

R.C. Reddy IAS Study Circle
CURRENT AFFAIRS TEST SERIES- CSE PRELIMS 2024
CURRENT AFFAIRS TEST-11 - (March 2024)
Key & Explanation

Q1 Answer : A

Explanation :

Context:

Recently, the Prime Minister of India and Mauritius jointly inaugurated an airstrip, jetty, and 6 other projects to ensure maritime security and connectivity to Mauritius' Agalega islands.

- **The Agalega island of Mauritius** is seen as important as they are expected to boost connectivity as well as maritime security and surveillance of Mauritius' vast EEZ of 2.3 million square kilometres in **the strategic Indian Ocean region. Pair 1 is correct.**
- Recently, Tensions between Iran and the United Arab Emirates (UAE) have escalated as a joint statement issued at the 6th Arab-Russian Cooperation Forum in Morocco challenged Iran's claims to three disputed islands in the Persian Gulf.
- **The dispute involves three islands in the strategic Strait of Hormuz, namely the Greater Tunb, Lesser Tunb, and Abu Musa. Pair 2 is incorrect.**



- **Thitu Island, also known as Pag-asa Island and Zhongye Dao, having an area of 37.2 hectares, is the second largest of the naturally occurring island in Spratly Islands. It is located in South China Sea. Pair 3 is incorrect.**
- **Corisca is an island in the Mediterranean Sea and one of the 18 regions of France. It is the fourth-largest island in the Mediterranean and lies southeast of**

the French mainland, west of the Italian Peninsula and immediately north of the Italian island of Sardinia, the nearest land mass. **Pair 4 is incorrect.**

Q2 Answer : C

Explanation :

Context:

Despite the recently held high meeting between India and Nepal, the consensus over sharing benefits of the Pancheshwar project is not resolved.

About Pancheshwar Project

- **PMP is a bi-national hydropower project to be developed in Mahakali River bordering Nepal and India.**
- Development of PMP, is a mutual interest project between two countries, and is covered under integrated Mahakali Treaty signed between Nepal and India in 1996.
- The project is aimed at generating around 6,480 MW energy (to be divided equally between two sides), along with water for irrigation of 130,000 hectares of land in Nepal and 240,000 hectares of Indian territory, respectively.

Multipurpose project	Located on
1. Pancheshwar project	Mahakali River
2. Hidkal Project	Ghatprabha River
3. Koldam Project	Sutlej River
4. Idduki Project	Periyar River

Q3 Answer : C

Explanation :

Context:

Recently, Prime Minister of India flagged off India's first indigenously built hydrogen fuel cell ferry boat in virtual.

The hydrogen cell-powered inland waterway vessel launched under the Harit Nauka initiative.

What is the Harit Nauka initiative?

- **The Ministry of Ports, Shipping and Waterways unveiled the Harit Nauka guidelines for inland vessels in January 2024. Statement 1 is correct.**

Guidelines:

- **As per the guidelines, all states have to make efforts to use green fuels for 50% of inland waterways-based passenger fleets in the next one decade, and 100% by 2045. Statement 2 is correct.**
- This is to reduce greenhouse gas emissions as per the Maritime Amrit Kaal Vision 2047.

- Globally, the shipping industry is increasingly transitioning to green fuels due to environmental regulations, sustainability goals, and advancements in green fuel technologies.
- Hydrogen and its derivatives are gaining attention for promising zero-emission fuels for the industry.

What are the Other Key Highlights About the Ferry?

- The vessel's flagging off was a key component of a major program that involved the foundation stone laid for a ₹17,300-crore project, including the outer harbor at the V.O. Chidambaranar Port.
- The vessel has been built at the Cochin Shipyard.

The V.O. Chidambaranar Port is the first Green Hydrogen Hub Port of the country and the projects include a desalination plant, hydrogen production and bunkering facility.

Q4 Answer : D

Explanation :

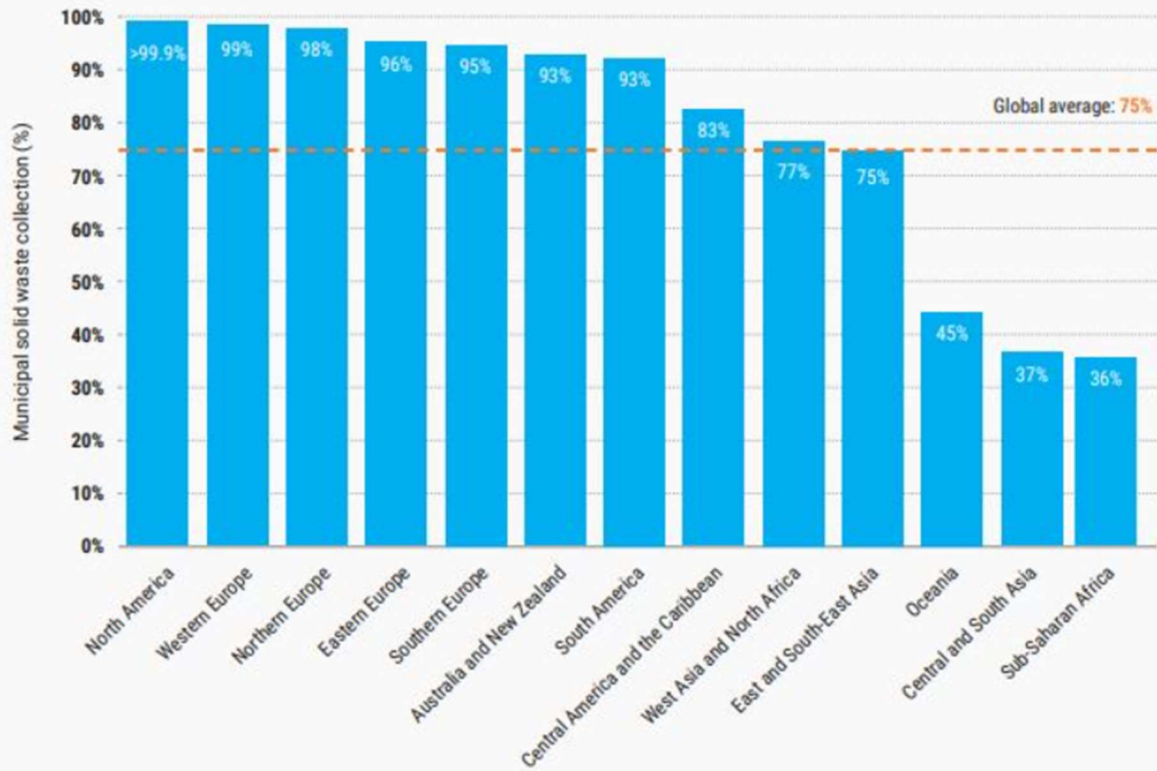
Context:

The United Nations Environment Programme (UNEP) has released the report titled Beyond an age of waste: Global Waste Management Outlook 2024 (GWMO 2024).

Major Highlights of the Report

- **Global Scenario:** Every year across the globe more than two billion tonnes of municipal solid waste (MSW) is generated.
- **Waste Collection:** More than a third of the world's population is drowning in waste, with over 2.7 billion people in the Global South and developing regions of the world not having their waste collected.
- An estimated 540 million tonnes of municipal solid waste, an equivalent of 27 percent of the global total waste, is not being collected.
- **Future Projection:** It also predicted that waste generated was set to grow in volumes — from 2.3 billion tonnes in 2023 to 3.8 billion tonnes by 2050.
- **Health Impact:** The negative impacts of municipal solid waste on the climate, biodiversity and human health will almost double by 2050.

Figure 10: Municipal solid waste collection rates by region.



Q5 Answer : D

Explanation :

Context:

Recently, the Reserve Bank of India (RBI) issued a warning against charging mobile phones using public ports.

About the Juice Jacking

- It is a type of cyberattack where hackers tamper with public USB charging ports, infecting them with malware or making hardware changes that allow them to steal data from devices connected to them.
- Most attacks target both Android and iOS mobile devices, with older devices being particularly vulnerable due to their outdated software.

The Threat:

- When users connect their devices to compromised USB ports, hackers use the connection to hack into mobile devices and steal personal data like email, SMS, and saved passwords or deliver malware by gaining access to the phones.

Q6 Answer : B

Explanation :

Context:

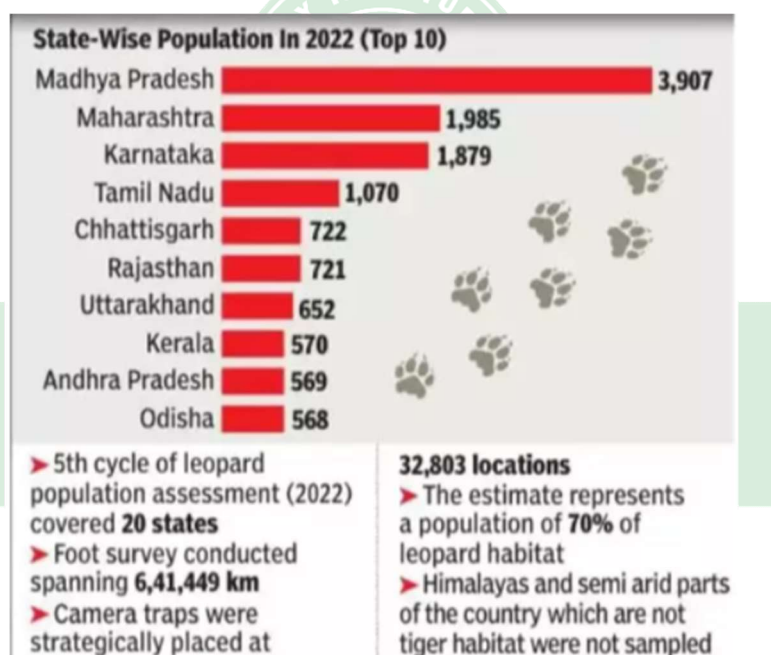
The fifth cycle of leopard population estimation was carried out by the National Tiger Conservation Authority and Wildlife Institute of India. Statement 4 is correct.

About

- India's leopard numbers rose by 8% from 12,852 in 2018 to 13,874 in 2022. Statement 1 is incorrect.
- Madhya Pradesh houses the largest population of leopards in the country – 3907, followed by Maharashtra, Karnataka and Tamil Nadu. Statement 2 is correct.
- Tiger Reserves or sites with highest leopard population are, Nagarajunasagar Srisailam (Andhra Pradesh), followed by Panna (MP), and Satpura (MP).

Habitat conservation

- The Shivalik hills and the Gangetic plains recorded 3.4% yearly decline in leopard population. Statement 3 is incorrect.
- Central India and the Eastern Ghats, the Western Ghats and the hills of the northeast, and the Brahmaputra flood plains recorded growth of 1.5%, 1% and 1.3% per annum respectively.



Q7 Answer : D

Explanation :

Context:

Recently Mars Express, a European space craft captured massive dunes colliding with several layers of dusty ice covering the north pole of Mars.

- The North Pole of the Mars is covered in layers and layers of fine dust and water ice that are several kilometres thick and stretch out for around 1000 kilometres. Statement I is incorrect.

- **The North Pole of Mars is known as Planum Boreum formed as a mix of dust, water ice and frost settled on the Martian ground over time. Statement II is correct.**
- In Martian winter, the layers are topped by a thin cap of dry ice (carbon dioxide ice) a couple of meters thick.
- This cap completely disappears into the atmosphere each Martian summer.
- Mars Express of European space agency (ESA) has been orbiting the Red Planet since 2003.
- It is imaging Mars's surface, mapping its minerals, identifying the composition and circulation of its tenuous atmosphere, probing beneath its crust.

Q8 Answer : D

Explanation :

Wildlife Sanctuaries of Kerala

Aralam Wildlife Sanctuary

- **It is located on the Western Ghats and it is contiguous with the Brahmagiri Wildlife Sanctuary of Karnataka.**
- Nagarhole National Park and Tiger Reserve lies to the east of Aralam Wildlife Sanctuary.

Chimmony Wildlife Sanctuary

- **It is located along the Western Ghats and is contiguous with Peechi-Vazhani Wildlife Sanctuary and Parambikulam Wildlife Sanctuary & Tiger Reserve.**
- Nestled in the sanctuary is Chimmony Dam built across the Chimmony river.

Chinnar Wildlife Sanctuary

- It is located in the Idukki district and is contiguous with Eravikulam National Park, Indira Gandhi Wildlife Sanctuary (Anamalai Tiger Reserve & National Park) and Kodaikanal (Palani Hills).
- It forms an integral part of the protected forests straddling the Kerala-Tamil Nadu border in the Anaimalai Hills.
- It is under consideration for selection as UNESCO World Heritage Site.
- The Chinnar and Pambar rivers are the major perennial rivers in the Wildlife Sanctuary. The Chinnar River becomes the Amaravati River in Tamil Nadu.
- The rare Albino gaur (Manjampatti white bison) are found only in Indira Gandhi Wildlife Sanctuary and Chinnar Wildlife Sanctuary.

Idukki Wildlife Sanctuary

- It is cradled by the Cheruthoni River (tributary of the Periyar River) and Periyar River.
- It is located to the northwest of Periyar Tiger Reserve and to the southwest of Mathikettan National Park.
- Cardamom Hills lie between Mathikettan National Park and Idukki Wildlife Sanctuary.

- Periyar River originates near Periyar Tiger Reserve, flows from Mullaperiyar Dam to the Idukki Reservoir, flows entirely through Kerala and joins the sea in the Kerala.

Kottiyoor Wildlife Sanctuary

- **It is situated in eastern hilly area of Kannur. It is adjacent to Aralam WLS and Nagarhole National Park.**

Kurinjalama Wildlife Sanctuary

- **It protects the core habitat of the endangered Neelakurinji plant in Idukki district. Neelakurinji is a shrub that is found in the shola forests of the Western Ghats.**
- Nilgiri Hills (which literally means blue mountains) got their name from the purplish-blue flowers of Neelakurinji that blossoms only once in 12 years.
- The Wildlife Sanctuary is contiguous to the Chinnar Wildlife Sanctuary, Eravikulam National Park, Anamudi National Park, Pampadum Shola National Park and the proposed Palani Hills NP.

Malabar Wildlife Sanctuary

- It is located along the Western Ghats. It is a part of Nilgiri Biosphere Reserve and Wayanad ER.

Mangalavanam Bird Wildlife Sanctuary

- It is situated at the Kochi city and supports many types of migratory birds and mangroves.

Neyyar Wildlife Sanctuary

- It spread over the southeast corner of the Western Ghats.
- It is the drainage basin of Neyyar River and Neyyar Dam.
- It is a part of the Agasthyamala Biosphere Reserve.

Peechi-Vazhani Wildlife Sanctuary

- It is the second oldest Wildlife Sanctuary of Kerala.
- It consists of Palappilli-Nelliyampathi forests, including the area of Chimmony Wildlife Sanctuary.

Shendurney Wildlife Sanctuary

- It is located in the Western Ghats and comes under the control of Agasthyamalai Biosphere Reserve.

Thattekad Bird Wildlife Sanctuary

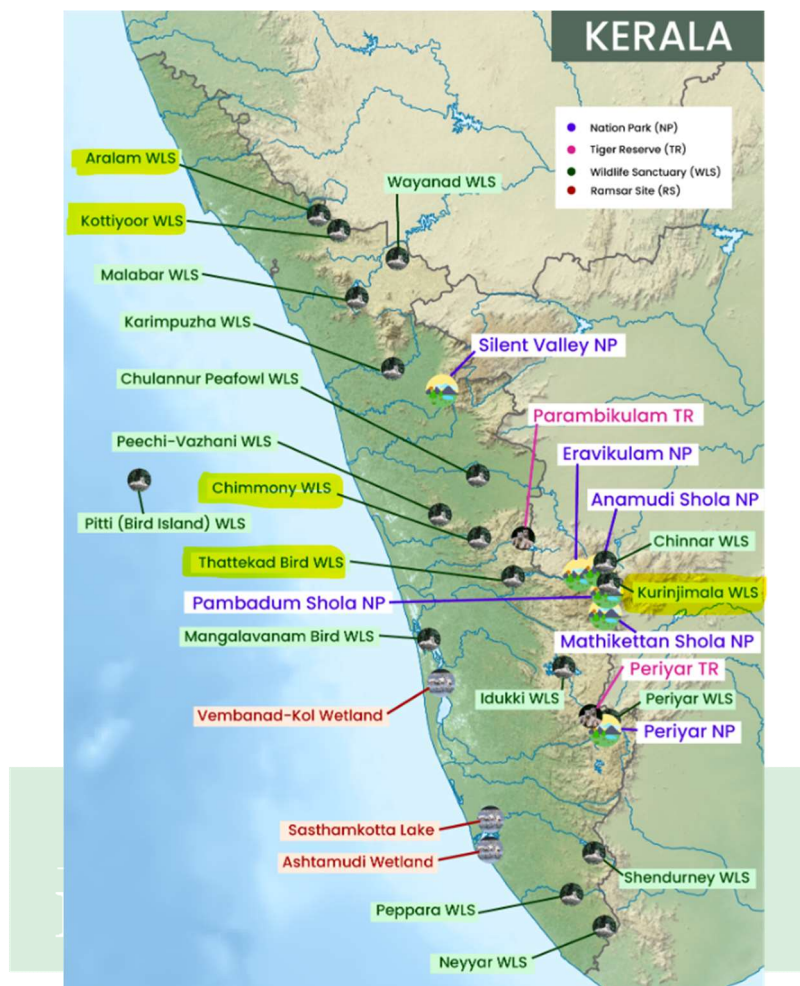
- **It is an evergreen low-land forest located between the branches of the Periyar River.**

Wayanad Wildlife Sanctuary

- It an integral part of the Nilgiri Biosphere Reserve. It is bounded by Nagarhole National Park and Bandipur National Park (Karnataka) and Mudumalai National Park.
- It is a major elephant and tiger corridor.

Others

- **Chulannur Peafowl Wildlife Sanctuary:** Located in the Pal Gap/ Palghat Gap/Palakkad Gap in Palakkad district.
- **Peppara Wildlife Sanctuary:** Located to the north of Neyyar Wildlife Sanctuary and west of Agasthyamalai.



Q9 Answer : C

Explanation :

Context:

The Exercise Samudra Laksamana kicked off on February 28 and will continue until March 2, taking place at or off the coast of Visakhapatnam.

- It is a joint naval exercise between the Indian Navy and Royal Malaysian Navy.
- It is the 3rd edition of this exercise.
- Indian Naval Ship Kiltan and Royal Malaysian Ship KD Lekir are participating in this exercise which has harbour professional interactions followed by the operational phase at sea.

- At harbour, crew of both ships will have various professional interactions, Subject Matter Expert Exchange on topics of mutual interest, sports fixtures, and other interactions.
- These interactions are aimed to enhance knowledge base, share best practices and further cooperation on maritime aspects.
- During sea phase, units would be jointly honing skills while conducting various operations at sea.
- The exercise aims to strengthen bonds and enhance interoperability between the Indian and Royal Malaysian Navy.

Q10 Answer : C

Explanation :

Context:

The Genome India Project recently announced that it had finished sequencing 10,000 Indian genomes.

