆ The Indian chameleon is found in India, Pakistan, and Sri Lanka.
- According to the Bavarian State Collection of Zoology in Munich, **Nano-Chameleon (or Brookesia Nana) is the smallest** of about 11,500 known species of reptiles. **Hence, statement 2 is not correct.**
  - ◆ Previously, the chameleon species Brookesia micra was thought to be the smallest. The average length of adults of this species is 16 mm (29 mm with tail), while the smallest adult male has been recorded at 15.3 mm.
  - ◆ The longest, the reticulated python, at 6.25 m is almost as long as 289 Brookesia nanas.

238. Ans: C

Exp:

- Mandarin duck was first identified by Swedish botanist, physician and zoologist Carl Linnaeus in 1758.
  - ◆ It is considered the most beautiful duck in the world.
- These birds inhabit temperate forests near wetlands including rivers, streams, bogs, marshes, swamps, and freshwater lakes.
- It is **native to East Asia** but has **established populations in Western Europe and America too. Hence, statement 1 is not correct.**
  - ◆ It breeds in Russia, Korea, Japan and northeastern parts of China.
- The duck **rarely visits India** as it does not fall in its usual migratory route.
  - ◆ It was **recorded in 1902 in the Dibru river** in the Rongagora area in Tinsukia (Assam).
  - ◆ More recently, it was **sighted in Manipur's Loktak Lake in 2013**, and in Saatvoini Beel in Manas National Park and Tiger Reserve in Assam's Baksa district in 2014.
  - ◆ Recently, **Mandarin ducks have been sighted in the Maguri-Motapung beel** in Assam's Tinsukia district after a century. **Hence, statement 2 is not correct.**
- It is listed as Least Concern in the IUCN Red List. **Hence, statement 3 is correct.**

239. Ans: A

Exp:

**Conservation Status of Gangetic River Dolphin**

- Indian Wildlife (Protection), Act 1972: **Schedule I. Hence, statement 1 is correct.**
- International Union for the Conservation of Nature (IUCN): **Endangered. Hence, statement 2 is not correct.**
- Convention on International Trade in Endangered Species (CITES): Appendix I (most endangered).
- Convention on Migratory Species (CMS): Appendix II (migratory species that need conservation and management or would significantly benefit from international co-operation).

240. Ans.C

Exp

- According to a **Greenpeace Southeast Asia (non-governmental organisation)** analysis of cost to the economy due to air pollution, PM 2.5 air pollution claimed approximately 54,000 lives in Delhi in 2020.

- PM 2.5 refers to fine particulate matter smaller than 2.5 micrometers in diameter.
  - ◆ It causes respiratory problems and also reduces visibility. It is an endocrine disruptor that can affect insulin secretion and insulin sensitivity, thus contributing to diabetes. **Hence, statement 1 is correct.**
- **National Air Quality Index (AQI)** is an index for reporting daily air quality. It focuses on health effects one might experience within a few hours or days after breathing polluted air.
- AQI is calculated for eight major air pollutants: Ground-level ozone, Particulate Matter (PM)<sub>10</sub>, PM<sub>2.5</sub>, Carbon monoxide, Sulfur dioxide, Nitrogen dioxide, Ammonia and Lead. **Hence, statement 2 is correct.**

241. Ans: C

Exp:

- Hyderabad city (Telangana's Capital) has been recognised as a **'2020 Tree City of the World'** by the Arbor Day Foundation and the Food and Agriculture Organisation of the United Nations (FAO).
- It is an international effort to recognize cities and towns **committed to ensuring that their urban forests and trees** are properly maintained, sustainably managed, and duly celebrated. **Hence, statement 1 is correct.**
- It is a programme partnership between the Arbor Day Foundation and the FAO. **Hence, statement 2 is correct.**
  - ◆ A city is evaluated on five standards - Establish Responsibility, Set the Rules, Know What You Have, Allocate the Resources, and Celebrate the Achievements.
- Recently, Hyderabad has earned recognition in the Foundation's second year of the programme along with 51 other cities in the world. It is the only City in India to get this recognition so far. **Hence, statement 3 is not correct.**

242. Ans: C

Exp.:

- The United Nations Environment Programme (UNEP) has released the 'Making Peace with Nature' report, ahead of the fifth session of the UN Environment Assembly (UNEA-5). The Report explains how climate change, biodiversity loss and pollution add up to three self-inflicted planetary emergencies that are closely interconnected and put the well-being of current and future generations at unacceptable risk. **Hence, statement 1 is correct.**

- The UNEP is a leading global environmental authority established on 5th June 1972. It sets the global environmental agenda, promotes the sustainable development within the United Nations system, and serves as an authoritative advocate for global environment protection. It is headquartered in Nairobi, Kenya. **Hence, statement 2 is correct.**

243. Ans: A

Exp:

- According to the World Health Organization (WHO), a **carbon footprint** is a measure of the impact people's activities have on the amount of carbon dioxide (CO<sub>2</sub>) produced through the burning of fossil fuels and is expressed as a weight of CO<sub>2</sub> emissions produced in tonnes. **Hence, statement 1 is correct.**
  - ◆ It is usually measured as tons of CO<sub>2</sub> emitted per year, a number that can be supplemented by tons of CO<sub>2</sub>-equivalent gases, including methane, nitrous oxide, and other greenhouse gases.
- **Carbon footprint is different from ecological footprint.** While the carbon footprint measures the emission of gases that contribute to global warming, the ecological footprint focuses on measuring the use of bio-productive space. **Hence, statement 2 is not correct.**

244. Ans: D

Exp:

- Black-necked crane is a long necked bird with upper long neck, head, primary and secondary flight feathers and tail completely black and body plumage pale gray/whitish.
- The bird is revered by the community of **Monpas** (major Buddhist ethnic group of Arunachal Pradesh) as an **embodiment of the sixth Dalai Lama** (Tsangyang Gyatso). **Hence, statement 1 is correct.**
  - ◆ Monpas inhabit the West Kameng and Tawang districts, are essentially Buddhists who follow the Mahayana sect.
- **Habitat:** The high altitude wetlands of the Tibetan plateau, Sichuan (China), and eastern **Ladakh (India)** are the main breeding ground of the species, the birds spend winter at lower altitudes.
  - ◆ In Bhutan and **Arunachal Pradesh**, it only comes during the winters. **Hence, statement 2 is correct.**
  - ◆ In Arunachal Pradesh, it can be seen in three areas:
    - Sangti valley in West Kameng district.
    - Zemithang in Tawang district.
    - Chug valley in Tawang district.

● **Protection Status:**

- ◆ **IUCN Red List: Near Threatened. Hence, statement 3 is correct.**
- ◆ **CITES: Appendix I**
- ◆ **Indian Wildlife (Protection) Act, 1972: Schedule I**

245. Ans: C

Exp:

- It is the world's largest nesting beach of Olive Ridley Sea Turtles. **Hence, statement 1 is correct.**
- Gahirmatha is the mass nesting spot in Indian Ocean region and the only turtle sanctuary in Odisha. **Hence, statement 2 is correct.**
- Gahirmatha was declared a turtle sanctuary in 1997 by the Odisha government after considering its ecological importance and as part of efforts to save the sea turtles.
- Gahirmatha Marine Sanctuary is one of the three parts of the Bhitarkanika National Park. The other two includes the area of Bhitarkanika National Park and the Bhitarkanika Wildlife Sanctuary.

246. Ans: C

Exp

- Migratory birds in and around Chilika lake and Bhitarkanika National Park have started leaving earlier (in February) than other years, as temperatures in Odisha (in and around **Chilika lake**) began to soar.
- Every year in winter, migratory birds arrive at the water bodies around Chilika Lake, **Asia's largest salt-water lagoon** and Bhitarkanika, the second-largest mangrove forest in India (the largest being the Sunderbans, West Bengal). **Hence, statement 2 is correct.**
- In 1981, Chilika Lake was designated the first Indian wetland of international importance under the Ramsar Convention. **Hence, statement 1 is correct.**
  - ◆ Major attraction at Chilika is Irrawaddy dolphins which are often spotted off Satapada Island.

247. Ans: C

Exp:

- **Dissolved Oxygen (DO)** is a measure of the amount of free oxygen available in river systems. **Hence, statement 1 is correct.**
  - ◆ Presence of organic and inorganic wastes in water decreases the dissolved oxygen content of the water.
  - ◆ A number of factors like surface turbulence, photosynthetic activity, O<sub>2</sub> consumption by organisms and decomposition of organic matter are the factors which determine the amount of DO present in water.

- ◆ The quality of water increases with an increase in DO levels.
- Water pollution by organic wastes is measured in terms of **Biochemical Oxygen Demand (BOD)**.
  - ◆ BOD is the amount of dissolved oxygen needed by bacteria in decomposing the organic wastes present in water. It is expressed in milligrams of oxygen per litre of water.
  - ◆ The higher value of BOD indicates low **DO content of water. Hence, statement 2 is correct.**
  - ◆ Since BOD is limited to biodegradable materials, it is not a reliable method of measuring water pollution.

248. Ans: B

Exp:

- **Pong Dam Lake Wildlife Sanctuary** is located in Kangra district of **Himachal Pradesh**.
- In 1975, **Pong dam was built across the Beas River**. It is also called the Pong reservoir or the Maharana Pratap Sagar. **Hence, statement 1 is correct.**
  - ◆ The lake is fed by Beas River and its numerous perennial tributaries such as Gaj, Neogal, Binwa, Uhl, Bangana, and Baner.
  - ◆ The lake harbours around 22 species of fish, including rare fish like sal and gad. The adequate water level of the lake makes it an ideal destination to indulge in water sports.
- In 1983, the entire reservoir was declared as a Wildlife Sanctuary by the Himachal Pradesh government.
- In 1994, the Government of India declared it a **“Wetland of National Importance”**.
- **Pong Dam Lake was declared as Ramsar Site in November 2002. Hence, statement 2 is not correct.**
- The sanctuary plays host to around 220 species of birds belonging to 54 families. Migratory birds from all over Hindukush Himalayas and also as far as Siberia come here during winter.
  - ◆ Over a lakh migratory water birds arrived at the Pong Dam Lake Wildlife Sanctuary in Himachal Pradesh in winter 2020-21.