About Genome India Project:

- It is a pan-India initiative focused on the whole genome sequencing of representative populations across India.
- **DBT initiated the ambitious Genome India Project (GIP) on 3rd January 2020. It is led by the Centre for Brain Research at the Indian Institute of Science, Bengaluru, and involves collaboration with 20 institutions.**
- **Goal: The goal is to start with and execute whole genome sequencing and subsequent data analysis of 10,000 individuals representing the country's diverse population. Statement 2 is correct.**
- **This is a mission-mode, multi-institution consortium project, the first of its kind in India, supported and funded by the Department of Biotechnology, Government of India. Statement 1 is correct.**

The specific aims of the project are:

- Create an exhaustive catalog of genetic variations (common, low frequency, rare, single nucleotide polymorphisms, or SNPs, and structural variations) in Indians.
- Create a reference haplotype structure for Indians. This reference panel can be used for imputing missing genetic variation in future studies.
- Design genome-wide arrays for research and diagnostics at an affordable cost.
- Establish a biobank for DNA and plasma collected for future use in research.

What is Genome?

- A genome is the complete set of genetic information in an organism.
- In living organisms, the genome is stored in long molecules of DNA called chromosomes.
- In humans, the genome consists of 23 pairs of chromosomes located in the cell's nucleus, as well as a small chromosome in the cell's mitochondria.

- A genome contains all the information needed for an individual to develop and function.

Q11 Answer : B

Explanation :

Context:

The National Electronic Funds Transfer (NEFT) reported its highest-ever daily number of transactions at 4.10 crore recently.

About National Electronic Fund Transfer (NEFT):

- **NEFT is a nation-wide centralized payment system owned and operated by the Reserve Bank of India (RBI). Statement 1 is correct.**
- It is an electronic method of transferring money online.
- Most Indian banks provide the NEFT feature on internet banking and mobile banking.
- It enables transferring funds from the account maintained with any bank to any other bank branch, provided the transaction is attempted between the banks that participate in the NEFT payment system.
- Organizations, companies, and individuals can use it to transfer funds from one bank account to another.
- As per Reserve Bank of India (RBI) guidelines, the payments made via NEFT are processed and settled in half-hourly batches.
- **Minimum Transfer Value: Rs. 1**
- **Maximum transfer value: No limit. Statement 2 is correct.**

NEFT offers the following advantages for funds transfer or receipt:

- Round-the-clock availability on all days of the year.
- Near-real-time funds transfer to the beneficiary account and settlement in a secure manner.
- Pan-India coverage through large network of branches of all types of banks.
- The beneficiary need not visit a bank branch for depositing the paper instruments. Remitter can initiate the remittances from his / her home / place of work using internet banking, if his / her bank offers such a service.
- Positive confirmation to the remitter by SMS / e-mail on credit to beneficiary account.
- Penal interest provision for delay in credit or return of transactions.
- No levy of charges by RBI from banks.
- No charges to savings bank account customers for online NEFT transactions.
- The transaction charges have been capped by the RBI.
- Besides fund transfers, NEFT system can be used for a variety of transactions, including the payment of credit card dues to the card issuing banks, payment of loan EMIs, inward foreign exchange remittances, etc.
- The transaction has legal backing.
- **Available for one-way funds transfers from India to Nepal. Statement 3 is incorrect.**

Q12 Answer : B

Explanation :

Context:

Understanding the legal framework governing Rajya Sabha elections and the implications of cross-voting is crucial in addressing these concerns and upholding democratic principles.

Rajya Sabha Elections and Cross-Voting

- **Constitutional Provision:** Article 80 of the Constitution mandates the indirect election of Rajya Sabha representatives by the elected members of State Legislative Assemblies. Statement 1 is incorrect.
- **Historical Context:** Rajya Sabha elections were traditionally uncontested until 1998, when cross-voting in Maharashtra marked a departure from this trend. Statement 4 is incorrect.

Legal Provisions and Precedents

- **Open Ballot System:** An amendment to the Representation of the People Act, 1951 in 2003 introduced open ballot voting for Rajya Sabha elections, aimed at curbing cross-voting. Statement 2 is correct.
- **Tenth Schedule (Anti-Defection Law):** Introduced in 1985, this Schedule disqualifies legislators who voluntarily give up party membership or vote against party instructions. **However, it does not apply to Rajya Sabha elections. Statement 3 is correct.**
- **Court Rulings:** The Supreme Court, in cases such as **Kuldip Nayar versus Union of India (2006)**, upheld the open ballot system while clarifying that voting against party candidates in Rajya Sabha elections does not invoke disqualification under the Tenth Schedule.

Q13 Answer : C

Explanation :

Context:

The Union Cabinet approved the creation of International Big Cat Alliance (IBCA) to set up a global network for the conservation of tigers and other big cats.

About

- **The alliance was conceived as a multi-country, multi-agency coalition of 96 big cat range countries and others to establish a common platform for conservation.**
- **Objective:** Focus of the Alliance is to conserve seven big cats of the world which includes Tiger, Lion, Leopard, Snow Leopard, Puma, Jaguar and Cheetah.
- **In India out of the seven big cats only five — tiger, lion, leopard, snow leopard and cheetah — are found.**
- **The government also approved a one-time budgetary support of ₹150 crore for a period of five years from 2023-24 to 2027-28.**

- **Governance:** IBCA governance consists of an Assembly of Members, Standing Committee and a Secretariat with its Head Quarter in India.

Seven Big Cats

Lion (*Panthera Leo*)

- IUCN Status: Vulnerable
- Range: It is mainly found in sub-Saharan Africa. Asiatic lions are found in the Gir National Park.

Tiger (*Panthera Tigris*)

- IUCN Status: Endangered
- Range: Bangladesh, Bhutan, Cambodia, China, India, Indonesia, Laos, Malaysia, Myanmar, Nepal, Russia, Thailand and Vietnam.

Snow leopard (*Panthera Uncia*)

- **IUCN Status: Vulnerable. Pair 3 is correct.**
- Range: Mountainous regions of 12 countries – Afghanistan, Bhutan, China, India, Kazakhstan, Kyrgyz Republic, Mongolia, Nepal, Pakistan, Russia, Tajikistan, and Uzbekistan.

Jaguar (*Panthera Onca*)

- **IUCN Status: Near Threatened. Pair 2 is correct.**
- Range: Most of their population exist in the Amazon rainforest and Pantanal in South America. Brazil accounts for half of the wild jaguars in the world.

Cheetah (*Acinonyx Jubatus*)

- **IUCN Status: Vulnerable. Pair 4 is incorrect.**
- Range: Initially, they were found in Africa, Russia, South Asia, Iran and the Middle East. Currently, the majority live in east and southern Africa apart from a small population in Iran.

Puma (*Puma Concolor*)

- **IUCN Status: Least Concern (LC). Pair 1 is correct.**
- Range: Also known as a mountain lion, the puma is found in North, Central and South America.

Leopard (*Panthera Pardus*)

- IUCN Status: Vulnerable
- Range: Africa, parts of the Middle East, and Asia.

Q14 Answer : A

Explanation :

Anamudi Shola National Park

- **It is located along the Western Ghats. Anamudi (2695 m), the highest peak in peninsular India, is located in this park and Eravikulam National Park. Pair 1 is correct.**
- It is surrounded by Mathikettan Shola National Park, Eravikulam National Park, Pambadum Shola National Park, Chinnar Wildlife Sanctuary, and the Kurinjimala Wildlife Sanctuary. (All are part of Munnar Wildlife Division).
- Vegetation: tropical evergreen forests, wet montane forests, moist deciduous forests and shola forests.
- Major Fauna: Lion-tailed macaques, Nilgiri tahr (EN), Nilgiri marten (VU), gaur, muntjac, giant grizzled squirrel (NT), flying squirrels, Nilgiri langur (VU).
- Threats: Tourism-related construction, invasive species, severe deforestation for plantation crops like rubber, tea.

Eravikulam National Park

- It is located along the Western Ghats.
- Vegetation: High altitude grasslands and sholas.
- Major Fauna: Similar to Anamudi Shola National Park.
- Major Avifauna: Black-and-orange flycatcher

Mathikettan Shola NP

- It is located along the Western Ghats.
- Vegetation: Similar to Anamudi Shola National Park.
- Fauna: Similar to Anamudi Shola National Park.

Pambadum Shola National Park

- **It is a part of Palani hills of Kerala and Tami Nadu. Pair 2 is incorrect.**
- Similar to Anamudi Shola National Park.

Parambikulam Tiger Reserve

- It is located in the Sungam range of hills between Anaimalai Hills (TN) and Nelliampathy Hills (Kerala).
- Vegetation: Evergreen, moist deciduous, and sholas.
- Major Fauna: Lion-tailed macaques, Nilgiri tahr, Nilgiri langurs, Nilgiri marten, small Travancore flying squirrel.

Periyar National Park, Tiger Reserve, ER

- **It forms the major watershed of two important rivers of Kerala, the Periyar and the Pamba. It is located in the Cardamom Hills of the Western Ghats. Pair 3 is incorrect.**
- It surrounds the Periyar Lake which became a reservoir in 1895 after the Mullaperiyar Dam was erected. The dam is built at the confluence of Mullayar and Periyar rivers in Kerala but is operated and maintained by Tamil Nadu.
- Vegetation: tropical evergreen, semi-evergreen and moist deciduous forests, montane grasslands, montane savannas, wetlands, and lake and river ecosystems.
- Major Flora: Teak, rosewoods, sandalwoods, eucalyptus.
- Major Fauna: Travancore flying squirrel, Nilgiri tahr, lion-tailed macaque, Salim Ali's fruit bat, Nilgiri marten.

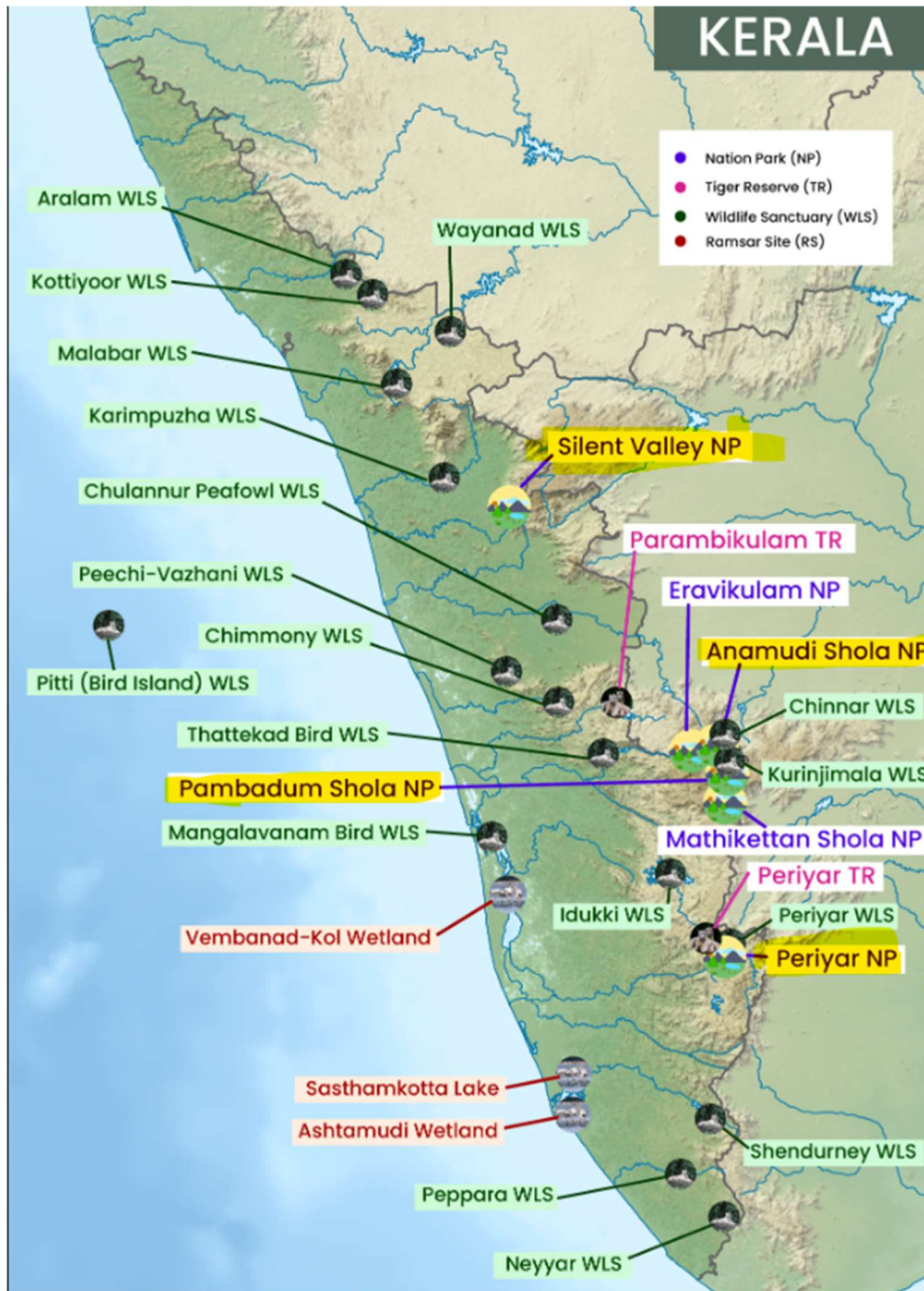
- Major Avifauna: Malabar grey hornbill (endemic), Nilgiri wood pigeon, Nilgiri flycatcher.

Silent Valley National Park

- **Silent Valley National Park is located in the Nilgiri Hills in the Malappuram district, Kerala, and Nilgiris district of Tamil Nadu. The park lies within the Nilgiri Biosphere Reserve. Pair 4 is incorrect.**
- Bhavani River (a tributary of the Kaveri River) and Kunthipuzha River (a tributary of the Bharathappuzha River) originate in the vicinity of the park. The Kadalundi River also originates in this park.
- Vegetation: Rainforests, tropical moist evergreen forest and shola forests.
- Major Fauna: It is home to the largest population of lion-tailed macaques (EN). Other major fauna: Malabar giant squirrel, Nilgiri tahr, Travancore flying squirrel.
- Major Avifauna: Nilgiri wood-pigeon, Malabar grey hornbill, Nilgiri flycatcher.
- Threats: Livestock grazing and forest fires, illegal plantations of cannabis.



R.C. REDDY
IAS STUDY CIRCLE



Q15 Answer : A

Explanation :

Context:

More funding is needed to support Small Island Developing States (SIDS) on the frontlines of climate change, the UN Secretary-General said recently.

About Small Island Developing States (SIDS)

- **SIDS are a distinct group of 39 States and 18 Associate Members of United Nations regional commissions that face unique social, economic, and environmental vulnerabilities.**
- The three geographical regions in which SIDS are located are: the Caribbean, the Pacific, and the Atlantic, Indian Ocean and South China Sea (AIS).
- SIDS were recognized as a special case both for their environment and development at the 1992 United Nations Conference on Environment and Development held in Rio de Janeiro, Brazil.
- They are highly vulnerable developing countries as they suffer from low economic diversification, often characterised by high dependence on tourism and remittances, volatility due to fluctuations in private income flows and the prices of raw materials, and debt stress situations.
- For SIDS, the Exclusive Economic Zone (EEZ)—the ocean under their control—is, on average, 28 times the country's land mass.
- Thus, for many SIDS, the majority of the natural resources they have access to come from the ocean.

UN Programmes of Action in Support of SIDS:

- **Barbados Programme of Action:** In 1994, the Barbados Programme of Action (BPoA) prescribed specific actions that would enable SIDS to achieve sustainable development. The Conference also adopted the Barbados Declaration, a statement of political will underpinning the commitments contained in the BPoA.
- **Mauritius Strategy:** In 2005, the Mauritius Strategy for further implementation of the BPoA was adopted to address remaining gaps in implementation.
- **SAMOA Pathway (2014):** The SAMOA Pathway recognizes the adverse impacts of climate change and sea-level rise on SIDS' efforts to achieve economic development, food security, disaster risk reduction, and ocean management, among other challenges.

IAS STUDY CIRCLE

Q16 Answer : D

Explanation :

Context:

The registration of newspapers and other periodicals will be governed by the provisions of the Press and Registration of Periodicals Act, 2023, and its Rules, which came into effect recently.

About Press and Registration of Periodicals Act (PRP Act), 2023:

- **It has replaced the colonial era Press and Registration of Books Act dating back to 1867. Statement 1 is correct.**
- **The office of Press Registrar General of India – PRGI (erstwhile Registrar of Newspapers for India – RNI) shall be carrying out the purposes of the new Act. Statement 2 is correct.**

- It provides for an online system for facilitating the registration of newspapers and other periodicals in the country.
- The new system replaces the existing manual, cumbersome processes involving multiple steps and approvals at various stages, which were causing unnecessary hardships to the publishers.
- **The Ministry of Information and Broadcasting had launched the Press Sewa Portal ((pressewa.prgi.gov.in), the online portal of the Press Registrar General, for receiving various applications as mandated by the new Act.**
- All applications, including the intimation by the printer of a periodical, application for registration of a facsimile edition of a foreign periodical, the application by a publisher for obtaining a certificate of registration of a periodical, application for revision of certificate of registration, application for transfer of ownership of periodicals, furnishing annual statement by the publisher of a periodical, and procedure for desk audit for verification of circulation of a periodical will be online through the Press Sewa Portal.
- **Accordingly, publishers intending to bring out periodicals need to register their titles before publishing them.**
- **Notably, the PRP Act exempts books and journals from the purview of registration necessitated by the old PRB Act, focusing solely on periodicals, which are defined as publications, including newspapers, published and printed at regular intervals containing public news or commentary, but excluding scientific, technical, and academic books or journals. Statement 3 is correct.**

Q17 Answer : B

Explanation :

About Nainativu Island

- **It is located in the Palk Strait, the stretch of sea that separates Sri Lanka from southern India. Pair 1 is correct.**
- It's close to the famous island of Delft (also known as Neduntheevu).
- This tiny island is fairly close to the northern Sri Lankan city of Jaffna.
- It is an important pilgrimage place for both Hindus and Buddhists.
- Historical significance: Historians note the island is mentioned in the ancient Tamil Sangam literature where it was mentioned as Manipallavam
- Nagapooshani Amman Kovil, a historic Hindu temple dedicated to the principal goddess of Tamil Hindus, Amman is located in this Island.

The Union Cabinet recently approved three chip-related projects, including India's first semiconductor fabrication plant.

- India Approves Tata Group's Ambitious Semiconductor Projects in Gujarat and Assam – The three projects are:

Semiconductor Plant in Dholera, Gujarat: Pair 2 is incorrect.

- The semiconductor plant is a collaboration between Tata Group and Taiwanese foundry Powerchip Semiconductor Manufacturing Corp (PSMC).
- It will provide access to leading-edge and mature nodes including 28 nanometer, 40 nm, 55 nm, 90 nm and 110 nm.

- Capacity of 50,000 wafers per month.

Chip Assembly plant in Morigaon, Assam: Pair 3 is incorrect.

- The Tata Group will also set up a chip assembly plant with a capacity to manufacture 48 million chips per day, and will primarily cater to export needs.

Chip Packaging Facility in Sanand, Gujarat:

- A chip packaging facility in Gujarat's Sanand was also approved by the Cabinet.

About Nhava Sheva Port:

- **The Port of Nhava Sheva lies to the east of the Port of Mumbai, about six nautical miles away across Thane Creek on the Arabian Sea. Pair 4 is correct.**
- It is also commonly known as the Jawaharlal Nehru Port, as it is run by the Jawaharlal Nehru Port Trust.
- It is known to be the busiest port in India and deals with almost half of the country's imports and exports.