249. Ans: D

Exp:

- Recently, the Union Minister of Science & Technology addressed the **Mission Innovation (MI)** to mark the beginning of phase-2 of the mission or Mission Innovation 2.0.

- **Mission Innovation** was announced on 30th November 2015, on the **sidelines of the Paris Climate Agreement** to undertake ambitious measures to combat climate change. **Hence, statement 1 is correct.**

- ◆ It is a global initiative of 24 countries and the European Union to accelerate global clean energy innovation.
- ◆ These 25 members have committed to **seek to double public investment in clean energy RD&D** and are engaging with the private sector, fostering international collaboration and celebrating innovators. **Hence, statement 2 is correct.**
- ◆ **India played a leadership role** in MI Steering Committee and is a member of the Analysis and Joint Research and Business & Investor Engagement sub-groups. **Hence, statement 3 is correct.**

250. Ans: A

Exp:

- **Eco-Sensitive Zones (ESZ)** or Ecologically Fragile Areas are areas **within 10 kms around Protected Areas, National Parks and Wildlife Sanctuaries. Hence, statement 1 is correct.**
  - ◆ In case of places with sensitive corridors, connectivity and ecologically important patches, crucial for landscape linkage, even areas beyond 10 km width can be included in the eco-sensitive zone.
- ESZs are notified by MoEFCC, **under Environment Protection Act, 1986. Hence, statement 2 is not correct.**
- The basic aim is to regulate certain activities around National Parks and Wildlife Sanctuaries so as to minimise the negative impacts of such activities on the fragile ecosystem encompassing the protected areas.

251. Ans: A

Exp:

- The Ganges River Dolphin (*Platanista gangetica*) was officially discovered in 1801.
- Ganges river dolphins live in the Ganges-Brahmaputra-Meghna and Karnaphuli-Sangu **river systems of Nepal, India, and Bangladesh. Hence, statement 1 is not correct.**
- The **Ganges river dolphin can only live in freshwater** and is essentially blind. **Hence, statement 2 is correct.**
  - ◆ They hunt by emitting ultrasonic sounds, which bounces off of fish and other prey, enabling them to “see” an image in their mind. They are also called ‘susu’.



- Population of Gangetic river Dolphin is 1200-1800.
- It is a reliable indicator of the health of the entire river ecosystem.
- It was recognised as the **National Aquatic Animal in 2009**, by the Government of India. **Hence, statement 3 is correct.**

252. Ans. C

Exp.:

- "Bonn Challenge" is a global effort to bring 150 million hectares of the world's **deforested and degraded land into restoration by 2020**, and 350 million hectares by 2030.
- The Convention on Migratory Species (CMS), also known as the **Bonn Convention (NOT Bonn Challenge)**, is an environmental treaty of the United Nations that provides a global platform for the conservation and sustainable use of terrestrial, aquatic and avian migratory animals and their habitats.

**Hence, option 1 is incorrectly matched, while the remaining three options are correctly matched.**

253. Ans: C

Exp:

- Moringa is a **fast-growing, drought-resistant tree native to the Indian subcontinent.**
- Common names include moringa, drumstick tree, horseradish tree etc. **Hence, statement 1 is correct.**
- It is widely cultivated for its **young seed pods and leaves**, used as vegetables and **for traditional herbal medicine.** It is also used for **water purification.** **Hence, statement 2 is correct.**
- It has various healthy compounds such as **various vitamins**, important elements such as **Iron**, **Magnesium** etc. and is extremely low on fats and contains **no cholesterol.**

254. Ans: A

Exp:

- **Pangolins** are scaly anteater mammals and they have large, protective keratin scales covering their skin. They are the only known mammals with this feature.
  - ◆ Pangolins are nocturnal, and their diet consists of mainly ants and termites, which they capture using their long tongues.
- Out of the eight species of pangolin, the Indian Pangolin (*Manis crassicaudata*) and the Chinese Pangolin (*Manis pentadactyla*) are found in India.
  - ◆ **Indian Pangolin** is widely distributed in India, except the arid region, high Himalayas and the North-East. **Hence, statement 2 is not correct.**

- The species is also found in Bangladesh, Pakistan, Nepal and Sri Lanka.

◆ **Chinese Pangolin** is found in the Himalayan foothills in Eastern Nepal, Bhutan, Northern India, North-East Bangladesh and through Southern China.

- **Conservation Status of Indian Pangolin:**

◆ **Wildlife Protection Act, 1972: Schedule I**

◆ **IUCN Red List: Endangered**

◆ **CITES: Appendix I**

**Hence, statement 1 is correct.**

255. Answer: C

Exp:

- The **Asian Waterbird Census (AWC)** is an integral part of the global waterbird monitoring programme, the **International Waterbird Census (IWC)**, coordinated by Wetlands International.

◆ The AWC is jointly coordinated by the **Bombay Natural History Society (BNHS) and Wetlands International.** **Hence, statement 1 is correct.**

- It was initiated in 1987 in the Indian subcontinent and has grown rapidly to cover major regions of Asia, from Afghanistan eastwards to Japan, Southeast Asia and Australasia.

- The census covers the entire **East Asian - Australasian Flyway** and a large part of the **Central Asian Flyway.** **Hence, statement 2 is correct.**

◆ The **East Asia - Australasia Flyway** extends from Arctic Russia and North America to the southern limits of Australia and New Zealand. It encompasses large parts of East Asia, all of Southeast Asia and includes eastern India and the Andaman and Nicobar Islands.

◆ The **Central Asian Flyway (CAF)** covers a large continental area of Eurasia between the Arctic and Indian Oceans and the associated island chains.

256. Ans: B

Exp:

- The largest source of Sulfur Dioxide (SO<sub>2</sub>) in the atmosphere is the burning of fossil fuels by power plants and other industrial facilities. Smaller sources of SO<sub>2</sub> emissions include: industrial processes such as extracting metal from ore; natural sources such as volcanoes; and locomotives, ships and other vehicles and heavy equipment that burn fuel with a high sulfur content. **Hence, statement 1 is not correct.**

- $\text{SO}_2$  emissions that lead to high concentrations of  $\text{SO}_2$  in the air generally also lead to the formation of other sulfur oxides ( $\text{SO}_x$ ).  $\text{SO}_x$  can react with other compounds in the atmosphere to form small particles. These particles contribute to **particulate matter (PM) pollution**. Hence, statement 2 is correct.

257. Ans: D

Exp:

- The **Caracal wild cat (*Caracal caracal*)** is a rare species in India. They are slender, **medium-sized cats** with long powerful legs and tufted ears.
    - ◆ The black tufted ears of this cat are one of its most distinguishing features.
    - ◆ It is shy, nocturnal, elusive and difficult to spot in the wild.
  - In India, presence of these Cats has been reported from only three states which are **Madhya Pradesh, Gujarat and Rajasthan**. Hence, statement 1 is not correct.
    - ◆ In Gujarat, Caracals are locally referred to as Hornotro which means killer of a Blackbuck.
    - ◆ In Rajasthan it is known as Junglee Bilao or Wildcat.
    - ◆ In Madhya Pradesh it is locally called as Sheagosh or siyah-gush.
  - **Conservation Status:**
    - ◆ **IUCN Red List: Least Concern**
    - ◆ Wildlife Protection Act, 1972: Schedule I
    - ◆ CITES: Appendix I
- Hence, statement 2 is not correct.

258. Ans: D

Exp:

- The **Natural Capital Accounting and Valuation of the Ecosystem Services (NCAVES) India Forum-2021** is being organised by the **Ministry of Statistics and Programme Implementation (MoSPI)** in virtual format.
- The MoSPI has taken up several initiatives under the project "**Natural Capital Accounting and Valuation of Ecosystem Services (NCAVES)**" which aims to advance the theory and practice of ecosystem accounting in India.
  - ◆ The NCAVES Project, funded by the European Union, has been jointly implemented by the **United Nations Statistics Division (UNSD)**, the **United Nations Environment Programme (UNEP)** and the **Secretariat of the Convention of Biological Diversity (CBD)**. Hence, option D is correct.

- ◆ India is one of the **five countries taking part in this project** - the other countries being **Brazil, China, South Africa and Mexico**.

- ◆ In India, the NCAVES project is **being implemented by the MoSPI** in close collaboration with the **Ministry of Environment, Forest and Climate Change (MoEF&CC)** and the **National Remote Sensing Centre (NRSC)** under the **Department of Space**.

259. Ans: B

Exp

- The auto industry has requested the government to defer the implementation of **Corporate Average Fuel Efficiency (CAFE-2) regulations** and BS-VI stage II norms to April 2024, given the impact of the lockdown measures.
- The CAFÉ standards were first **notified in 2017 by the Union Ministry of Power (MoP)** under Energy Conservation Act, 2001. Hence, statement 1 is correct.
- The regulation is in accordance with the **fuel consumption standards of 2015** that aim to increase fuel efficiency of vehicles road by 35% by 2030. Hence, statement 2 is correct.
- The **Ministry of Road Transport and Highways (MoRTH)** is the **nodal agency** responsible for monitoring and reporting a summary of annual fuel consumption by automobile manufacturers at the end of each fiscal year. Hence, statement 3 is not correct.

260. Ans: A

Exp:

- Recently, the **Ministry for Environment, Forest and Climate Change (MoEF&CC)** has released **Management Effectiveness Evaluation (MEE)** of 146 national parks and wildlife sanctuaries (NP&WLS) in the country.
- MEE of Protected Areas has emerged as a **key tool that is increasingly being used by governments and international bodies to understand strengths and weaknesses of the protected area management systems**.
- The assessment process of India's National Park and Wildlife Sanctuaries adopted from IUCN WCPA (World Commission on Protected Areas) framework of MEE.
- **Findings:**
  - ◆ **Overall Performance:** The results of the present assessment are encouraging with an **overall mean MEE score of 62.01%** which is **higher than the global mean of 56%**.