Q18 Answer : D

Explanation :

Context:

Tripura's traditional tribal attire 'risa' gets Geographical Indication tag.

Risa Textile

- **Geography – Tripura**
- It is common in almost all 19 indigenous tribal communities of Tripura.
- However, each community has its own design.

Cuttack Rupa Tarakasi - Jewellery

- **It is a silver filigree, a form of metalwork in jewellery.**
- **Geography – Odisha.**
- Qualities – Fine craftsmanship and luxurious design.
- Origin – As early as 3500 BCE in Mesopotamia, it was incorporated and even today it is done as Telkari work.
- In India – It might have reached Cuttack from Persia through Indonesia some 500 years ago by sea trade, also evidences show the exchange of jewellery and gems between Kalinga and Indonesia.

Narasapur crochet lace products

- **Geography – Narsapur in Andhra Pradesh.**
- Qualities – Intricate craftsmanship, unique designs and good quality crochet craft.
- In India – It was brought by missionaries to Narsapur.

Majuli mask

- **Geography – Assam**

- They are made in different variety and sizes as they are mainly divided into different categories
- Mukha bhaona face mask – It covers the face.
- Lotokoi hanging mask – It is bigger in size extends to the chest.
- Cho Mukha huge mask – It is a head and body mask.

Q19 Answer : B

Explanation :

Context:

The Indian Air Force's Advanced Landing Ground (ALG) in Nyoma, close to the Line of Actual Control (LAC) in eastern Ladakh, has now been black-topped, while work is ongoing to extend the runway so that it can eventually handle fighter jets.

- **Nyoma is located at an altitude of about 13,700 feet and close to the south Bank of Pangong Tso.**
- **It is very close to the LAC in eastern Ladakh.**
- Nyoma is home to an Advanced Landing Ground (ALG) of Indian Air Force that was built in 1962 but remained unutilized.
- It was reactivated in 2009 when an An-32 landed in this airfield. Now the airbase at Nyoma of the Indian Military is fully operational.

Q20 Answer : B

Explanation :

Context:

Observations by the James Webb Space Telescope (JWST) show that a protoplanetary disk around a young star in the Orion Nebula is losing massive amounts of hydrogen each year.

About Protoplanetary Disk

- **A protoplanetary disk is a disk of gas (99% by mass) and dust (1%), orbiting a newly formed star, from which planets may eventually form or be in the process of forming.**
- Disks are common by-products of star formation, and range in mass from 0.001 to 0.3 Solar masses (1027–1029 kg) and in size from several tens to almost 1,000 Astronomical Units (1012–1014 m).

How are they formed?

- **Stars form from cold interstellar molecular clouds. A molecular cloud is an interstellar cloud of gas and dust in which molecules can form, the most common of which is hydrogen (H₂).**
- As they collapse into protostars under the force of gravity, the remaining matter forms a spinning disk.
- Eventually, the star stops accreting matter, leaving the disk in orbit around it.

- The leftover gas and dust inside that protoplanetary disk become the ingredients for planet formation.
- Organic molecules present in the original molecular cloud become part of the protoplanetary disk and the planets that form from it.

The chemical composition of the protoplanetary disk determines the composition of the eventual planets that form from it.

Protoplanetary disks typically disperse after 2–3 million years through the coalescence of their matter into planets and photoevaporation by the stellar radiation.

Q21 Answer : D

Explanation :

Context:

OPEC+ members led by Saudi Arabia and Russia recently agreed to extend voluntary oil output cuts first announced in 2023 as part of an agreement among oil producers to boost prices following economic uncertainty.

About OPEC+:

- It is a group of oil-exporting countries which meets regularly to decide how much crude oil to sell on the world market.
- Origin: These nations came to an accord towards the end of 2016 “to institutionalize a framework for cooperation between OPEC and non-OPEC producing countries on a regular and sustainable basis.”
- These nations aim to work together on adjusting crude oil production to bring stability to the oil market.
- OPEC+ controls about 40% of global oil supplies and more than 80% of proven oil reserves.
- At the core of this group are the members of OPEC (the Organization of the Oil Exporting Countries), which are mainly Middle Eastern and African countries.
- **Members: It comprises OPEC countries plus Azerbaijan, Bahrain, Brunei, Kazakhstan, Russia, Mexico, Malaysia, South Sudan, Sudan and Oman.**

What is the Organization of the Petroleum Exporting Countries (OPEC)?

- It is a permanent intergovernmental organization of oil-exporting countries.

Mission:

- To coordinate and unify the petroleum policies of its member countries.
- Ensure the stabilization of oil prices in the international oil markets, with a view to eliminating harmful and unnecessary fluctuations.
- Formation: It was founded in Baghdad, Iraq, with the signing of an agreement in September 1960 by five countries, namely the Islamic Republic of Iran, Iraq, Kuwait, Saudi Arabia and Venezuela.
- **Currently, it has 12 members, including Algeria, Congo, Equatorial Guinea, Gabon, Libya, Nigeria and the United Arab Emirates.**
- **Headquarters: Vienna, Austria.**

Q22 Answer : A

Explanation :

Context:

Recently, the Supreme Court has prohibited Patanjali Ayurved from disseminating advertisements that claim to treat medical conditions such as BP, diabetes, fevers, epilepsy, and lupus, as outlined in the Drugs and Magic Remedies (Objectionable Advertisements) Act of 1954.

- **It is a legislative framework to control the advertisement of drugs and prohibit claims of magical qualities in remedies. Statement 1 is correct.**
- It encompasses various forms of advertisements, including written, oral, and visual mediums.
- Under the Act, the term “drug” refers to medicines intended for human or animal use, substances for diagnosis or treatment of diseases, and articles affecting the body’s functions.
- **Other than articles meant for consumption, the definition for “magic remedy” under this Act also extends to talismans, mantras, and charms that allegedly possess miraculous powers for healing or influencing bodily functions. Statement 3 is incorrect.**
- It imposes strict regulations on the publication of advertisements related to drugs.
- It prohibits advertisements that give false impressions, make false claims, or are otherwise misleading.
- Violations of these provisions can result in penalties, including imprisonment or fines, upon conviction.
- **The term “advertisement,” under the Act, extends to all notices, labels, wrappers, and oral announcements. Statement 2 is correct.**

Who comes under the Magic Remedies Act?

- **The Act applies to all individuals and entities involved in the publication of advertisements, including manufacturers, distributors, and advertisers. Statement 4 is correct.**
- **The Act can hold both individuals and companies accountable for contraventions.**
- If a company violates the act, individuals in charge of its business operations may also be deemed guilty unless they can prove lack of knowledge or demonstrate due diligence in preventing the offense.
- Directors, managers, or officers of the company may also be held liable if they consented to or neglected the offense.

Punishment

- Violating the Act can result in imprisonment, fines, or both.
- If this is the first conviction for the violator, they may face up to six months in prison, fines or both.
- For subsequent conviction, imprisonment may extend to one year, fine, or both.
- The Act does not include any limits for the fines that may be imposed on individuals or organisations.

Q23 Answer : D

Explanation :

Context:

Scientists have identified the genetic mechanism behind the tailless evolution in humans and apes about 25 million years ago.

What caused the evolution?

- Gene TBXT: The gene TBXT is involved with tail length in certain animals. The gene was missing in humans, not because of mutation, but by another genetic code “snippet” known as AluY.
- Snippet AluY: It was randomly inserted into early humans and non-tailed apes during prehistoric times. The new gene was shown to affect tail lengths.
- AluY snippets are also called “jumping genes” or “mobile elements” because they can move around and insert themselves repeatedly and randomly in human code.
- TBXT + AluY Snippet: When paired with TBXT, it formed two types of ribonucleic acid – critical to cellular structure – that produced tail loss in people and apes.

Functions served by Tail

- For many vertebrates, a tail has helped with **functions like locomotion.**
- They help creatures of all kinds **maintain balance as they move across different environments.**
- Tails also **act as a communication tool, allowing animals to send signals to each other during social interactions.**
- In some species, tails are even essential for **regulating body temperature or defending themselves against threats.**

Present Hominoids

- They include humans, the great apes – chimpanzees, bonobos, gorillas, orangutans – and the lesser apes – gibbons.
- The earliest-known hominoid, called Proconsul, was tailless.
- Traces of a tail remain in humans: A bone at the base of the spinal column called the coccyx, or tailbone, is formed from fused remnants of tail vertebrae.

Benefits of a Tailless Existence

- Freed from the constraints of a tail, humans developed enhanced balance and mobility, crucial for bipedalism.
- This adaptation facilitated a more upright posture, allowing for the use of hands in tool-making, foraging, and social communication.
- The evolutionary success of humans and apes without tails underscores the advantages of this trait in navigating the terrestrial and arboreal environments they inhabited.
- **Significance:** The loss of the tail is not just a matter of physical appearance but signifies a deeper evolutionary strategy, adapting to new environments and ways of moving.

- This research sheds light on how evolution affects both our body features and risk of certain health problems.
- This new way of thinking opens doors for further research into the genes and evolutionary history of diseases.

Q24 Answer : B

Explanation :

Context:

Recently, Apple announced PQ3, a post-quantum cryptographic protocol, to encrypt conversations in iMessage.

The company called it the first messaging protocol to reach Level 3 security. They assert it can withstand even highly sophisticated quantum attacks.

What is PQ3 Protocol?

At the moment, communication security is measured by three security levels.

- **Level 0:** In this level, the messages remain unencrypted.
- **Level 1:** Here messages are end-to-end encrypted but there's no additional identity authentication or quantum security.
- **Level 2:** This includes identity authentication and quantum security but they are limited to the initial key establishment. This means quantum security is offered only if the conversation key material is never compromised.
- **Level 3: PQ3 is the first messaging protocol that qualifies for what Apple calls Level 3 security.**
 - This uses post-quantum cryptography to secure both the initial key establishment and the ongoing message exchange.
 - In addition, the Level 3 PQC can automatically restore the security of a conversation even when the key is compromised.
 - Therefore, PQ3 is claimed to surpass protocols in all other widely deployed messaging apps.

How Does PQ3 Protocol Work?

- **Apple's PQ3 protocol uses a hybrid design combining the traditional encryption methods with post-quantum encryption both during the initial key establishment between devices and during rekeying.**
- Each device generates public keys locally and then transmits them to Apple servers as part of the iMessage registration process.
- For this, **Apple uses the Module Lattice-based Key Encapsulation Mechanism standard or ML-KEM.**
- It enables the sender devices to get a receiver's public keys and generate post-quantum encryption keys for the very first message. This works even if the receiver is offline.
- Then Apple includes a periodic post-quantum rekeying mechanism within the conversation. This mechanism can self-heal from key compromise and safeguard future messages.

- In PQ3, the new keys sent along with the conversation are used to create fresh message encryption keys that can't be computed from past ones. Thereby bringing the conversation back to a secure state even if previous keys were extracted or compromised by an adversary.

Q25 Answer : C

Explanation :

Context:

The government has abandoned the proposal to establish a Non-lapsable Defense Modernization Fund, citing drawbacks related to its impact on parliamentary scrutiny and accountability.

About non-lapsable defence modernisation fund:

- **Background– The 15th Finance Commission has proposed the establishment of a dedicated non-lapsable Modernisation Fund for Defence and Internal Security (MFDIS).** The idea behind is to address the disparity between projected budget needs and the allocation for defense and internal security. **Statement 1 is correct.**
- In 2021, the government placed an action-taken report in Parliament alongside the Commission's report. The government mentioned that it has "in-principle" agreed to create such a fund in the Public Account of India.

What is the need for Non-Lapsable Funds?

- In India, the defense budget is assigned annually. At the close of each fiscal year, any remaining funds are reverted to the government's consolidated fund.
- **Consequently, the defense services miss the chance to utilize these allocated funds for unforeseen needs or future requirements. Establishing a Non-Lapsable Defense Modernization Fund (DMF) offers a solution to this challenge.**
- **Once operational, the DMF would allow the three services to keep any unspent budget allocation beyond the fiscal year's end.**

Why did the government abandon this proposal?

- Traditionally, only funds raised through cesses for specific purposes are non-lapsable.
- **Apart from items funded through a cess, deferring today's allocations with the intention of using them later contradicts the fundamental principles of parliamentary financial accountability. Statement 2 is correct.**
- The government says it is working on a separate plan to explore a special arrangement for establishing a "Non-lapsable Defence Modernisation Fund."

Q26 Answer : B

Explanation :

Context:

India's rank improved to 113 out of 190 countries in the World Bank's Women, Business and Law index.

About Women, Business and Law Index:

- It is a World Bank index measuring the enabling environment for women's economic opportunity in 190 economies.
- The index measures how laws and regulations affect women's economic opportunity on a scale from 0 to 100, where 100 means equal legal rights for men and women.
- The report covers eight related areas: Mobility, workplace, pay, marriage, parenthood, entrepreneurship, assets, and pension.
- The data offer objective and measurable benchmarks for evaluating global progress toward legal gender equality.
- It demonstrates the progress made while emphasising the work still to be done to ensure economic empowerment for all.

Highlights of 2024 Index:

- It is the 10th edition of the report.
- Globally, none of the countries has a full score in the new index, indicating that women did not enjoy equal rights in any of the countries.
- India's ranking improved to 113 out of 190 countries.
- Indian women enjoyed 60% of the legal rights given to men as per the new report, lower than the global average of 64.2%.

Q27 Answer : D

Explanation :

Context:

Recently, the National Aeronautics and Space Administration (NASA) shared captivating pictures of clouds on a social media platform, showcasing the breathtaking view of Cavum clouds as seen from space.

- These clouds are also known as “hole-punch clouds or fall streak holes.”

How are Cavum clouds formed?

- These are formed when aeroplanes pass through layers of altocumulus clouds, which are mid-level clouds containing supercooled water droplets (water below freezing temperature but still in liquid form). Statement I is incorrect.
- As the aircraft moves through, a process known as adiabatic expansion can cause the water droplets to freeze into ice crystals.
- These ice crystals eventually become too heavy and fall out of the cloud layer, creating a hole in the clouds. Statement II is correct.
- These "mysterious clouds" has been ongoing for over 13 years.
- They are formed when planes pass through at a relatively steep angle.

Q28 Answer : D

Explanation :

Udyam Assist Platform (UAP)

- Udyam Assist Platform was launched by the Ministry of Micro, Small and Medium Enterprises. Statement 1 is correct.
- The platform aims to facilitate registration of Informal Micro Enterprises (IMEs) through generation of Udyam Assist Certificate. Statement 2 is correct.
- Small Industries Development Bank of India (SIDBI) is the implementing agency for the project. Statement 3 is correct.
- Informal Micro Enterprises (IMEs) not having GSTN are allowed to register on Udyam Assist Platform. Statement 4 is correct.
- The certificate issued on the UAP to IMEs shall be treated at par with Udyam Registration Certificate for the purpose of availing Priority Sector Lending (PSL) benefits.
- The IMEs with an Udyam Assist Certificate shall be treated as Micro Enterprises under MSME for the purposes of PSL classification.

Small Industries Development Bank of India (SIDBI) – Was set up on 2nd April 1990 under an Act of Indian Parliament.

- It acts as the Principal Financial Institution for Promotion, Financing and Development of the MSME sector as well as for co-ordination of functions of institutions engaged in similar activities.
- The shares of SIDBI are held by the Government of India and 22 other institutions / public sector banks / insurance companies owned or controlled by the Central Government.

Q29 Answer : A

Explanation :

Naval Base	Located in
1. INS Kadamba	Karnataka
2. INS Hansa	Goa
3. INS Shikra	Maharashtra
4. INS Dega	Andhra Pradesh

Context:

PROJECT SEABIRD

- The Project Seabird is a naval infrastructure project that involves a naval base in Karwar, Karnataka.
- INS Kadamba or Naval Base Karwar or Project Seabird is an Indian Navy base located near Karwar in Karnataka.
- The project was originally conceived by Admiral OS Dawson, the Chief of Naval Staff in the early 1980s.
- The 1st phase of this project was commissioned in 2005 and the 2nd phase is yet to be completed.
- Once completed, it will be the largest naval base in the Asia.

Q30 Answer : B

Explanation :

Context:

Recently the French lawmakers approved a bill to enshrine abortion rights in France's constitution, making it the only country to explicitly guarantee a woman's right to voluntarily terminate a pregnancy.

- **Abortion is a deliberate termination of pregnancy, resulting in the removal or expulsion of the foetus or embryo from the uterus, before it is able to survive outside the uterus or can develop to full term.**
- Miscarriage is the natural or unintentional loss of a pregnancy before the foetus is able to survive due to various factors such as hormonal imbalances, foetal development problems, genetic abnormalities, or maternal health issues.
- The primary difference between abortion and miscarriage lies in the intent and causation.
- **France is the first and only country to explicitly guarantee abortion as a constitutional right.**
- **India – Under the Indian Penal Code, voluntarily causing a miscarriage is a punishable offence and is mentioned in Section 312 of the IPC.**
- **The rights of the foetus are governed under Section 20 of the Hindu Succession Act, 1956.**
- **The Indian Constitution does not explicitly mention the right to abortion but certain fundamental rights have been interpreted by the judiciary in connection with reproductive rights and women's healthcare.**
- **Article 21** of the Indian Constitution guarantees the right to life and personal liberty includes the reproductive rights and women's healthcare.
- **Article 14** of the Constitution of India also highlights certain provisions regarding abortion. Article 14 guarantees the right to equality and prohibits discrimination.

Q31 Answer : D

Explanation :

Context:

Recently the Ministry of Defence launched the ADITI Scheme to promote innovations in critical and strategic defence technologies.

- ADITI – Acing Development of Innovative Technologies with iDEX.
- **The ADITI Scheme aims to develop about 30 deep-tech critical and strategic technologies in the proposed timeframe. Statement 3 is correct.**
- It also envisages to create a 'Technology Watch Tool' to bridge the gap between the expectations and requirements of the modern Armed Forces and the capabilities of the defence innovation ecosystem.
- In the first edition of ADITI, 17 challenges – Indian Army (3), Indian Navy (5), Indian Air Force (5) and Defence Space Agency (4) have been launched.
- **It falls under the iDEX (Innovations for Defence Excellence) framework of Department of Defence Production (DDP), Ministry of Defence. Statement 2 is correct.**

- **Under the scheme, start-ups are eligible to receive grant-in-aid of up to Rs 25 crore for their research, development, and innovation endeavours in defence technology. Statement 1 is correct.**
- The scheme will nurture the innovation of youth, and help the country leap forward in the field of technology.
- It was launched during the DefConnect 2024.

Q32 Answer : D

Explanation :

Context:

Recently the Supreme Court ruled that the law enforcement agencies can initiate prosecution against legislators in bribery cases under the Prevention of Corruption Act, 1988 (Act).