- ◆ **Regional Performance:** The eastern region of India presents the **highest overall** mean MEE Score of 66.12% and the **Northern region** represents the **lowest mean** MEE Score of 56%.
- ◆ **Best NP& WLS:** **Tirthan Wildlife Sanctuary** and **Great Himalayan National Park (GNHP)** in Himachal Pradesh have performed the best among the surveyed protected areas (Total -146).
- ◆ **Worst NP& WLS:** The **Turtle Wildlife Sanctuary in Uttar Pradesh** was the worst performer in the survey.

Hence, option A is correct.

261. Ans: D

Exp:

- Bustards are large, terrestrial birds that belong to several species, including some of the largest flying birds.
- The population of the **Asian houbara bustards extends from northeast Asia, across central Asia, the Middle East, and the Arabian Peninsula** to reach the Sinai desert (Egypt). Hence, **statement 1 is not correct.**
  - ◆ After breeding in the spring, the Asian bustards migrate south to spend the winter in Pakistan, the Arabian Peninsula and nearby Southwest Asia.
- **Conservation Status:**
  - ◆ **IUCN Red List Status-** Vulnerable
  - ◆ Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)- Appendix I
  - ◆ Convention on the Conservation of Migratory Species of Wild Animals (CMS)- Appendix II

Hence, **statement 2 is not correct.**

262. Ans: A

Exp:

- The Dzukou Valley, popularly known as the '**valley of flower**'. It is **located at the border of Nagaland and Manipur**. It is situated at an altitude of 2,438 metres behind the Japfu mountain range, it is one of the most popular trekking spots in the North East. Hence, **statement 1 is correct.**
  - ◆ Dzukou valley and Japfu peak are located **adjacent to the Pulie Badze Wildlife Sanctuary (Nagaland)**. Hence, **statement 2 is correct.**
- The Pulie Badze Wildlife Sanctuary (PWS) is **located at Kohima District of Nagaland**. The sanctuary is a natural habitat for Blyth's Tragopan (Nagaland's state bird), the Rufous-necked Hornbill and the Dark-rumped Swift, among many others. Hence, **statement 3 is not correct.**

- The valley is a source of conflict for ownership between local tribes and the state governments of Manipur/ Nagaland.

◆ It is home to the Angami people



263. Ans: C

Exp:

- Ammonia reduces the amount of oxygen in water as it is transformed to oxidised forms of nitrogen. Hence, it also increases Biochemical Oxygen Demand (BOD). Hence, **statement 2 is correct.**
  - ◆ Biochemical oxygen demand (BOD) represents the amount of oxygen consumed by bacteria and other microorganisms while they decompose organic matter under aerobic (oxygen is present) conditions at a specified temperature.
  - ◆ Water pollution by organic wastes is measured in terms of BOD. Hence, **statement 1 is correct.**
- If the concentration of ammonia in water is above 1 ppm, it is toxic to fishes.
- In humans, long term ingestion of water having ammonia levels of 1 ppm or above may cause damage to internal organs. As per the Bureau of Indian Standards (BIS), the acceptable maximum limit of ammonia in drinking water is 0.5 ppm.

264. Ans: C

Exp:

- Recently, Bihar's **first state-level bird festival 'Kalrav'** started at the Nagi-Nakti bird sanctuaries. It is a 3-day event and is expected to draw experts and bird lovers from all over the country. Hence, **statement 2 is correct.**
- The Nagi Dam and Nakti Dam are two sanctuaries so close to each other that they can be taken as one bird area.

- The Nagi- Nakti Bird Sanctuaries is located in the Jamui district, Bihar. It has been the home of a wide variety of indigenous species of birds and of migratory birds that turn up during the winters from places like Eurasia, Central Asia, the Arctic Circle, Russia and Northern China. **Hence, statement 1 is correct.**

265. Ans. D

Exp:

- **United Nations Environment Programme (UNEP)** is a leading global environmental authority established on 5th June 1972.
  - ◆ It sets the **global environmental agenda**, promotes the sustainable development within the United Nations system, and serves as an **authoritative advocate for global environment protection.**
- It publishes the reports of **Emission Gap Report, Global Environment Outlook, Frontiers, Invest into Healthy Planet.** **Hence, option D is correct.**
- **Major Campaigns:** Beat Pollution, UN75, World Environment Day, Wild for Life.

266. Ans: A

Exp:

- Indian star tortoise is found across the **Indian sub-continent, more specifically, in the Central and Southern parts of India**, in West Pakistan and in Sri Lanka. **Hence, statement 1 is not correct.**
    - ◆ Recently, Indian star tortoises were seized while being smuggled from Andhra Pradesh to Odisha
  - The species faces two threats- **loss of habitat to agriculture and illegal harvesting for the pet trade.**
    - ◆ According to the Wildlife Crime Control Bureau, 90% of the trade of Star Tortoise occurs as part of the International pet market.
    - ◆ If their exploitation had continued at a similar pace or had expanded, a decline of greater than 30% was predicted by 2025.
  - **Protection status:**
    - ◆ **Wild Life Protection Act 1972:** Schedule IV
      - **Schedule IV:** This list is for species that are not endangered. It includes protected species but the penalty for any violation is less compared to the Schedules I and II. **Hence, statement 2 is not correct.**
    - ◆ **Convention on International Trade in Species (CITES):** Appendix I
    - ◆ **IUCN Status:** Vulnerable
- Hence, statement 3 is correct.**

267. Ans: C

Exp:

- The Bandipur Tiger Reserve was established in 1973 under Project Tiger.
  - ◆ In 1985, by including adjacent areas from Venugopala Wildlife Park, it was enlarged and named as Bandipur National Park.
- **Location:** It is situated in two contiguous districts (Mysore and Chamarajanagar) of Karnataka and is **located at the tri-junction area of the States Karnataka, Tamil Nadu and Kerala.** It forms a part of Nilgiri Biosphere Reserve. **Hence, statement 1 is not correct.**
- It is endowed with rich floral and faunal diversity and is recognized as one of the Mega Biodiversity Areas in the country.
  - ◆ The Bandipur along with Nagarahole, Mudumalai, Sathyamangalam & Wayanad constitutes the single largest Wild population of Tigers in the world.
  - ◆ This Landscape is also **home to the single largest Asian Elephant population in the world** and is part of the Mysore Elephant Reserve (MER). **Hence, statement 3 is correct.**
- **Rivers and the Highest Point:** The park is located between the **Kabini river in the north and the Moyar river in the south.** The Nugu river runs through the park. **Hence, statement 2 is not correct.**
  - ◆ The highest point in the park is on a hill called Himavad Gopalaswamy Betta.

268. Ans: B

Exp:

- **Carbon sequestration** is the **long-term storage of carbon** in plants, soils, geologic formations, and the ocean. **Hence, statement 1 is not correct.**
- Carbon sequestration occurs both naturally and as a result of anthropogenic activities and typically refers to the storage of carbon.
- **Types:**
  - ◆ **Terrestrial Carbon Sequestration:** It is the process through which CO<sub>2</sub> from the atmosphere is absorbed by trees and plants through photosynthesis and stored as carbon in soils and biomass (tree trunks, branches, foliage, and roots).
  - ◆ **Geologic Carbon Sequestration:** CO<sub>2</sub> can be stored, including oil reservoirs, gas reservoirs, unmineable coal seams, saline formations and shale formations with high organic content.

- ◆ **Ocean Carbon Sequestration:** Oceans absorb, release and store large amounts of CO<sub>2</sub> from the atmosphere. This can be done in two ways—enhancing productivity of ocean biological systems through Iron fertilization, and injecting CO<sub>2</sub> into the deep ocean.

- The dumping of iron **stimulates phytoplankton production**, which in turn leads to **enhanced photosynthesis from these microorganisms, helping in CO<sub>2</sub> absorption. Hence, statement 2 is correct.**

269. Ans: C

Exp

- The Ministry of Environment, Forest and Climate Change notified the E-Waste Management Rules, 2016 in supersession of the E-waste (Management & Handling) Rules, 2011.
  - ◆ Over 21 products (Schedule-I) were included under the purview of the rule. It included Compact Fluorescent Lamp (CFL) and other mercury containing lamps, as well as other such equipment.
- For the first time, the rules brought the producers under **Extended Producer Responsibility (EPR)**, along with targets. Producers have been made responsible for the collection of E-waste and for its exchange.
  - ◆ Various producers can have a separate **Producer Responsibility Organisation (PRO)** and ensure collection of E-waste, as well as its disposal in an environmentally sound manner. **Hence, statement 1 is correct.**
- **Deposit Refund Scheme** has been introduced as an additional economic instrument wherein the producer charges an additional amount as a deposit at the time of sale of the electrical and electronic equipment and returns it to the consumer along with interest when the end-of-life electrical and electronic equipment is returned. The deposit refund scheme **promotes consumers to recycle. Hence, statement 2 is correct.**
- The **role of State Governments** has been also introduced to ensure safety, health and skill development of the workers involved in dismantling and recycling operations.
- A provision of penalty for violation of rules has also been introduced.
- **Urban Local Bodies** (Municipal Committee/Council/ Corporation) have been assigned the duty to collect and channelize the orphan products to authorized dismantlers or recyclers.
- Allocation of proper space to existing and upcoming industrial units for e-waste dismantling and recycling.

270. Ans: C

Exp:

- Recently, India drafted a new Arctic policy that aims at expanding scientific research, sustainable tourism and exploration of mineral oil and gas in the Arctic region.
  - ◆ India has **designated Goa-based National Centre for Polar and Ocean Research to lead scientific research and act as a nodal body** to coordinate among various scientific bodies to promote domestic scientific research capacities in the Arctic. **Hence, statement 2 is correct.**
- NCPOR was established as an **autonomous Research and Development** Institution of the Ministry of Earth Sciences on the 25<sup>th</sup> May 1998. **Hence, statement 1 is correct.**
- Earlier known as National Centre for Antarctic and Ocean Research (NCAOR), NCPOR is India's premier R&D institution responsible for the country's research activities in the Polar and Southern Ocean realms.
- It is the nodal agency for planning, promotion, coordination and execution of the entire gamut of polar and southern ocean scientific research in the country as well as for the associated logistics activities.