- **Parliamentary privileges are special rights, immunities and exemptions enjoyed by the two Houses of Parliament, their committees and their members.**
- The Constitution has also extended the parliamentary privileges to those persons who are entitled to speak and take part in the proceedings of a House of Parliament or any of its committees.
- **This includes the attorney general of India and Union ministers.**
- The parliamentary privileges do not extend to the president who is also an integral part of the Parliament.
- **Both the court and Parliament can exercise jurisdiction to address bribery by lawmakers (Members of Parliament and Members of State Legislative Assembly).**
- Originally, the Article 105 expressed mentioned two privileges, that is, freedom of speech in Parliament and right of publication of its proceedings.—
- **Overtaken 1998 precedent – The court overruled a 25-year-old ruling (P.V. Narasimha Rao Vs State) that granted immunity to legislators from prosecution for bribery related to votes or speeches.**
- **Bribery and Parliamentary Privileges – The recent Supreme Court judgement clarified that accepting bribes to influence votes or speeches is not protected under the Article 105 and Article 194. Statement 1 is incorrect.**
- **Legislative privileges apply to Rajya Sabha elections – The recent verdict have clarified that immunity applies to Rajya Sabha elections too. Statement 2 is incorrect.**
- **Dual Jurisdiction – The court have clarified that both courts and Parliament have separate jurisdictions to address bribery by lawmakers.**
- The House punishes for contempt, while courts handle criminal prosecution.
- **“Necessity Test” for Privilege – For a privilege to be valid, it must be essential for a legislator to perform their duties.**
- **Accepting bribes clearly fails this test.**
- **Equality and Corruption – Granting immunity to legislators for bribery would violate the right to equality, creating an unfair advantage for public servants.**

Q33 Answer : C

Explanation :

Context:

Researchers recently identified the RAD51 protein as a key player in preventing DNA re-replication.

About RAD51:

- **RAD51 recombinase (RAD51) is a gene that encodes a protein that functions in homologous recombination and DNA repair.**
- **RAD51 has the function of finding and invading homologous DNA sequences to enable accurate and timely DNA repair.**
- Breaks in DNA can be caused by natural and medical radiation or other environmental exposures and also occur when chromosomes exchange genetic material in preparation for cell division.
- **The RAD51 protein binds to the DNA at the site of a break and encases it in a protein sheath, which is an essential first step in the repair process.**
- **In the nucleus of many types of normal cells, the RAD51 protein interacts with many other proteins, including BRCA1 and BRCA2, to fix damaged DNA.**
- The BRCA2 protein regulates the activity of the RAD51 protein by transporting it to sites of DNA damage in the nucleus.
- The interaction between the BRCA1 protein and the RAD51 protein is less clear, although research suggests that BRCA1 may also activate RAD51 in response to DNA damage.
- By helping repair DNA, these three proteins play a role in maintaining the stability of a cell's genetic information.

Q34 Answer : B

Explanation :

Context:

The waters of the Red Sea, are at an ‘environmental risk’ after Belize-flagged, UK-owned bulk carrier Rubymar sank in the southern part of the Sea.

- **The Red Sea itself was once referred to as the Erythraean Sea by Europeans.**
- **The Red Sea stretches from the Egyptian, Israeli (Port of Eliat) and Jordanian (Port of Aqaba) coasts in the north to the Yemeni, Djiboutian, Eritrean and Somali coasts in the south.**
- **It connects with the Mediterranean Sea and the Atlantic Ocean through the human-made Suez Canal and to the Gulf of Aden, Arabian Sea and Indian Ocean through the Strait of Bab el Mandeb (‘Gate of Tears’ in Arabic).**

Red Sea and Gulf of Aden (RSGA) ecosystems:

- **The Red Sea and Gulf of Aden (RSGA) ecosystems supports a rich biological diversity with a distinct high proportion of endemic species, according the United Nations Environment Programme (UNEP).**

- The RSGA ecosystems is home to the **Socotra Archipelago, Dungonab Bay and Senganeeb Atoll, which are UNESCO Natural Heritage Sites.**
- **Farsan and Dahlak Archipelagos in the southern Red Sea (where the Rubymar has sunk) and coral reefs in the northern and central parts of the Red Sea are also distinctive features of the region.**
- Red Sea is among the top areas of high fish endemism in the world.
- Endemism is a term used in biology to talk about the distribution of a taxon limited to a small geographic area and which can therefore be found naturally in this place.

Fraser Island, officially K'gari is a World Heritage-listed sand island along the south-eastern coast in the Wide Bay–Burnett region, Queensland, Australia.

Macquarie Island is an island in the southwestern Pacific Ocean, about halfway between New Zealand and Antarctica. Regionally part of Oceania and politically a part of Tasmania, Australia, since 1900, it became a **Tasmanian State Reserve in 1978 and was inscribed as a UNESCO World Heritage Site in 1997.**

Q35 Answer : C

Explanation :

Context:

The Prime Minister of India witnessed the start of the process of core-loading the indigenous prototype fast breeder reactor (PFBR) at Kalpakkam.

- **Prototype Fast Breeder Reactor is a machine that produces more nuclear fuel than it consumes.**
- **The Fast Breeder Reactor (FBR) will initially use the Uranium-Plutonium Mixed Oxide (MOX) fuel. Statement I is correct.**
- The Uranium-238 “blanket” surrounding the fuel core will undergo nuclear transmutation to produce more fuel, thus earning the name ‘Breeder’.
- The use of Thorium-232, which in itself is not a fissile material, as a blanket is also envisaged in this stage.
- By transmutation, Thorium will create fissile Uranium-233 which will be used as fuel in the third stage.
- **Coolant:** It uses liquid sodium, a highly reactive substance, as coolant in two circuits. Coolant in the first circuit enters the reactor and leaves with (heat) energy and radioactivity. Via heat-exchangers, it transfers only the heat to the coolant in a secondary circuit. The latter transfers the heat to generators to produce electricity.
- **It has been fully designed and constructed indigenously by Bhartiya Nabhikiya Vidyut Nigam Ltd (BHAVINI) with significant contribution from more than 200 Indian industries including MSMEs.**
- In terms of safety, the PFBR is an advanced third generation reactor with inherent passive safety features ensuring a prompt and safe shut down of the plant in the event of an emergency.

Significance:

- **Since it uses the spent fuel from the first stage, FBR also offers great advantage in terms of significant reduction in nuclear waste generated, thereby avoiding the need for large geological disposal facilities.**
- **Once commissioned, India will only be the second country after Russia to have commercial operating Fast Breeder Reactor. Statement II is incorrect.**
- FBR is thus a stepping stone for the third stage of the program paving the way for the eventual full utilization of India's abundant thorium reserves.

Q36 Answer : B

Explanation :

Context:

Recently, the MethaneSAT satellite was launched aboard a SpaceX Falcon9 rocket from California.

- **It will track and measure methane emissions at a global scale. Statement 1 is correct.**
- It will provide more details and have a much wider field of view than any of its predecessors.
- **The entity behind MethaneSAT is the Environmental Defense Fund (EDF) — a US-based nonprofit environmental advocacy group. Statement 3 is incorrect.**
- **It is developed in collaboration with Harvard University, the Smithsonian Astrophysical Observatory, and the New Zealand Space Agency. Statement 2 is incorrect.**
- It will orbit the Earth 15 times a day, monitoring the oil and gas sector.
- It will create a large amount of data, which will tell “how much methane is coming from where, who's responsible, and are those emissions going up or down over time”,
- **The data collected by this will be made public for free in near real-time. This will allow stakeholders and regulators to take action to reduce methane emissions. Statement 4 is correct.**

Features

- It is equipped with a high-resolution infrared sensor and a spectrometer.
- It can track differences in methane concentrations as small as three parts per billion in the atmosphere, which enables it to pick up smaller emissions sources than the previous satellites.
- It also has a wide-camera view — of about 200 km by 200 km — allowing it to identify larger emitters so-called “super emitters”.

The collected data will be analysed using cloud-computing and AI technology developed by Google — the company is a mission partner — and the data will be made public through Google's Earth Engine platform.

Q37 Answer : C

Explanation :

Context:

Recently the 7th summit of the Gas Exporting Countries Forum was held at the historic city of Algiers, Algeria.

- **Gas Exporting Countries Forum (GECF) is an intergovernmental organisation that provides a framework for exchanging experience and information among its member countries.**
- It seeks to build a mechanism for a meaningful dialogue between gas producers and consumers in order to improve the stability and security of supply and demand in gas markets around the world.
- **Significance** – Together, they represent 69% of the world’s gas reserves, 39% of the marketed production, and 40% of global gas exports.
- **GECF member countries collectively account for more than half of the world LNG exports (51%).**
- The central focus of the 7th summit, articulated through the “Algiers Declaration” is to reaffirm the commitment of member countries to the responsible stewardship of natural gas resources.

GECF Country List

Full-Fledged Members

1. Algeria
2. Bolivia
3. **Egypt**
4. Equatorial Guinea
5. **Iran**
6. **Libya**
7. Nigeria
8. Qatar
9. **Russia**
10. Trinidad and Tobago
11. UAE - United Arab Emirates
12. Venezuela



Status of Observers (7)

- Peru
- Iraq
- Angola
- Azerbaijan
- Malaysia
- Mauritania
- Mozambique

Q38 Answer : D

Explanation :

Context:

Dry ice, was mistakenly offered to a party of diners at a Gurugram restaurant and subsequently caused them to vomit blood.

- **Dry ice is solid carbon dioxide (CO₂) at a temperature of approximately -78.5°C (-109.3°F). Statement 1 is correct.**
- Sublimation - It is formed by compressing and cooling gaseous carbon dioxide until it reaches its solid state without passing through the liquid phase, a process called sublimation.
- **Dry ice undergoes sublimation when exposed to warmer temperatures, transitioning directly from a solid to a gas, releasing CO₂. Statement 2 is correct.**
- Applications - It is commonly used as a cooling agent for food products like ice cream, frozen desserts etc.
- It is frequently used for food items that are needed to be cold or frozen, without the use of mechanical cooling.
- **Threats - Both liquid nitrogen and dry ice can cause severe damage to skin and internal organs if mishandled or accidentally ingested due to the extremely low temperatures they can maintain. Statement 3 is correct.**
- As such, liquid nitrogen and dry ice should not be directly consumed or allowed to directly contact exposed skin.
- As it comes into contact with moisture in the mouth or digestive tract, dry ice rapidly sublimates, releasing large amounts of carbon dioxide gas.
- This can cause potentially life-threatening complications such as perforation of the stomach or intestines, or even asphyxiation due to the displacement of oxygen.

Q39 Answer : A

Explanation :

Sacred Groves	Associated State
1. Oran	Rajasthan
2. Dev Van	Himachal Pradesh
3. Lai Umang	Manipur
4. Devarakadu	Karnataka

Context:

A recent announcement by the Rajasthan government to notify Orans as deemed forest has sparked fear among community residents in the state regarding the potential loss of access to forest resources and their means of livelihood.

- **Oran is the name of the sacred groove/conservation areas in Rajasthan, India.**
- **An Oran typically encompasses diverse elements like woodlots, pastures, orchards, and various habitats, all strategically situated around water sources like natural springs, rivulets, or man-made ponds.**
- The villagers use gum, timber, forest produce and wild vegetables from orans for their livelihood and daily use.
- The community has a close relationship with orans, which hold cultural and religious significance.

Q40 Answer : C

Explanation :

Context:

A recent report by the World Health Organization (WHO) highlighted that the Resistance to the dolutegravir (DTG) drug is increasing among HIV patients.

- **Dolutegravir (DTG) is the World Health Organisation's (WHO) recommended antiretroviral drug preferred for first-line and second-line treatment of HIV/AIDS for all populations.**
- It is more effective, easier to take, has fewer side effects than alternatives, and has a high genetic barrier to developing drug resistance.
- HIV is the virus that causes Acquired Immune Deficiency Syndrome (AIDS).

Q41 Answer : B

Explanation :

Context:

Recently scientists unveiled the first in-depth study of a star dune, revealing the internal structure of these geological features and showing how long it took for one of them to form.

- **Star dunes are vaguely pyramid-shaped sand formations up to about 1,000 feet (300 meters) tall with arms stretching out from a central peak to give them a star-like appearance when viewed from above. Statement 1 is correct.**
- **Star dunes make up just under 10% of the dunes in Earth's deserts and are the tallest ones, surpassing other types such as crescent-shaped barchan dunes and straight and lengthy linear dunes. Statement 2 is incorrect.**
- **They also have been spotted on Mars and on Saturn's large moon Titan. Statement 4 is correct.**
- **Earth's largest star dunes are found in the Badain Jaran desert in western China. Statement 3 is incorrect.**
- Star dunes also are found in places including the Namib Sand Sea in Namibia, large sand seas in Algeria such as the Grand Erg Oriental and Grand Erg Occidental, and Rub' al Khali in Saudi Arabia. In North America, Great Sand Dunes National Park in Colorado contains a series of them.
- **Lala Lallia – The recent study by the scientist focused on it.**
- **It is located a small sand sea called Erg Chebbi within the Sahara Desert in the eastern Morocco, close to the border with Algeria.**
- It rises about 330 feet above the surrounding dunes and is approximately 2,300 feet wide, containing about 5.5 million metric tons of sand.
- Complex wind regimes – Star dunes are formed in areas with complex wind regimes.
- They are winds blowing from different directions, and net sand accumulation, points within the desert where big piles of sand can be blown around to form giant dunes.

Q42 Answer : A

Explanation :

Context:

Venezuela has embarked a project to preserve its final glacier, La Corona, by deploying a geothermal blanket recently.

Glacier Name	Location and Feature
Lambert Glacier	Fisher Antarctica, the largest glacier of the world
Hubbard Glacier	Alaska, a tidewater glacier and, despite global warming, is expanding. Largest in N America.
Fedchenko Glacier	Tajikistan, one of the largest non-polar glaciers, in Karakoram
Siachen Glacier	India, highest, deadliest and costliest battlefield
Biafo Glacier	Pakistan, Meltwater from the Biafo Glacier flows to the Indus River
Bruggen Glacier	Chile, advanced about 5 kilometers, and cut Lake Greve from the sea
Baltoro Glacier	Pakistan, source of the Shigar River
South Glacier	Inylchek Kyrgyzstan and China, located in Central Tian Shan Mountains in the Issyk-Kul Region
Jostedal Glacier	Norway, 9th largest glacier in the world
Batura Glacier	Pakistan, Gojal region of Gilgit-Baltistan
Margerie Glacier	Alaska, Glacier Bay Park
Perito Moreno Glacier	Argentina, third largest reserve of freshwater in the world.
Gangotri Glacier	India and China, one of the largest glaciers of the Himalayas
Fox and Franz Josef Glacier	New Zealand, descend from the Southern Alps to a temperate rainforest full of greenery and lushness
Pasterze Glacier	Austria, biggest glacier in Austria

Q43 Answer : A

Explanation :

Context:

Recently, the Reserve Bank of India said 30 banks are facilitating people to search their unclaimed deposits/accounts through UDGAM portal.

About UDGAM Portal

- **UDGAM refers to Unclaimed Deposits-Gateway to Access inforMation, which is an online portal developed by the Reserve Bank of India (RBI).**
- It facilitates the registered users to search unclaimed deposits/accounts across multiple banks at one place in a centralised manner.
- There are 30 banks, which are part of UDGAM portal, and they cover around 90% of unclaimed deposits (in value terms) in Depositor Education and Awareness (DEA) Fund of RBI.
- All unclaimed deposits/accounts that are part of Depositor Education and Awareness (DEA) Fund of RBI.
- This portal provides information related to both individuals and non-individuals category unclaimed deposits
- It facilitates only the search of unclaimed deposits/accounts across multiple banks at one place and provides information on claim/settlement process of each bank.
- The unclaimed deposits can be claimed only from the respective bank.
- After registration on the portal a person will get Unclaimed Deposit Reference Number (UDRN) which is a unique number generated through Core Banking Solution (CBS) by banks and assigned to each Unclaimed account/ deposit transferred to Depositor Education and Awareness (DEA) Fund of RBI.
- This number is used so that the account holder or the bank branch where account is maintained, cannot be identified by any third party.
- The UDRN enables the bank branches to seamlessly settle claims received from the customers/depositors, who have made successful search in UDGAM portal.

Q44 Answer : A

Explanation :

Context:

The Supreme Court recently held that the conviction of the accused can be sustained solely based on the dying declaration if the declaration made by the victim inspires the confidence of the court and proves to be trustworthy.

About Dying Declaration:

- A Dying Declaration is a statement made by a person who is dead. **It is dealt with under clause (1) of Section 32 of the Indian Evidence Act 1872. Statement 1 is correct.**
- **Generally, it relates to the cause of death of the declarant. It is admissible as evidence in all proceedings, civil or criminal. Statement 2 is incorrect.**

- The reason behind this can be followed by the Latin maxim ‘Nemo Mariturus Presumuntur Mentri’ which means that “Man Will Not Meet His Maker with Lying on His Mouth.

Format:

- There is no specific format required for a dying declaration. It can be given orally, in writing, through gestures or signs, by a thumb impression, or even in the form of a question and answer.
- However, the statement must clearly and assertively convey the person’s intention. Ideally, a written declaration should be recorded using the exact words stated by the person making the statement.
- In cases where a magistrate records the dying declaration, it is usually done in a question-and-answer format. This allows the magistrate to gather maximum relevant information accurately.

Who can record a Dying Declaration?

- The best form of declaration of dying would be the one recorded by the Magistrate.
- However, according to the Supreme Court’s guidelines, anyone can record the dying statement.
- A dying statement can also be recorded by public servants or by a doctor as well, where the victim is hospitalized.

Evidentiary Value:

- **A dying declaration carries significant weight in legal proceedings and can serve as the sole basis for a conviction without the need for additional corroborating evidence.**
- However, the court must ensure that the statement of the deceased was not influenced, coached, or a result of imagination.
- It must also ascertain that the deceased was of sound mind and had a clear opportunity to observe and identify the assailants.
- **If the person making the dying statement is likely to live, his statement is inadmissible as a dying statement. Statement 3 is incorrect.**

Q45 Answer : A

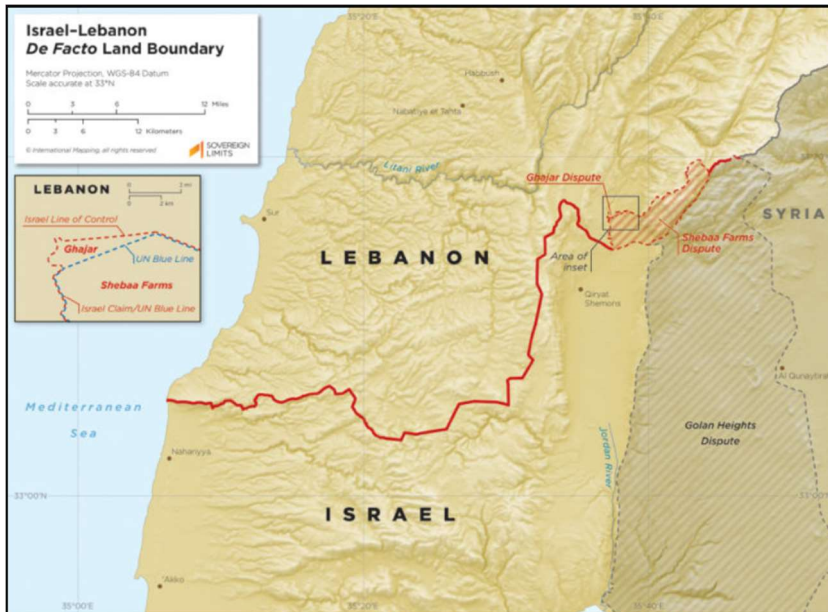
Explanation :

Context:

US envoy to Lebanon emphasised situation along the blue line has to change to guarantee peace and security.