271. Ans: A

Exp:

- The **Ministry of Road Transport and Highways** will levy **a green tax on transport vehicles older than eight years at the time of renewal of fitness certificate** at the rate of 10% to 25% of road tax. **Hence, statement 1 is correct.**
  - ◆ The revenue collected through the green tax will be kept in a different account and will only be utilised for tackling pollution.
- Vehicles like strong hybrids, electric vehicles and those running on alternate fuels like **CNG**, ethanol and **LPG** and **vehicles used in farming, such as tractor, harvesters and tillers will be exempted** from the green tax. **Hence, statement 2 is not correct.**
- **Differential Taxation:**
  - ◆ Personal vehicles are proposed to be charged green tax at the time of renewal of registration certification after 15 years.
  - ◆ **Public transport vehicles, such as city buses, will be charged lower green tax.**
  - ◆ Higher green tax (50% of road tax) will be levied on vehicles being registered in highly polluted cities.

- ◆ Differential tax will also be charged depending on fuel (petrol/ diesel) and the type of vehicles.

272. Ans: D

Exp:

- The **Kanha Tiger Reserve** is stretched over an area of 940 square km in the two districts - Mandla and Balaghat - of Madhya Pradesh.
  - ◆ Kanha National Park is the largest National Park in Central India.
- The **State animal of Madhya Pradesh - Hard Ground Barasingha** (Swamp deer or Rucervus duvaucelii) is found exclusively in Kanha Tiger Reserve. **Hence, statement 1 and 2 are correct.**
  - ◆ Other Species found include Tiger, Leopard, Dhole, Bear, Gaur and Indian Python etc
- It is the **first tiger reserve in India** to officially introduce a mascot, "**Bhoorsingh the Barasingha**".
- Barasingha are three subspecies of swamp deer (Barasingha) found in the Indian Subcontinent.
  - ◆ The western swamp deer
  - ◆ Southern swamp deer/Hard Ground Barasingha
  - ◆ Eastern swamp deer
- **Protection Status of Swamp Deer:**
  - ◆ **IUCN Red List: Vulnerable. Hence, statement 3 is correct.**
  - ◆ CITES: Appendix I
  - ◆ Wildlife Protection Act, 1972: Schedule I

273. Ans.C

Exp

- Recently, the **Supreme Court (SC)** appointed a conservationist as Member of a Technical Committee constituted in the October 2020 case to hear complaints by landowners against sealing of their buildings infringing the Nilgiri Elephant Corridor in Tamil Nadu by the state authorities.
- The Nilgiri Elephant Corridor is situated in the ecologically fragile **Sigur plateau, which connects the Western and the Eastern Ghats** and sustains elephant populations and their genetic diversity. **Hence, statement 1 is correct.**
- Nilgiri Biosphere Reserve is located in the Western Ghats and encompasses parts of Tamil Nadu, Kerala and Karnataka.
- Many of the major tributaries of the river **Cauvery** like the Bhavani, Moyar, Kabini and other rivers like Chaliyar, Punampuzha, etc., have their source and catchment areas within the Nilgiri biosphere reserve. **Hence, statement 2 is correct.**

274. Ans: B

Exp:

**Similipal Biosphere Reserve:**

- Similipal derives its name from 'Simul' (silk cotton) tree. It was formally designated a tiger reserve in 1956 and brought under Project Tiger in the year 1973.
  - ◆ It was declared a biosphere reserve by the Government of India in June, 1994.
  - ◆ It has been part of the **UNESCO World Network of Biosphere Reserve since 2009. Hence, statement 2 is correct.**
- It is **part of the Similipal-Kuldiha-Hadgarh Elephant Reserve** popularly known as **Mayurbhanj Elephant Reserve. Hence, statement 1 is correct.**
  - ◆ It is prone to forest fires. In 2021, the Similipal saw a major fire between February-end and early March.
- Similipal is situated in the northern part of Odisha's Mayurbhanj district. Geographically, it lies in the eastern end of the eastern ghat.
- Two **tribes, the Erenga Kharias and the Mankirdias**, inhabit the reserve's forests and practise traditional agricultural activities. **Hence, statement 3 is not correct.**

275. Ans: B

Exp:

- The **United Nations Environment Assembly (UNEA)** is the governing body of the UN Environment Programme. **Hence, statement 1 is correct.**
  - ◆ It is the world's highest-level decision-making body on the environment.
  - ◆ It **meets biennially to set priorities for global environmental policies** and develop international environmental law. **Hence, statement 2 is correct.**
- **UNEA** was created in **June 2012, during the United Nations Conference on Sustainable Development, also referred to as RIO+20. Hence, statement 3 is not correct.**

276. Ans: B

Exp:

- **Saltwater Crocodile** is the largest of the 23 species of 'extant' or living crocodilians. This includes 'true crocodiles', alligators and caimans.
  - ◆ The saltie (nickname) is also called the '**estuarine crocodile**' and as the name suggests, is typically found in the brackish water of estuaries.

- ◆ It can also tolerate saltwater in the oceans and can travel long distances over the open ocean, making use of tidal currents. Hence, statement 1 is not correct.

- **Protection status:**

- ◆ IUCN List of Threatened Species: Least Concern
- ◆ CITES: Appendix I (except the populations of Australia, Indonesia and Papua New Guinea, which are included in Appendix II).
- ◆ **Wildlife Protection Act, 1972:** Schedule I. Hence, statement 2 is correct.

277. Ans: C

Exp:

- **Carbon sequestration is the long-term storage of carbon in plants, soils, geologic formations, and the ocean.** It occurs both naturally and as a result of anthropogenic activities and typically refers to the storage of carbon. Hence, statement 1 is correct.
- **Types:**
  - ◆ **Terrestrial Carbon Sequestration:**
    - Terrestrial carbon sequestration is the process through which CO<sub>2</sub> from the atmosphere is absorbed by trees and plants through photosynthesis and stored as carbon in soils and biomass (tree trunks, branches, foliage, and roots)
  - ◆ **Geologic Carbon Sequestration:**
    - CO<sub>2</sub> can be stored, including oil reservoirs, gas reservoirs, unmineable coal seams, saline formations and shale formations with high organic content.
  - ◆ **Ocean Carbon Sequestration:**
    - Oceans absorb, release and store large amounts of CO<sub>2</sub> from the atmosphere. This can be done in two ways- enhancing productivity of ocean biological systems through Iron fertilization, and injecting CO<sub>2</sub> into the deep ocean.
    - The **dumping of iron stimulates phytoplankton production**, which in turn leads to enhanced photosynthesis from these microorganisms, helping in CO<sub>2</sub> absorption. Hence, statement 2 is correct.

278. Ans: A

Exp:

- Recently, the **World Economic Forum** and the **National Institute of Urban Affairs (NIUA)** signed an MoU to collaborate on a jointly designed '**Sustainable Cities India program**'.

- 'Sustainable Cities India' intends to enable cities to decarbonise in a systematic and sustainable way that will reduce emissions and deliver resilient and equitable urban ecosystems.

- This initiative is in synergy with India's commitment to turn **net zero by 2070 as a climate mitigation response at COP26**.

Hence, option A is correct.

279. Ans: C

Exp:

- Guduchi is a climbing shrub that grows on other trees, from the botanical family Menispermaceae.
- The plant is **native to India** but also found in **China and tropical areas of Australia and Africa**. Hence, statement 1 is correct.
- People have long used it to treat a wide range of issues, including fever, infections, diarrhoea, and diabetes.
- A special focus has been made on its **health benefits in treating various metabolic disorders and its potential as an immune booster**. Hence, statement 2 is correct.
- It's use as antioxidant, anti-hyperglycemic, anti-hyperlipidemic, hepatoprotective, cardiovascular protective, neuroprotective, osteoprotective, radioprotective, anti-anxiety, adaptogenic, analgesic, anti-inflammatory, antipyretic, anti-diarrheal, anti-ulcer, anti-microbial, and anti-cancer have been well established.
- It is used as a major component of therapeutics for ameliorating metabolic, endocrinal, and several other ailments, aiding in the betterment of human life expectancy.
- It is a popularly known herb for its immense therapeutic applications in traditional systems of medicine and has been used in the management of Covid-19.

280. Ans: B

Exp:

- **Golden langurs (Trachypithecus geei)** can be most easily recognized by the color of their fur, after which they are named.
  - ◆ It has been noted that their fur changes colors according to the seasons as well as geography (region they live in).
  - ◆ The color of the young also differs from adults in that they are almost pure white.
  - ◆ They are highly dependent on trees, living in the upper canopy of forests. They are also known as leaf monkeys.

- It is **endemic to western Assam and southern Bhutan**.
    - ◆ Their habitat is restricted to the region surrounded by four geographical landmarks: the foothills of Bhutan (North), Manas river (East), Sankosh river (West), and Brahmaputra river (South). **Hence, statement 1 is not correct.**
  - **Protection Status:**
    - ◆ **IUCN List of Threatened Species: Endangered. Hence, statement 2 is correct.**
    - ◆ Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES): Appendix I
    - ◆ Wildlife Protection Act, 1972 : Schedule I
- 281. Ans: D**
- Exp:**
- **‘Parivesh’ (Pro-Active and Responsive Facilitation by Interactive, Virtuous and Environmental Single-window Hub)** is a web-based, application which has been developed for online submission and monitoring of the proposals submitted by the **proponents for seeking Environment, Forest, Wildlife and Coastal Regulation Zones (CRZ) Clearances from Central, State and district level authorities.**
  - It automates the entire tracking of proposals which includes online submission of a new proposal, editing/ updating the details of proposals and displays status of the proposals at each stage of the workflow.
  - This portal is developed under ‘Digital India’ initiative by the Ministry of Environment, Forest and Climate Change (MoEFCC).
- Hence, option D is correct.**