- **The border between Israel and Lebanon, known as the "Blue Line," was set by the United Nations in 2000 after Israel withdrew its military from southern Lebanon.**
- **It's not an official international border but a demarcation line.**
- **Originally, it was the boundary established by Britain and France in the 1920s, between Lebanon, Syria and Palestine.**

- Hezbollah is a Shia Islamist political party and militant group based in Lebanon. It emerged in the 1980s as a response to the Israeli occupation of southern Lebanon. It is also designated as a terrorist organisation by several countries, including the United States and Israel.



Q46 Answer : A

Explanation :

Context:

The Union Cabinet have approved the new industrial development scheme, Uttar Poorva Transformative Industrialization Scheme, 2024 (UNNATI – 2024).

IAS STUDY CIRCLE

- It is Central Sector Scheme. Statement 1 is correct.
- Objectives – To develop industries that will create productive economic activity in the manufacturing and service sectors. Statement 2 is correct.
- To generate gainful employment, which will lead to the area's overall socio-economic development.
- Focus areas – States of North East Region.
- Financial Outlay – Rs.10, 037 crore. Statement 3 is correct.
 - Part A – Incentives to the eligible units (Rs. 9737 crores), 60% to 8 NE states and 40% on First-In-First-Out (FIFO) basis.
 - Part B – For implementation and institutional arrangements for the scheme (Rs. 300 Crore).
- Nodal Agency – Department for Promotion of Industry and Internal Trade, Ministry of Commerce and Industry. Statement 4 is incorrect.
- Targets – Direct employment opportunities of about 83,000 and a significant number of indirect employments.
- Scheme period – 10 years from the date of notification and additional 8 years for committed liabilities.
- Eligibility – All new Industrial units and Expanding units for the respective incentives.
- Districts are categorized in 2 zones

- Zone A (Industrially Advanced Districts)
- Zone B (Industrially Backward Districts)

Incentives under UNNATI-2024

- **Capital Investment Incentive**
 - For both new & expanding units.
 - For both GST and non-GST units
- **Central Capital Interest Subvention**
 - For both new & expanding units.
 - For both GST and non-GST units
- **Manufacturing & Services linked incentive (MSLI)**
 - For New Units only
 - For units linked to Net Payment of GST

Maximum Eligible benefits to one unit from all components of the scheme is Rs. 250 Cr.

Q47 Answer : C

Explanation :

Context:

The Union Cabinet approved the IndiaAI Mission with an outlay of Rs 10,372 crore for the next five years.



- The IndiaAI Mission seeks to showcase to the international community the positive applications of the revolutionary technology for societal benefit, thereby elevating India's global competitiveness.
- **It will establish a comprehensive ecosystem catalysing AI innovation through strategic programmes and partnerships across the public and private sectors. Statement 2 is correct.**
- Under the India AI Mission, **to be implemented by the 'IndiaAI' Independent Business Division (IBD) under Digital India Corporation (DIC)**, the Ministry of Electronics and IT (MeitY) will look – To establish a computing capacity of more than 10,000 graphics processing units (GPUs). **Statement 1 is correct.**
- The Union Cabinet approved the IndiaAI Mission with an outlay of Rs 10,372 crore for the next five years.
- Of the total outlay (of Rs 10,372 crore), Rs 4,564 crore has been earmarked for building computing infrastructure.

Q48 Answer : C

Explanation :

Context:

Recently, Kerala declares man-animal conflict as a state-specific disaster, becoming the 1st state to do.

State Specific Disaster	Declared State
1. Snakebite	Odisha
2. Lightning	Assam
3. Coastal Erosion	Kerala
4. Sunburn	Kerala

State specific Disaster:

- **Disasters within the local context in the State that are not included in the notified list of disasters of the Ministry of Home Affairs**
- **Announced by – State Government**
- **Funding mechanism – State Disaster Response Fund (SDRF)**
- Uses up to 10% of the funds available under the SDRF for providing immediate relief to the victims
- **Responsible authority – State disaster management authority (SDMA) as per the Disaster Management Act 2005**
- **State level – The Chief Minister is the ex officio chairman of the SDMA**
- **District level – The district disaster management authority (DDMA) is headed by the district collector**
- **Powers – SDMA can take actions overriding other norms, including those under the Wildlife Protection Act.**

Disaster Management Act (2005):

- **Section 71 of the DM Act – No court (except the Supreme Court or a High Court) shall have jurisdiction to entertain any suit or proceeding in respect of anything done by relevant authorities in pursuance of any power conferred by this Act.**
- **Section 72 of the Act – The provisions of this Act will have an overriding effect on any other law during the specific period.**
- **Coverage – Natural disasters like Cyclone, drought, earthquake, flood, human-animal conflicts like snakebite etc.**

Q49 Answer : A

Explanation :

Context:

Recently, a committee of scientists voted down a proposal to declare the start of the Anthropocene (or the Human Epoch) in geologic time.

The Earth's Geologic Time Scale:

- The geologic time scale provides the official framework for our understanding of Earth's 4.5-billion-year history.
- Geoscientists use the Geologic Time Scale (GTS) to measure the history of the planet. The GTS (since the formation of Earth, roughly 4.54 billion years ago) is divided, in descending order of duration, into Eons, Eras, Periods, Epochs and Ages.

- For example, we currently live in the **Meghalayan Age**. It's part of the **Holocene Epoch**, which began at the end of the last ice age 11,700 years ago, when ice caps and glaciers began retreating.
- The Holocene is part of the Quaternary Period, the most recent division of the Cenozoic Era, which in turn is part of Phanerozoic Eon — which spans from 539 million years ago to the present.

Geological Time Scale

Eons	Era	Period	Epoch	Age/ Years Before Present	Life/ Major Events
	Cainozoic (From 65 million years to the present times)	Quaternary	Holocene Pleistocene	0 - 10,000 10,000 - 2 million	Modern Man Homo Sapiens
		Tertiary	Pliocene	2 - 5 million	Early Human Ancestor
			Miocene	5 - 24 million	Ape: Flowering Plants and Trees
	Oligocene Eocene Palaeocene		24 - 37 million 37 - 58 Million 57 - 65 Million	Anthropoid Ape Rabbits and Hare Small Mammals : Rats - Mice	
	Mesozoic 65 - 245 Million Mammals	Cretaceous		65 - 144 Million	Extinction of Dinosaurs
		Jurassic		144 - 208 Million	Age of Dinosaurs
		Triassic		208 - 245 Million	Frogs and turtles
	Palaeozoic 245 - 570 Million	Permian		245 - 286 Million	Reptile dominate-replace amphibians
		Carboniferous		286 - 360 Million	First Reptiles: Vertebrates: Coal beds
		Devonian		360 - 408 Million	Amphibians
Silurian			408 - 438 Million	First trace of life on land: Plants	
Ordovician Cambrian			438 - 505 Million 505 - 570 Million	First Fish No terrestrial Life : Marine Invertebrate	

IAS STUDY CIRCLE

Q50 Answer : B

Explanation :

Context:

Recently, former members of Google's DeepMind team, have introduced Haiper, a cutting-edge AI-powered video generation tool.

About Haiper:

- It is an all-in-one visual foundation model that allows everyone, with or without technical training, to generate high-quality video content with ease.
- According to Haiper, its model is a powerful perceptual foundation model-driven AI that has been designed for a “new path towards AGI” (artificial general intelligence, an AI software with human-like intelligence and the ability to self-learn).
- It offers tools such as text-to-video, animated static images, video repainting tools, etc. Users can go on to the website, log in with their email addresses, and start generating videos for free by typing in text prompts.

- At present, users can only generate HD video spanning 2 seconds, and a slightly lower-quality video could go up to four seconds.

Q51 Answer : C

Explanation :

- **Exploration licences aim to create an enabling mechanism wherein the Junior Mining Companies will bring in expertise from across the world in acquisition, processing and interpretation of exploration data.**
- They leverage the risk-taking ability in discovery of deep-seated mineral deposits through the adoption of expertise and the latest technologies.
- **The Exploration Licence holder will explore the blocks and identify the areas that can be auctioned for mining lease. Statement 1 is correct.**
- **Rajasthan and Karnataka have launched India's first exploration licence auction for critical minerals. Statement 2 is correct.**
- According to a Mines Ministry official, Karnataka has launched the auction of one block each of gold, copper and lithium.
- Rajasthan launched an auction of three blocks – one each of REE (rare earth element), rare metals and potash.

Q52 Answer : A

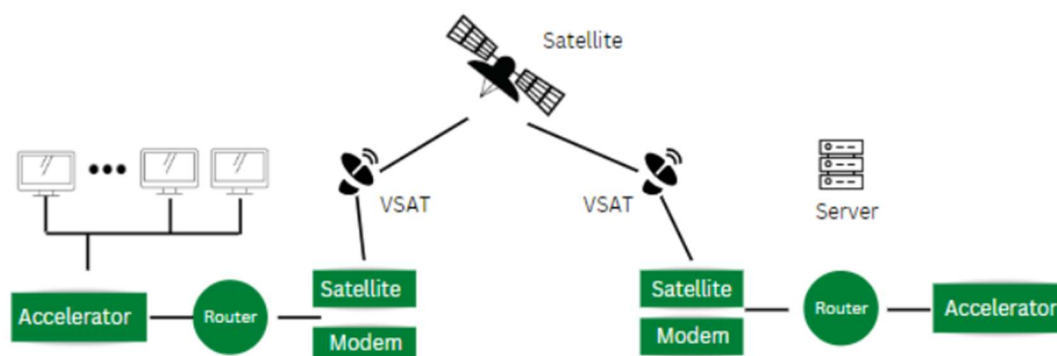
Explanation :

Context:

Recently, the Ministry of Tribal Affairs planned to collaborate with ISRO to deploy V-SAT stations on a pilot basis for around 80 tribal villages in Jharkhand, Madhya Pradesh, Odisha, and Maharashtra to bring Internet services.

About the Very Small Aperture Terminal (V-SAT) Station

- **It is a two-way satellite ground station with a dish antenna that is used to transmit narrowband data or broadband data for the provision of satellite Internet access to remote locations. Statement 1 is correct.**
- **It can be used in place of a large physical network as it bounces the signal from satellites instead of being transported through physical means like an ethernet connection. Statement 2 is correct.**



Significance

- It aims to bring connectivity to geographically remote villages with difficult terrain, and have the potential to significantly address connectivity challenges in remote areas.
- It is a significant step towards achieving digital inclusivity.
- It can provide services such as Internet, medical, and educational connectivity, and to help with e-governance in these remote areas.

Concerns

- **Because the signal needs to bounce, there can be a latency issue that wouldn't exist with a physical network. Statement 3 is incorrect.**
- It takes time for information to reach the dish and the station due to one part of the system being way up in geosynchronous orbit above the earth.
- **The signal quality can be affected by the weather and other environmental conditions. Statement 4 is correct.**

Q53 Answer : D

Explanation :

Context:

The Supreme Court, while denying the plea of juvenility preferred by a convict in a murder case, observed that to determine age, the ossification test stands last in the order of priorities.

About Ossification Test:

- **Ossification is the process of bone formation that occurs in humans from infancy until the end of adolescence.**
- During this time, various bones in the body undergo calcification, or hardening, as minerals such as calcium and phosphorus are deposited in the bone matrix.
- As a person ages, the rate of bone formation slows down, and eventually, the bones become more brittle and prone to fracture.
- Due to the predictable nature of this process, scientists have been able to develop methods for estimating a person's age based on the degree of bone ossification in specific bones.
- One such method is the ossification test, also known as the epiphyseal fusion test.
- This test involves examining x-rays of certain bones in the body, specifically the clavicle, sternum, and pelvis, to determine the degree of ossification.
- These bones are chosen because they tend to undergo the most dramatic changes in structure as a person ages.
- Based on the degree of ossification, the professional can estimate the person's age within a certain range.

Drawbacks:

- **It only provides an individual's 'estimated' age rather than their actual age.**

- Even when testing several joints, the ossification test allows a buffer of at least six months on either side. It occasionally displays a four-year fluctuation.
- There can be significant individual variation in the rate and pattern of bone ossification.
- Additionally, factors such as disease, injury, and malnutrition can all affect the degree of bone ossification, making it more difficult to accurately estimate a person's age.

Q54 Answer : C

Explanation :

Context:

Recently, Atal Innovation Mission (AIM), NITI Aayog and Meta have announced the launch of Frontier Technology Labs (FTLs).

- It is an advanced version of Atal Tinkering Lab.
- **The initiative aims to advance the government's agenda of digital inclusion, skilling and growth. Statement 1 is correct.**
- **Collaboration: Atal Innovation Mission and Meta will partner to set up FTLs in schools of strategic importance to ensure that students from diverse backgrounds across India will have equal opportunities to learn and engage with frontier technologies. Statement 2 is correct.**
- **Funding: The FTLs will be funded by Meta and Atal Innovation Mission will be the knowledge partner.**
- It is equipped with state-of-the-art infrastructure, including all components of the Tinkering Lab to empower students to innovate using technologies like Artificial Intelligence, Augmented & Virtual Reality, Blockchain, Cybersecurity, Robotics, 3D Printing, and Internet of Things.
- The FTLs are a part of Meta's Education to Entrepreneurship initiative, launched in September 2023, to seamlessly connect students, youth, workforce, and micro-entrepreneurs with futuristic technologies, taking digital skilling to the grassroots.
- These labs will be managed by Meta's partner 1M1B (One Million for One Billion).
- **Significance:** The labs support the Government's focus on equipping youth with digital skills to succeed in the evolving landscape of technology and the global economy.

Q55 Answer : C

Explanation :

Context:

Recently, Inflection AI company launched its latest LLM, Inflection 2.5, an upgrade to its model that powers its friendly chatbot Pi personal assistant.

- **It is an "upgraded in-house model that is competitive with all the world's leading LLMs.**
- **The newly upgraded Large Language Model comes with its signature personality and uniquely empathetic fine-tuning.**

- It has made some stellar strides in areas of IQ such as coding and mathematics.
- With the new upgrade, Pi has now been endowed with world-class real-time web search capabilities to ensure that users get access to high-quality and up-to-date information in real time.
- The new LLM, users are talking to the Pi chatbot about a wider range of topics including discussing current events, getting local restaurant recommendations, studying for a biology exam, drafting business plans, coding, and even fun discussions on hobbies.

What is PI chatbot?

- **Pi is an AI chatbot with which one can have deep and meaningful conversations.**
- To access the chatbot, one needs to log on to Inflection.AI, click on Meet Pi, and simply start talking to the chatbot right away.
- It is more humane and has been promoted as a chatbot that has a personality.
- It is more like a companion to humans and is free to use.
- The chatbot comes with a voice, in six distinct voices, to choose from adding life to conversations.
- The chatbot has been shown billions of lines of text on the open web.
- This allows Pi to have conversations with users and answer a wide variety of questions, according to the company.

Q56 Answer : D

Explanation :

Context:

Scientists have discovered an exception to a 200-year-old Fourier's Law that governs how heat diffuses through solid materials.

About Fourier's Law:

- **Fourier's law, or Law of Heat Conduction, describes how heat is transferred, or conducted, through solid materials.**
- As molecules vibrate and electrons shuttle about, the heat diffuses from the hotter end of an object to the colder end.
- It states that the rate of heat conduction through a plane layer is proportional to the temperature gradient across the layer and the heat transfer area of the layer.
- Basically, it is an empirical relation between the rate of heat conduction, heat transfer, and temperature gradient in the direction of heat flow.

What is Conduction?

- **Conduction is the process by which heat energy is transmitted through collisions between neighbouring atoms or molecules.**
- **Conduction occurs more readily in solids and liquids, where the particles are closer together than in gases, where particles are further apart.**
- Anything that involves direct physical contact to transfer heat is an example of conduction.

Q57 Answer : C

Explanation :

- **Established during the 45th G7 summit held in Biarritz, France, in August 2019. Statement 1 is correct.**
- **Aims to address gender disparities and promote women's empowerment globally. Statement 2 is correct.**

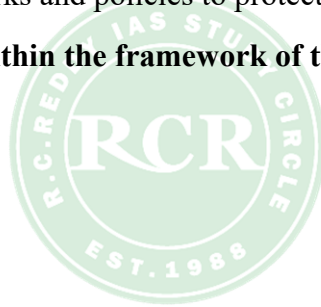
Key Objectives:

- Advance gender equality in education, including access to quality education for girls.
- Promote women's entrepreneurship and economic empowerment, ensuring equal opportunities in the workforce.
- Enhance women's participation and leadership in decision-making processes across various sectors.
- Combat gender-based violence and ensure access to justice and support for survivors.
- Improve sexual and reproductive health and rights, including access to healthcare services and information.
- Strengthen legal frameworks and policies to protect and promote women's rights.

National commitments taken within the framework of the Biarritz Partnership

Individual actions of the G7:

- Canada
- European Union
- France
- Germany
- Italy
- Japan
- United Kingdom
- United States



Individual actions of G7 Biarritz partners joint the coalition:

- Australia
- Chile
- India
- Senegal
- Spain
- Ukraine

Q58 Answer : C

Explanation :

Context:

Ministers of Health from African countries with the highest burden of malaria recently signed the Yaounde Declaration with the objective of ending malaria deaths.

About Yaounde Declaration

- **It was signed by the health ministers of 11 African countries with the highest burden of malaria, committing to accelerated action to end deaths from the malaria disease.**
- It was signed at the Yaoundé conference, co-hosted by the World Health Organization (WHO) and the Government of Cameroon.
- The conference gathered Ministers of Health, global malaria partners, funding agencies, scientists, civil society organizations, and other principal malaria stakeholders.
- **The 11 countries that signed the declaration are: Burkina Faso, Cameroon, the Democratic Republic of the Congo, Ghana, Mali, Mozambique, Niger, Nigeria, Sudan, Uganda and Tanzania. These countries carry roughly 70% of the global malaria burden.**
- **They pledged to sustainably and equitably address the threat of malaria in the African region, which accounts for 95% of malaria deaths globally.**
- They committed to provide stronger leadership and increased domestic funding for malaria control programmes; to ensure further investment in data technology; to apply the latest technical guidance in malaria control and elimination; and to enhance malaria control efforts at the national and sub-national levels.
- The ministers further pledged to increase health sector investments to bolster infrastructure, personnel, and programme implementation; to enhance multi-sectoral collaboration; and to build partnerships for funding, research, and innovation.

Q59 Answer : A

Explanation :

Context:

The most critical issue of the 2019 amalgamation of Regional Rural Banks (RRBs) was that of technology, systems and procedures, as different banks followed different systems and procedures despite the same core banking platform, says a new book.

About Regional Rural Banks (RRBs):

- RRBs are banks formed in collaboration by the Central Government, State Governments, and Sponsoring Commercial Banks to give loans to rural areas.
- Their mission is to fulfill the credit needs of the relatively unserved sections in rural areas: small and marginal farmers, agricultural labourers, and socio-economically weaker sections.
- The RRBs mobilize financial resources from rural / semi-urban areas and grant loans and advances mostly to small and marginal farmers, agricultural labourers, and rural artisans.

Origin:

- **The Narasimham Committee on Rural Credit (1975) recommended the establishment of RRBs. Statement 1 is incorrect.**
- **The establishment of RRBs finds its route in the ordinance passed on 26th September 1975, and the RRB Act of 1976.**

- **Prathama Grameen Bank was the first RRB bank and was established on 2nd October 1975. Statement 2 is correct.**
- RRBs were configured as hybrid micro banking institutions, combining the local orientation and small-scale lending culture of the cooperatives with the business culture of commercial banks.

RRBs perform various functions in the following heads:

- Providing banking facilities to rural and semi-urban areas.
- Carrying out government operations like the disbursement of wages of MGNREGA workers, distribution of pension, etc.
- Providing Para-Banking facilities like locker facilities, debit and credit cards, mobile banking, internet banking, UPI etc.

The RBI has set a Priority Sector Lending (PSL) target of 75% of total outstanding advances for RRBs as against 40% for Scheduled Commercial Banks. Statement 3 is incorrect.

- **Ownership:** The shareholding pattern of RRBs among the three sponsoring entities is 50:35:15 among the central government, sponsoring bank, and state government, respectively.
- The area of operation of RRBs is limited to the area as notified by the Government of India, covering one or more districts in the State.
- **Regulation: Regional Rural Banks are regulated by the RBI and supervised by the National Bank for Agriculture and Rural Development (NABARD). Statement 4 is incorrect.**
- **Sources of Funds:** It comprise of owned funds, deposits, borrowings from NABARD, Sponsor Banks and other sources, including SIDBI and the National Housing Bank.
- **Management:** The Board of Directors manages these banks, overall affairs, which consists of one Chairman, three Directors as nominated by the Central Government, a maximum of two Directors as nominated by the concerned State Government, and a maximum of three Directors as nominated by the sponsor bank.

Q60 Answer : A

Explanation :

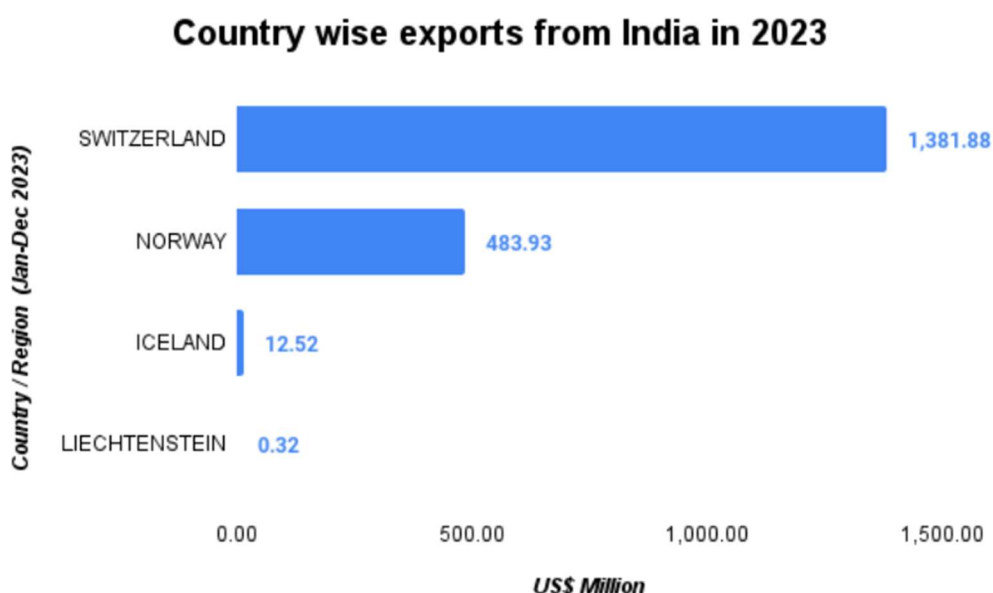
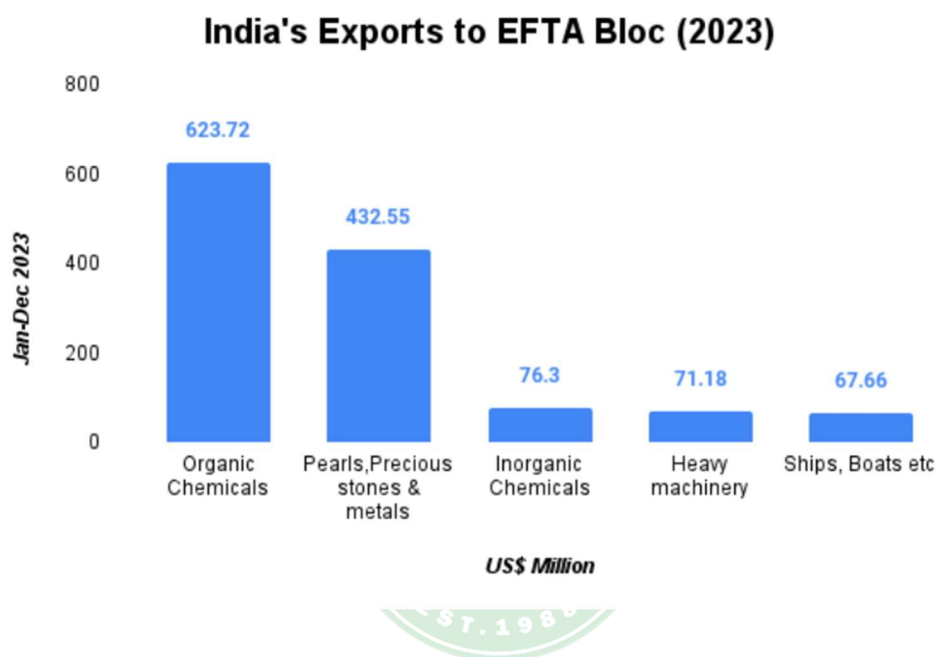
Context:

India signed a free trade agreement (FTA) with four European countries — Iceland, Liechtenstein, Norway, and Switzerland, recently, with a goal of reaching \$100 billion in investments in India and one million jobs within 15 years.

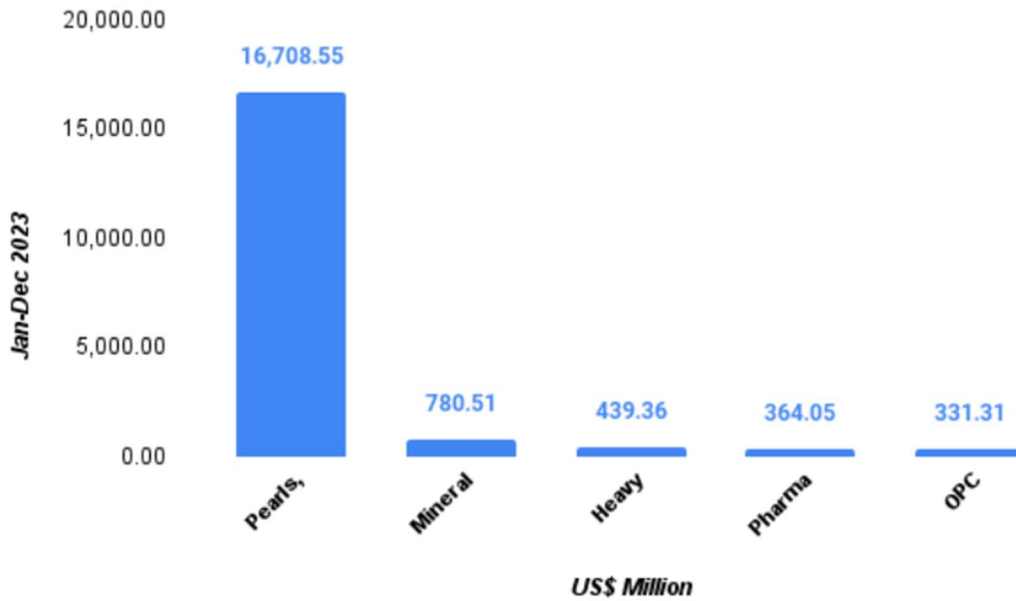
India-EFTA Pact: Trade and Economic Partnership Agreement (TEPA)

- Signed on: March 10, 2024
- **Involves: India and EFTA member states: Iceland, Liechtenstein, Norway, and Switzerland.**
- Goal: Promote investments and exports, particularly in India's IT, audio-visual sectors, and skilled professional movement.

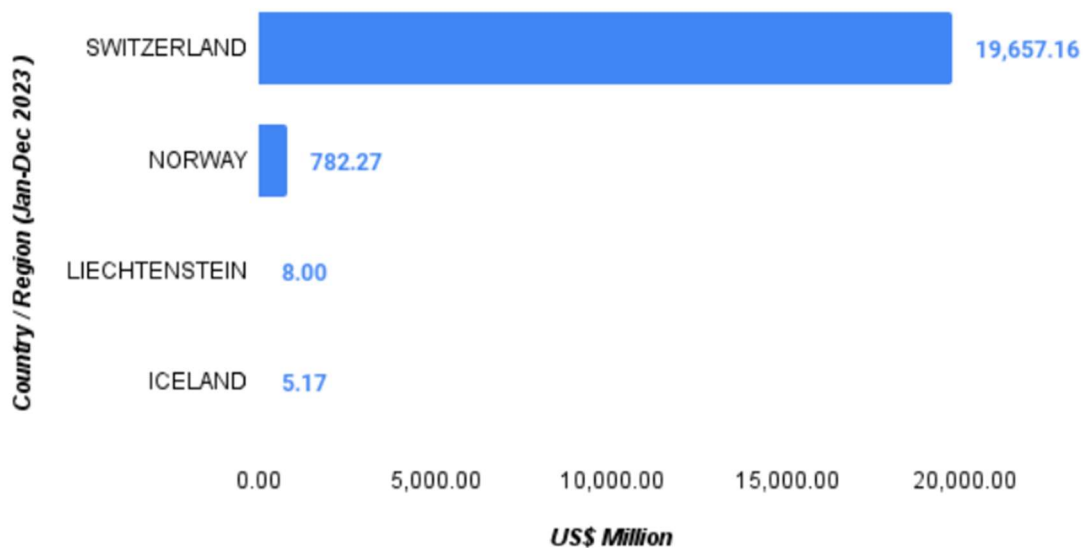
- Investment target: The EFTA states shall aim to increase FDI into India by \$50 billion within 10 years, and another \$50 billion in the five years thereafter.
- Additional provisions: For the first time, the FTA also included a chapter on commitments to human rights and sustainable development.
- The agreement will come into force after ratification by the EFTA states, expected possibly by the end of the year.



Indian Imports from EFTA bloc (2023)



Country wise Imports to India in 2023



Q61 Answer : D

Explanation :

Context:

Core inflation is likely to remain low, around 3% in the near term, owing to weak rural demand, softness in housing inflation, and lower input cost pressures, according to economists.

About Core Inflation:

- **It is the change in the costs of goods and services excluding the price variations in seasonal elements, such as those related to food and energy. Statement 1 is correct.**
- Food and energy prices are exempt from this calculation because their prices can be too volatile or fluctuate wildly.
- **Core inflation represents the long-term trend in the price level. Statement 2 is correct.**

Why is it important?

- **It is used to determine the impact of rising prices on consumer income. Statement 3 is correct.**
- To deal with such situations, many central banks use measures of core inflation that are designed to filter transitory price movements.
- If the increase in the price index is due to temporary shocks that could soon reverse themselves, it may not require any monetary policy action.
- On the other hand, prices of other commodities do not fluctuate as regularly as those of food and fuel: as such, increase in their prices could be taken relatively to be much more of a permanent nature.
- It follows logically for Central Banks to target only core inflation, as it reflects the demand-side pressure in the economy.
- Core inflation, by eliminating the volatile components from the headline helps in identifying the underlying trend in headline inflation and is believed to predict future inflation better.
- It is a convenient guide to help the central bank achieve its objective of controlling total inflation.
- Whenever core inflation rises, Central Banks increase their key policy rates to suck excess liquidity from the market, and vice versa. It is, therefore, a preferred tool for framing long-term policy.

Q62 Answer : C

Explanation :

Context:

The Prime Minister of India on 11th March will disburse around Rs 8,000 crore Bank loans to Self Help Groups (SHGs) at subsidised interest rate through Bank Linkage Camps set up by Banks in each district.

- **It was launched by NABARD in 1992 which has blossomed into the world's largest microfinance project. Statement II is incorrect.**
- **It has evolved as a cost-effective mechanism for providing financial services to unreached and underserved poor households. Statement I is correct.**

The components of Self-Help Group (SHG) Bank linkage (BL) are as follows:

- Training and sensitization of Bank Branch Managers.
- Training and positioning of Bank Sakhis at Rural Bank Branches.
- Initiate Community Based Repayment Mechanism (CBRM) at Rural Bank Branches.
- Credit Linkage of SHGs.

What are Self-Help Groups?

- These are small, informal, and voluntary associations of individuals, usually from similar socio-economic backgrounds, who come together to address common social and economic needs.
- SHGs are primarily focused on empowering their members, particularly women, through mutual support, collective decision-making, and skill development.
- The SHGs which follow 'Panchsutras' viz. conduct of regular group meetings, regular savings within the group, internal lending based on the demand of members, timely repayment of loan and maintenance of proper books of accounts are considered to be of good quality and over years have proved themselves to be good customers of Banks.

Q63 Answer : A

Explanation :

Prime Minister Narendra Modi will inaugurate the strategically significant Sela Tunnel project during his day-long visit to Arunachal Pradesh.

- **The tunnel is situated at an altitude of 13,700 feet in West Kameng district on the road connecting Tezpur to Tawang in Arunachal Pradesh.**
- The project provides all-weather connectivity to the Tawang region, the part contested by China which describes it as a part of the ancient territory.
- The tunnel will also reduce more than one hour of travelling time from Tezpur to Tawang.

Scientists have revealed that a drilling incident took place in Kazakhstan in 2023 was possibly the 2nd biggest man-made methane leak ever in history.

- **The drilling incident took place at an exploration well in the Mangistau region of southwestern Kazakhstan in 2023.**
- It caused a fire that raged and released 127,000 tonnes of methane into the atmosphere.

Exercise Cutlass Express – 24 was held at Port Victoria, Seychelles.

- Exercise Cutlass Express is designed to improve regional cooperation, maritime domain awareness and information sharing practices to increase capabilities between the United States of America (U.S), East African and Western Indian Ocean nations to counter illicit maritime activity in the Western Indian Ocean.
- The exercise aims to improve regional cooperation in support of the Djibouti Code of Conduct and maritime domain awareness.
- Djibouti Code of conduct: It is also known as the Code of Conduct concerning the Repression of Piracy and Armed Robbery against Ships in the Western Indian Ocean and the Gulf of Aden.

The Badwater Basin is known for being the lowest point in North America, with an elevation of 282 feet (86 meters) below sea level. Death Valley, where the Badwater Basin is located, experiences extreme heat during the summer months, with temperatures often exceeding 120°F (48.9°C). In contrast, winter temperatures in Death Valley can be relatively cool.

Q64 Answer : A

Explanation :

Context:

Recently, the Blue Leaders High-Level Event on Biodiversity Beyond National Jurisdiction was held in Belgium.

- **The Blue Leaders are an ambitious group of countries calling for urgent action to save the global ocean in the face of the climate crisis, overfishing, pollution, and other threats. Statement 1 is correct.**
- The first Blue Leaders event took place in New York on the margins of the 2019 United Nations General Assembly and the second in Madrid, Spain during the 2019 UN Climate Change Conference, ‘The Blue COP.’

The Blue Leaders are committed to two major goals:

- **Securing a new international target to protect at least 30% of the global ocean through a network of highly and fully protected marine areas by 2030. Statement 2 is incorrect.**
- The rapid and successful conclusion of a new High Seas Treaty that provides for establishment of fully and highly protected marine areas in the high seas and strengthens management of human activities outside protected areas.
- Member countries: The group of Blue Leaders has 24 countries as its members.
- **India is not a member of this group. Statement 3 is incorrect.**

Q65 Answer : C

Explanation :

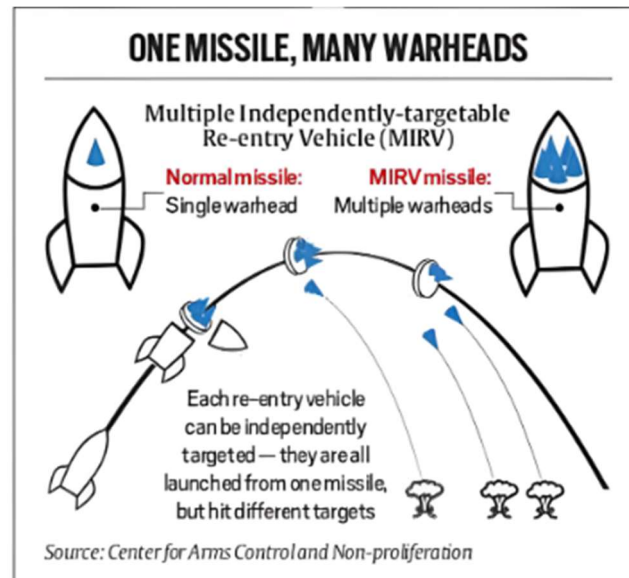
Context:

India recently successfully tested a new Agni-V missile with MIRV (Multiple Independently Targetable Re-entry Vehicle) technology, capable of carrying multiple warheads and striking multiple targets.

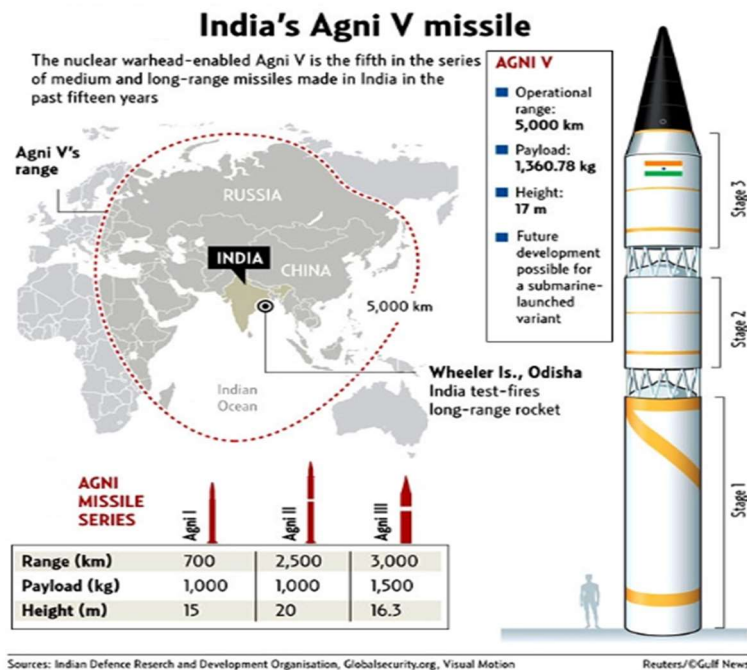
MIRV technology

- **MIRV (Multiple Independently Targetable Re-entry Vehicle) technology is the capability that allows multiple warheads to be loaded on a single missile delivery system and programmed to hit different targets, thus greatly enhancing the missile’s destructive potential. Statement 1 is correct.**
- **They can all be made to hit the same location too, one after the other, thus ensuring complete annihilation of the target. Statement 2 is correct.**
- The technology was developed in the 1960s and first deployed in the 1970s by the United States and the then Soviet Union.
- **Over the years, France, the United Kingdom, and eventually China have developed this technology. Pakistan too has claimed to have tested an MIRV-equipped missile called Ababeel, first in 2017 and then in 2023.**

- The number of warheads that a missile can carry depends on its design, weight, size, range and other parameters. The one that India tested can carry three to four warheads.
- **However, an MIRV-equipped missile has never been used so far in any conflict situation. Statement 3 is correct.** Arms control advocates argue that MIRV technology incentivises the urge to strike first, thus increasing the risk from nuclear weapons.



Agni-V Missile: One Missile, Many Weapons



- **The integration of MIRV technology is a long-awaited upgrade for the Agni family of short, medium and intercontinental range ballistic missiles indigenously developed by the DRDO.**

- Agni missiles are the main land-based delivery systems for India's nuclear weapons.
- Developed in the 1990s, the first-generation Agni missiles were deployed in the armed forces in the mid-2000s.
- **Agni-I to Agni-IV missiles have ranges between 700 to 3,500 km and can carry single payloads weighing between 12 and 40 kilotons.**
- **Agni-V, the version that has been equipped with MIRV technology, can travel more than 5,000 km, and can potentially enter the intercontinental range as well, considered to be 5,500 km and above.**
- Meanwhile, DRDO has also been developing Agni-P missiles, which are modernised versions of the short-range Agni-1 and Agni-2 variety. There was the expectation that it would be integrated with MIRV technology.
- The acquisition of MIRV technology by India was keenly awaited after China developed it in the last decade. With Pakistan also claiming to have tested a missile with this technology, integrating this in Agni missiles had become an imperative.
- The next generation Agni-VI missile, currently under development, is also expected to be equipped with MIRV.

Q66 Answer : D

Explanation :

Context:

Recently, the Ministry of Home Affairs (MHA) notified the Rules under the Citizenship (Amendment) Act, 2019 (CAA-2019) called "the Citizenship (Amendment) Rules, 2024". It enables the persons eligible under CAA-2019 to apply for grant of Indian citizenship.

- **The CAA allows non-Muslim migrants from Pakistan, Bangladesh, and Afghanistan to seek Indian citizenship through naturalisation (not registration), provided they belong to the Hindu, Sikh, Christian, Parsi, Jain, and Buddhist communities who entered India on or before 31st December, 2014. Statement I is incorrect.**
- **Members of the designated communities under the Act are exempted from criminal cases under the Foreigners Act, 1946, and the Passport Act, 1920, if they entered India before December 31, 2014. Statement II is correct.**
- The two Acts specify punishment for entering the country illegally and staying here on expired visas and permits.

About Citizenship (Amendment) Act, 2019:

- The Citizenship Amendment Act (CAA) amends the Citizenship Act of 1955 to provide a path to Indian citizenship for Hindus, Sikhs, Christians, Buddhists, Jains, and Parsis who migrated from neighbouring Muslim-majority countries such as Pakistan, Bangladesh, and Afghanistan, before December 31, 2014.
- Under the CAA, migrants who entered India till December 31, 2014, and had suffered "religious persecution or fear of religious persecution" in their country of their origin would be made eligible for accelerated citizenship.
- It relaxed the residence requirement for naturalisation of these migrants from twelve years to just six.

- The cut-off date for citizenship is December 31, 2014, which means the applicant should have entered India on or before that date.
- The law exempts the tribal areas of Assam, Meghalaya, Mizoram, and Tripura as included in the Sixth Schedule of the Constitution, including the tribal areas of Karbi Anglong in Assam, Garo Hills in Meghalaya, Chakma district in Mizoram, and Tribal areas district in Tripura.
- It also includes a provision for the cancellation of Overseas Citizen of India (OCI) registration if the OCI cardholder violates any provision of the Citizenship Act or any other applicable law.

Q67 Answer : B

Explanation :

Context:

Recently, the Gorsam Kora Festival was celebrated as ‘India-Bhutan Friendship & Shared Cultural Heritage of Himalayan Buddhism’ in Tawang of Arunachal Pradesh.

Indian Festival	Associated State
1. Gorsam Kora Festival	Arunachal Pradesh
2. Myoko Festival	Arunachal Pradesh
3. Kharchi Puja	Tripura
4. Saga Dawa	Sikkim

Gorsam Kora Festival:

- It is an annual festival, celebrated in the scenic Zemithang Valley along the Nyanmjang Chu River of Tawang district in Arunachal Pradesh, India.
- It is held at the Gorsam Chorten, a 93-foot-tall Stupa built during the 13th century AD by a local monk, Lama Pradhar.
- This landmark is older than the Tawang Monastery, and is an icon for Himalayan Buddhism.
- It is observed during the last day of the first month of the Lunar calendar.
- It features a diverse array of events, including enthralling performances by local cultural troupes and the Indian Army bands, and martial performances like Mallakhamb and Zanjh Pathaka.
- It symbolises the enduring friendship between India and Bhutan.

Historical Significance

- The 14th Dalai Lama found refuge upon his escape from Tibet in 1959 in Zemithang Valley.
- The Gorsam Chorten is modelled after the Boudhinath Stupa of Nepal and has a spiritual companion, the Chorten Kora in Trashiyangtse of Bhutan, built in 1740.

Q68 Answer : D

R.C.REDDY IAS STUDY CIRCLE

Current Affairs Test Series for CSE Prelims - 2024

Explanation :

Context:

Recently the SheRNI Portal was launched by the University Grants Commission (UGC) to connect, support women scientists and faculty members across India.

SheRNI – She Research Network in India.

- The objective of SheRNI is to create a national-level expert platform for women faculty members and facilitate the exchange of expertise, insights and experiences across diverse fields.
- The SheRNI platform will connect more than 81,000 profiles of Indian women in science and research across various domains.
- The platform was launched by the Information and Library Network (INFLIBNET) of the University Grants Commission (UGC).
- Information and Library Network (INFLIBNET) – Is an Autonomous Inter-University Centre (IUC) of University Grants Commission.
- It is a major National Programme initiated by the UGC on February 1991 as a project under the Inter-University Centre for Astronomy and Astrophysics (IUCAA).
- It became an independent Inter-University Centre on 16th May 1996.
- It is involved in modernizing university libraries in India using the state-of-art technologies for the optimum utilisation of information.

Q69 Answer : A

Explanation :

Context:

The domestic sponge iron manufacturers fear a continuous shortage of iron ore may bring them to the brink of collapse.

- **Direct-reduced iron (DRI), also called sponge iron, is produced from the direct reduction of iron ore (in the form of lumps, pellets, or fines) by a reducing gas produced from natural gas or coal.**
- **This process of reducing the iron ore in solid form by reducing gases is called direct reduction. Statement 1 is correct.**
- **The reducing gas is a mixture, the majority of which is hydrogen (H₂) and carbon monoxide (CO), which act as reducing agents. Statement 2 is incorrect.**

Why is it called Sponge Iron?

- The process of sponge iron manufacturing involves the removal of oxygen from iron ore.
- When that happens, the departing oxygen causes micropores in the ore body, turning it porous.
- When the eventual product is observed under a microscope, it resembles a honeycomb structure, which looks spongy in texture. Hence the name sponge iron.

India is the world's largest producer of sponge iron, most of which is produced primarily through the coal-based method of production. India produces 20% of the world's sponge iron with over 200 plants. Statement 3 is incorrect.

Q70 Answer : D

Explanation :

Context:

The Cabinet Committee on Security (CCS) has recently approved the project for the design and development of India's fifth-generation fighter jet, Advanced Medium Combat Aircraft (AMCA).

- **Advanced Medium Combat Aircraft (AMCA) will be India's indigenous fifth-generation stealth fighter aircraft. Statement 1 is correct.**
- The Aeronautical Development Agency (ADA) under the Defence Research and Development Organisation (DRDO) will be the nodal agency for executing the programme and designing the aircraft.
- **It will be manufactured by state-owned Hindustan Aeronautics Limited (HAL).**
- **Features of AMCA – It is a 25-tonne twin-engine aircraft, which will be bigger than other fighters in the Indian Air Force.**
- It has a diverter-less supersonic inlet for controlling air flow into the engines and a serpentine air intake duct to shield the engines from radar emission are likely to be part of the AMCA.
- **Stealth features such as an internal weapons bay and a bigger internal fuel tank are part of it.**
- **Engine – The AMCA Mk1 variant will have the US-built GE414 engine of the 90 kilonewton (kN) class, while the more advanced AMCA Mk2 will fly on the more powerful 110kN engine.**
- The AMCA Mk2 will be developed indigenously by DRDO's Gas Turbine Research Establishment (GTRE) in collaboration with a foreign defence major.
- The indigenous Light Combat Aircraft (LCA) Tejas is a 4.5-generation single-engine multirole aircraft.
- **Fifth-generation stealth fighter aircraft – At present, only USA, Russia and China have built fifth-generation fighters. Statement 2 is correct.**

Q71 Answer : C

Explanation :

Context:

The Mumbai bench of the Income Tax Appellate Tribunal (ITAT) recently observed that the assessee was entitled to claim credit for Minimum Alternate Tax (MAT) under the Vivad se Vishwas (VSV) Scheme for the year under consideration.

- MAT is a tax mechanism intended to guarantee that businesses, particularly those who make significant profits, pay the government a minimum amount of tax.
- **It was implemented in India in 1987 as a component of the Income Tax Act, 1961, and is applicable to all businesses operating in India or from other countries.**
- **The Finance Act, 1987 introduced MAT in the form of a tax on book profits in Section 115J of Income Tax Act. Statement 1 is correct.**

- This tax was implemented to make sure that no person with a significant amount of income would be able to avoid paying taxes due to any exemptions.

All companies are required to pay corporate tax based on which is higher of the following:

- **Normal Tax Liability:** Tax computed as per the normal provisions of the Income-tax Law, i.e., by applying the relevant tax rate to the taxable income of the company.
- **Minimum Alternate Tax (MAT):** Tax computed at 15% (previously 18.5%) on book profit plus cess and surcharge.
- **MAT is calculated on the “book profits” of a company, which is different from the taxable profits computed under the regular provisions of the Income Tax Act.**
- **What is MAT credit? When the amount of MAT for a company is greater than its normal tax liability, the difference between MAT and normal tax liability is called MAT Credit. Statement 2 is correct.**

Q72 Answer : D

Explanation :

Context:

The Central Government recently rolled out a Uniform Code for Pharmaceutical Marketing Practices (UCPMP) for pharmaceutical companies.

About UCPMP 2024

- **It has been implemented to control unethical practices in the pharma industry.**
- The updated guidelines include drug endorsement, promotion, ethical conduct for medical representatives, and maintaining relationships with healthcare professionals.

Important Provisions:

- **It prohibits pharma companies from offering gifts and travel facilities to healthcare professionals or their family members. Statement 1 is correct.**
- The UCPMP mandates that medical representatives must not employ any inducement or subterfuge to gain an interview, and they must not pay, under any guise, for access to a healthcare professional.
- It also holds companies responsible for the actions of the medical representatives.
- **It also bans the supply of free samples to those who are not qualified to prescribe such a product. Statement 2 is correct.**
- Each pharma company also needs to maintain details such as product name, doctor name, the number of samples given, date of supply of free samples to healthcare practitioners, etc., and the monetary value of samples so distributed should not exceed two percent of the company's domestic sales per year.
- All pharmaceutical associations must constitute an Ethics Committee for Pharmaceutical Marketing Practices (ECPMP), set up a dedicated UCPMP portal on their website, and take further necessary steps towards the implementation of this Code.
- It also lists in detail how the drug should be promoted, both in texts and in the audio-visual market.

- The information about drugs must be balanced, up-to-date, and verifiable, and must not mislead either directly or by implication.
- The pharma companies should not make claims and comparisons of their drug's usefulness, and the word "safe" must not be used without qualification.
- The word "new" must not be used to describe any drug which has been generally available or any therapeutic intervention which has been generally promoted in India for more than a year.
- The responsibility for adherence to the code rests with the Chief Executive Officer of pharmaceutical companies.
- It also detailed the penalties for violating the code and how complaints will be handled.
- Any violations of the code will be addressed by the ECPMP, ensuring accountability and oversight.
- **It also regulates events, seminars and workshops involving the pharmaceutical industry and healthcare professionals, permitting them to hold such events only under well-defined and transparent circumstances.**
- **Besides, it requires all pharma companies to disclose details of such events, including expenditure. Statement 3 is correct.**

Q73 Answer : D

Explanation :

Context:

MIT chemists have designed a sensor that detects tiny quantities of perfluoroalkyl and polyfluoroalkyl substances (PFAS) chemicals found in food packaging, nonstick cookware and many other consumer products.

About Per- and Polyfluoroalkyl substances (PFAS):

- **These are a group of human-made chemicals that have been widely used in various industrial and commercial applications.**
- They were first used in the 1940's and are now in hundreds of products.

Properties

- **These compounds are also known as "forever chemicals" because they do not break down naturally.**
- **Chemically, individual PFAS can be very different. However, all have a carbon-fluorine bond, which is very strong and therefore, they do not degrade easily.**
- These are known for their unique properties, such as high chemical stability and resistance to heat, grease, and water.

Applications: These are used in stain- and water-resistant fabrics and carpeting, cleaning products, paints, and fire-fighting foams.

Impacts:

- **The widespread use of PFAS has resulted in increasing levels of contamination of the air, water, and soil.**

- Exposure to PFA attributes to variety of health risks including decreased fertility, developmental effects in children, interference with body hormones, increased cholesterol levels and increased risk of some cancers.

Q74 Answer : D

Explanation :

Context:

The Prime Minister recently witnessed the tri-service exercise 'Bharat Shakti' in Pokhran, Rajasthan.

About Exercise 'Bharat Shakti'

- **It is an integrated tri-service firepower and manoeuvre exercise, showcasing the prowess of indigenously manufactured defence equipment across the three services.**
- **Location: Pokhran, Rajasthan.**
- The exercise involves the showcasing of the calibrated tactical employment of niche technology in a tri-services environment against perceived threats.
- The exercise displays an array of indigenous weapon systems and platforms as a demonstration of the prowess of the country, premised on the nation's Aatmanirbhar Bharat initiative.
- It will also simulate realistic, synergised, multi-domain operations displaying the integrated operational capabilities of the Indian armed forces to counter threats across land, air, sea, cyber, and space domains.
- **It features indigenous weapon systems: T-90 (IM) Tanks, Dhanush and Sarang Gun Systems, Akash Weapons System, Logistics Drones, Robotic Mules, ALH, and various unmanned aerial vehicles from the Indian Army showcasing the advanced ground warfare and aerial surveillance capabilities.**
- The Indian Navy displays Naval Anti-Ship Missiles, Autonomous Cargo Carrying Aerial Vehicles, and Expendable Aerial Targets.
- The Indian Air Force showcases indigenous aircraft: Light Combat Aircraft Tejas, Light Utility Helicopters, and Advanced Light Helicopters.

Q75 Answer : C

Explanation :

Article 341 of the Indian Constitution authorises the President to declare certain castes and classes as Scheduled Castes in a state or a union territory. Statement I is correct.

It also states that the Parliament can include or exclude any caste or tribe from the list.

However, it does not explicitly grant authority to state governments to decide on the division of SC quotas. Statement II is incorrect.

The determination of the SC quota division is primarily governed by central legislation and policies, often in consultation with state governments, but the final authority typically rests with the central government.

EV Chinnaiah vs. State of Andhra Pradesh.

- The Chinnaiah judgement had held that any ‘sub-classification’ of the scheduled castes would violate Article 14 (right to equality) of the Constitution.
- **The 2004 verdict had stated that only Parliament, and not state legislatures, can exclude castes deemed to be SC from the Presidential List under Article 341 of the Constitution.**

Recently, a SC bench was hearing 23 petitions, including the lead one filed by the Punjab government challenging the 2010 verdict of the Punjab and Haryana High Court.

- **The high court had struck down Section 4(5) of the Punjab Scheduled Castes and Backward Classes (Reservation in Services) Act, 2006 which provided 50 per cent quota and the first preference to ‘Valmiki’ and ‘Mazhabi Sikhs’ castes in public jobs within the SC quota.**

Q76 Answer : D

Explanation :

The Majuli Masks of Assam:

- **These are handmade masks traditionally used to depict characters in ‘Bhaonas’, or theatrical performances with devotional messages under the neo-Vaishnavite tradition.**
- These are made of bamboo, clay, dung, cloth, cotton, wood, and other materials available in the riverine surroundings of their makers.
- It depicts gods, goddesses, demons, animals, and birds etc.
- It was introduced by the 15th-16th century reformer saint Srimanta Sankardeva.
- **Categories:**
 - **Mukha Bhaona: It covers the face;**
 - **Lotokoi: Bigger in size extends to the chest; and,**
 - **Cho Mukha: It is a head and body mask.**
- **Cultural Significance:** The masks are an integral part of the Sankardev tradition, used in traditional performing arts such as Borgeet (Songs), Sattriya (Dance), and Bhaona (Theatre), which are practised in the Sattras.

Q77 Answer : B

Explanation :

Context:

Karnataka bans harmful dyes in Gobi Manchurian, cotton candy, imposing imprisonment of up to seven years and fines of up to Rs 10 lakh for violators.

HARMFUL COLOURS FOUND IN FOOD

Rhodamine B: It is used as an industrial dye. Because of its low cost, Rhodamine B is often used for food colouring – an illegal practice by all means. It has been classified as a potential carcinogen by the International Agency for Research on Cancer (IARC). Its prolonged use in food can lead to liver dysfunction or cancer



Carmoisine: A synthetic food dye, it is also called Food Red. IARC classifies it as a category 3 carcinogen. Its prolonged consumption can affect liver, kidneys and trigger behavioural changes among children, besides triggering skin rashes, and respiratory allergies

Sunset Yellow: It is a synthetic dye used in food, drugs, and cosmetics. If consumed alone or in combination with other dyes, Sunset Yellow can cause allergic or pseudo-allergic reactions and severe reactions among asthma and urticaria patients

Tartrazine: A yellow, nitrous derivative compound, it is used as a synthetic food colouring chemical. Prolonged intake can cause angioedema, eczema, bronchitis, and headaches. It affects the thyroid gland and hormones

Some permitted synthetic colors include:

- Red: Ponceau 4R, Carmoisine, and Erythrosine
- Yellow: Tartrazine and Sunset Yellow FCF
- Blue: Indigo Carmine and Brilliant Blue FCF
- Green: Fast Green FCF

The FSSAI also approves the following colors, which are safe for consumption in any food article- Caramel, Riboflavin (Lactoflavin), Saffron, Annatto, Curcumin (Turmeric).

Allowed natural food colours

- Carotene and carotenoids (yellow, orange),
- Chlorophyll (green),
- Riboflavin (yellow),
- Caramel, Annatto (orange-red, derived from the seed of an American tree).
- Saffron, and curcumin (yellow, from turmeric).

Explanation :

Context:

Recently the Central Drugs Standard Control Organisation (CDSCO) has mandated an immediate stop to sales of broad-spectrum antibiotic combination of meropenem and disodium EDTA injections.

- **Meropenem (antibacterial agent) is a broad-spectrum antibiotic that works by inhibiting the synthesis of cell walls in bacteria.**
- Disodium EDTA binds with calcium and some heavy metals in the body and is used to treat calcium overload and irregular heartbeats caused by certain medications like digoxin or digitoxin.
- This combination is administered via intravenous injection over a specific period, depending on the dosage prescribed by a healthcare professional.
- The combination of Meropenem and Disodium EDTA as an injection is used to treat various bacterial infections.
- The bacterial infections include pneumonia, urinary tract infections, intra-abdominal infections, gynaecological infections, skin infections, meningitis and sepsis.
- It has been classified as a 'New Drug,' and has not secured the necessary regulatory approval.
- Common side effects may include headache, stomach pain, increased platelet count, diarrhoea, and allergic reactions like skin rash or swelling.
- The Central Drugs Standard Control Organisation (CDSCO) has mandated an immediate stop to sales of broad-spectrum antibiotic combination of meropenem and disodium EDTA injections.
- No new drug shall be manufactured for sale unless it is approved by the licensing authority as defined in Rule 3 of New Drugs and Clinical Trials Rules, 2019.
- Anyone who intends to manufacture new drug, either as an active pharmaceutical ingredient (API) or a pharmaceutical formulation, for sale or distribution must apply to the Central Licence Approving Authority for permission.

Q79 Answer : C

Explanation :

Context:

As the world rushes to make use of the latest wave of AI technologies, one piece of high-tech hardware has become a surprisingly hot commodity: the graphics processing unit, or GPU.

- It is a computer chip that renders graphics and images by performing rapid mathematical calculations.
- GPUs are used for both professional and personal computing. Originally, GPUs were responsible for the rendering of 2D and 3D images, animations and video.
- **Like a central processing unit (CPU), a GPU is also a chip component in computing devices. Statement 1 is correct.**
- One important difference, though, is that the GPU is specifically designed to handle and accelerate graphics workloads and display graphics content on a device such as a PC or smartphone.

- **GPUs work by using a method called parallel processing, where multiple processors handle separate parts of a single task. Statement 2 is correct.**
- A GPU will also have its own RAM to store the data it is processing. This RAM is designed specifically to hold the large amounts of information coming into the GPU for highly intensive graphics use cases.
- For graphics applications, the CPU sends instructions to the GPU for drawing the graphics content on screen. The GPU executes the instructions in parallel and at high speeds to display the content on the device — a process known as the graphics or rendering pipeline.

Q80 Answer : D

Explanation :

Context:

Digital Arrest cyber fraud is causing widespread terror in India.

- Digital Arrest is a new form of Cyber Threats.
- **Digital Arrest: Impersonating law enforcement officers and coercing victims into believing their digital assets have been unlawfully used and extorting money from them.**
- **The impostors impersonating law enforcement officers deceive the victims into believing that their bank account, SIM card, Aadhaar card, or bank card has been used unlawfully.**
- **They coerce victims into paying them money.**
- **Digital Arrest involves the virtual restraint of individuals. These suspensions can vary from restricted access to the account(s), and digital platforms, to implementing measures to prevent further digital activities or being restrained on video calling or being monitored through video calling.**

IAS STUDY CIRCLE

Q81 Answer : A

Explanation :

Context:

The protocol for establishment of Joint Economic and Trade Committee (JETCO) between India and Dominican Republic was signed at the Ministry of Foreign Affairs (MIREX) of Dominican Republic at Santo Domingo recently.

The agreement, signed in the 25 years of establishment of diplomatic relations between the two countries, is an important step to elevate the existing economic and commercial relations further.

The Dominican Republic is located in the Caribbean, shares its borders with only one nation: Haiti.

Additionally, it has maritime borders with several other countries and territories:

- Colombia
- Venezuela

- Aruba (Netherlands)
- Curaçao (Netherlands)
- Puerto Rico (United States)
- Turks and Caicos Islands (United Kingdom)



Q82 Answer : D

Explanation :

Context:

The union government recently announced Electric Mobility Promotion Scheme (EMPS) 2024 to promote the sale of electric two- and three-wheelers.

- Electric Mobility Promotion Scheme, 2024 is a fund limited scheme for faster adoption of electric two-wheeler (e-2W) and three-wheeler (e-3W).
- **It aims to provide further impetus to the green mobility and development of electric vehicle (EV) manufacturing eco-system in the country. Statement 1 is correct.**
- The programme also aims to spur localisation of EV components while also driving sales up.
- The scheme is valid for 4 months from April 1 onwards.
- **It is applicable only to the electric two-wheeler and three-wheeler. Statement 2 is correct.**

Eligible EV categories

1. Two Wheelers (electric) (e-2W)
 2. Three-wheeler (electric) including registered e-rickshaws & e-carts and L5 (e-3W)
- Scheme will be applicable mainly to those e-2W and e-3Ws registered for commercial purposes.

- Further, in addition to commercial use, privately or corporate owned registered e-2W will also be eligible under the scheme.
- **It is an initiative of The Ministry of Heavy Industries, in collaboration with the Department of Expenditure, Ministry of Finance. Statement 3 is correct.**
- Under the scheme, financial support of Rs10,000 per two-wheeler and Rs50,000 for three-wheeler will be provided.

Q83 Answer : C

Explanation :

Operation 'Rising Sun'

- **It is a pan-India operation of Directorate of Revenue Intelligence (DRI) against the smuggling of foreign-origin gold.**
- The Directorate of Revenue Intelligence (DRI) is the apex anti-smuggling agency of India, working under the Central Board of Indirect Taxes & Customs (CBIC), Ministry of Finance.

Functions:

- Detecting and curbing smuggling of contraband, including drug trafficking and illicit international trade in wildlife and environmentally sensitive items
- Combating commercial frauds related to international trade and evasion of Customs duty.

Q84 Answer : D

Explanation :

Context:

Prime Minister has recently inaugurated the 3rd land port in Sabroom, Tripura

- **Land Port Sabroom is strategically located in Tripura along the international border between India and Bangladesh.**
- It will be constructed by the Land ports authority of India.
- Sabroom is directly connected to Chittagong port of Bangladesh through Maitree bridge on River Feni.
- Land ports is an area on an international border that includes parts of highways, railways, and other roads.

Q85 Answer : B

Explanation :

Context:

In a recent visit to India, the Belarus Foreign Minister stated that India is considering signing Free Trade Agreements (FTA) with Eurasian Economic Union.

- **The Member states of the Eurasian Economic Union (EAEU) are: Armenia, Belarus, Kazakhstan, Kyrgyzstan, and Russia.**
- The Eurasian Economic Union is an economic union of five post-Soviet states located in Eurasia that came into existence on 1st January 2015.
- The EAEU has an integrated single market.
- EAEU provides for free movement of goods, services, capital, and labour within its borders.
- Each year, a Member State is elected chairman to head the Union.
- Chairmanship is passed from country to country in alphabetical order in the Russian language.
- **Armenia currently holds the chairmanship.**



Q86 Answer : D

Explanation :

Context:

NITI Aayog recently launched the 'Vocal for Local' initiative under its Aspirational Blocks Programme.

About 'Vocal for Local' Initiative:

- **It is an initiative of NITI Aayog under its Aspirational Blocks Programme to encourage a spirit of self-reliance among the people and propel them towards sustainable growth and prosperity. Statement 1 is incorrect.**
- **As a part of this initiative, local products from 500 aspirational blocks have been mapped and consolidated under the Aakanksha brand. Statement 2 is incorrect.**

- Aakanksha is an umbrella brand, which could be supplemented into multiple sub-brands that have the potential to create an international market.
- **In order to encourage these products, a dedicated window for the Aspirational Blocks Programme under the brand name Aakanksha has been established on the Government e-Marketplace (GeM) portal.**
- The partners will also provide technical and operational support for the facilitation of e-commerce onboarding, establishing linkages, financial/digital literacy, documentation/certification, and skill enhancement, among others.

Q87 Answer : A

Explanation :

Context:

The treacherous Darien Gap route that spans parts of Central and South America has seen an increasing number of people attempting to pass on their way to claiming asylum in the US.

About Darien Gap

- **It is a stretch of densely forested jungle across northern Colombia and southern Panama. Roughly 60 miles (97 kilometres) across, the terrain is muddy, wet and unstable.**
- It has become a major route for global human migration.
- It is the geographic region of the easternmost Isthmus of Panama that extends into northwestern Colombia, around the Gulf of Urabá (a section of the Gulf of Darién).
- It forms the physiographic link between Central and South America.
- A hot, humid area typified by tropical rainforests, mangrove swamps, and low mountain ranges with cloud forest vegetation, Darién has always been sparsely populated.

IAS STUDY CIRCLE



Q88 Answer : C

Explanation :

Context:

R.C.REDDY
IAS STUDY CIRCLE

Recently 'core loading' process began at the Kalpakkam Fast Breeder reactor which marks a critical milestone in the country's 3-stage nuclear power programme.

- **Fast Breeder Reactor (FBRs)** are a type of nuclear reactor which can create more fissile material (fuel) than they consume.
- This is achieved by converting fertile material into fissile material through a process called **nuclear transmutation**.
- India's nuclear power program – Is a three-stage plan designed to utilize the country's thorium reserves for generating electricity.
- The second stage, which recently achieved a milestone with the core loading of the Kalpakkam FBR, plays a crucial role in creating more fuel for the third stage.

India has adopted a “closed fuel cycle” approach.

- **Closed Fuel Cycle Approach** – It involves the reprocessing of spent fuel to separate the useful plutonium (Pu) 239 and Uranium (U) 233 isotopes from U238 and Thorium (Th) 232.

Core loading is the process of placing nuclear fuel assemblies inside the core of a nuclear reactor.

The 3 Stages of India's Nuclear Power Program:

Stage 1 – Setting up Pressurized Heavy Water Reactors (PHWRs) that use natural uranium as fuel. (Currently operational)

Stage 2 (Current Stage) – Introduce Fast Breeder Reactors (FBRs) like the Kalpakkam FBR.

- FBRs use Pu239 (extracted from spent fuel of PHWRs) to generate electricity.
- Surround the reactor core with a fertile material blanket (U238).
- Fast neutrons from the core convert U238 in the blanket to more Pu239, breeding new fuel.

Stage 3 (Future Stage) – Utilize Thorium (abundant in India) for power generation.

- Thorium itself is not fissile, but can be converted to fissile Uranium-233 (U233) in FBRs.

Significance of the FBR – The successful operation of the FBR marks a critical step towards achieving the third stage.

- By breeding Pu239, FBRs create more fuel for future reactors, including those that will eventually use thorium.
- They are crucial for India's long-term energy security, especially in harnessing thorium resources effectively.
- Thorium reserves in India — Is found in coastal and inland placer sands on the beaches of Kerala, Tamil Nadu, Odisha, Andhra Pradesh, Maharashtra, and Gujarat.
- It is also found in the inland riverine sands of Jharkhand and West Bengal.

Q89 Answer : C

Explanation :

Context:

Supreme Court of India stops Assam's move to withdraw notification of Pobitora wildlife sanctuary.

- De-notified Area – Areas that cannot be protected with legally defined dos and don'ts like notified areas.
- Process for de-notification – It is governed by the provisions of Wildlife (Protection), Act 1972.
- **The proposals submitted by States/UTs for alteration of the boundaries of protected areas are examined by the Standing Committee of the National Board for Wild Life (NBWL).**

De-notifying a sanctuary or National Park

- Recommendation of National Board for Wildlife
- Approval by the Supreme Court (no specific time limit)

De-notifying a tiger reserve

- Recommendation of National Tiger Conservation Authority
- Approval of National Board for Wildlife

Protected areas

About – Areas where human occupation or at least the exploitation of resources is limited.

Protected areas in India – 4 categories constituted under the provisions of the Wildlife (Protection) Act, 1972:

1. National Parks
2. Wildlife Sanctuaries
3. Conservation Reserves
4. Community Reserves

Apart from above protected areas, India also has the following:

- Biodiversity Reserves
- Tiger Reserves
- Elephant Reserves
- Marine Protected Areas



Q90 Answer : C

Explanation :

Context:

Sebi recently decided to repeal certain circulars that provided relaxation in cases involving the allotment of securities through a private placement route.

About Private Placement

- **A private placement is the sale of stock shares or bonds to pre-selected investors and institutions rather than publicly on the open market.**
- Investors invited to participate in private placement programs include wealthy individual investors, banks and other financial institutions, mutual funds, insurance companies, and pension funds.
- **One advantage of a private placement is its relatively few regulatory requirements.**
- By opting for private placements, companies can maintain closer relations with investors, negotiate flexible terms, and potentially retain greater control over the company's direction and growth strategies.
- **There are two kinds of private placement: preferential allotment and qualified institutional placement.**

Preferential allotment:

- **It is a method of private placement where a company issues new shares to a select group of existing shareholders or to a specific group of investors, often at a price lower than the prevailing market price.**

- **Purpose:** This method is especially common when the company wants to reward or retain existing shareholders, such as promoters, by offering them the opportunity to purchase additional shares.
- **SEBI regulations and the Companies Act govern preferential allotment in India.**
- A company must take permission from its shareholders to carry on with preferential allotment.

Qualified Institutional Placement (QIP):

- **QIP is a private placement exclusively available to listed companies.**
- Under QIP, a listed company can issue shares or other securities to qualified institutional buyers (QIBs), such as mutual funds, banks, insurance companies, and foreign institutional investors, without making a public offering.
- **Purpose:** Companies use QIP to raise capital from institutional investors quickly and efficiently. Companies choose this option when they require funds for expansion, reducing debt, or other corporate purposes.
- SEBI has established guidelines for QIP issuances in India.

Q91 Answer : B

Explanation :

Context:

The Prime Minister of India recently launched the ‘Pradhan Mantri Samajik Utthan and Rozgar Adharit Jankalyan’ (PM-SURAJ) national portal.

PM-SURAJ portal:

- **Parent ministry: The Ministry of Social Justice and Empowerment.**
- **Aim:** To economically empower people belonging to socially backward classes, scheduled castes, tribes and other disadvantaged sections of the society.
- It will serve individuals from disadvantaged communities, including Scheduled Castes, Backward Classes, and Safai Karamcharis (sanitation workers).
- **Objective:** The portal streamlines the process of applying for financial assistance schemes offered by the Ministry of Social Justice and Empowerment.

Significance:

- **Direct Benefit Transfer:** Cuts out middlemen and ensures funds reach beneficiaries directly through bank accounts.
- **Reduced Hassle:** Simplifies the application process by offering a centralized online platform.
- **Economic Upliftment:** Aims to empower marginalized communities by providing capital to start or expand businesses.
- **Social Upliftment:** Furthermore, it will also empower these classes not only economically but also socially.

Q92 Answer : A

Explanation :

Context:

The first phase of India's Atmospheric Research Testbed in Central India (ART-CI) was inaugurated in Sehore district, Madhya Pradesh. Statement I is correct.

About

- It is funded by the Ministry of Earth Sciences (MoES) and will house 25 high-end meteorological instruments.
- The Indian Institute of Tropical Meteorology (IITM), Pune, is in charge of the operations.
- It will study vital cloud processes associated with the monsoons over central India's Monsoon Core Zone (MCZ).

Atmospheric Research Testbed (ART)

- The ART is an open-field, focused observational and analytical research programme.
- **Aim:** To conduct ground-based observations of weather parameters like temperature, wind speeds, etc. and in-situ (on-site) observations of the transient synoptic systems – like low-pressure areas and depressions that form in the Bay of Bengal – during the southwest monsoon season from June to September.
- **Application of the Study:** Studying these systems will be used to generate high volumes of data over a long period.
- It will be compared with the existing weather models so that improvements can be made to obtain accurate rainfall predictions.
- The setup at ART will also be used for calibrating and validating various satellite-based observations, part of weather predictions and forecasting.
- **First Phase:** Under the first phase, remote sensing-based and in-situ measurements using 25 meteorological instruments have commenced.
- In the second phase, ART will deploy instruments such as a radar wind profiler and balloon-bound radiosonde, and soil moisture and temperature measuring equipment.

Why is ART Established in Madhya Pradesh?

- The ART has been established at Silkheda, a location that falls directly in line with the path of major rain-bearing synoptic systems. This will facilitate direct monitoring and tracking.
- **The locality is pristine and free of anthropogenic and other pollutants, making it the best site in central India for setting up sensitive, high-end meteorological instruments and observatories for recording data. Statement II is correct and also the correct explanation for Statement I.**

Significance of Data about Monsoons over Central India

- **Rainfall Forecasts:** The India Meteorological Department (IMD) issues rainfall forecasts for the country's four homogeneous regions – north, west, east and south peninsular India.
 - In addition, it issues a special rainfall forecast for the Monsoon Core Zone (MCZ), which is considered India's food bowl.
 - However, there is still limited understanding about the role of these synoptic systems, their associated cloud physics, cloud properties and their overall role in enhancing the monsoon rainfall.

- **Natural Laboratory:** Central India, therefore, acts as a natural laboratory for scientists and meteorologists to perform a study of the Indian monsoons.

Q93 Answer : A

Explanation :

Context:

Pandavula Gutta, a geological marvel older than the Himalayan hills, has been officially recognised as the sole Geo-heritage site in Telangana.

Geo-Heritage Sites	Located in
1. Pandavula Gutta	Telangana
2. Ramgarh Crater	Rajasthan
3. Chabimura	Tripura
4. Mawmluh Cave	Meghalaya

About Pandavula Gutta

- They are older than the Himalayas, famous for ancient rock paintings which depict animals like bison, antelope, tiger, and leopard, along with geometric designs and symbols like swastikas, circles, and squares.
- The presence of these paintings suggests the area was inhabited from the Mesolithic period (around 12,000 to 6,000 BCE) up to medieval times.

About Geo-heritage Sites

- Geo-heritage refers to the geological features which are inherently or culturally significant offering insight into earth's evolution or history to earth science or that can be utilized for education.
- In India, the Geological Survey of India (GSI) identifies these special places and designates them as Geo-Heritage Sites (GHS). This helps protect them. It's similar to how UNESCO safeguards world heritage sites around the globe.

Q94 Answer : B

Explanation :

Context:

A new study led by Bharat Ratna Professor C N R Rao highlights how the atoms within lead iodide perovskites shift and rearrange during changes in temperature and pressure.

About

- **Hybrid perovskites:** They are an exciting new class of semiconductor that combine the advantages of both organic (low cost, solution processable, flexible) and inorganic semiconductors (high performance, electrical conductivity).

- **Lead iodide perovskites are a specific type of hybrid perovskite material with lead (Pb) and iodide (I) as key components.**
- It has good optoelectrical properties which make them excellent solar cell materials. Their energy conversion efficiency can be higher than even that of commercial silicon-based solar cells.
- A major concern with lead iodide perovskites is their stability. Lead is a toxic element, and the materials can degrade over time, especially when exposed to moisture or heat.
- **The lead iodide perovskite is used in solar cells, LEDs, X-ray shielding, and Energy Storage Systems.**

Q95 Answer : C

Explanation :

Context:

The United Nations Development Programme (UNDP) recently released the report ‘Breaking the gridlock: Reimagining cooperation in a polarised world’. (Based on data of 2022)

India has moved up a rank on the global Human Development Index (HDI), according to the report.

- **While India ranked 135 in 2021, it had moved up to 134 in 2022. Statement 1 is incorrect.**

India’s southern neighbour Sri Lanka has been ranked much ahead at 78, while China is ranked 75, both categorised under the High Human Development category.

- **India also ranks below Bhutan that stands at 125 and Bangladesh, which is in the 129th position. Statement 2 is correct.**
- India, Bhutan and Bangladesh are all in the Medium Human Development category.
- Switzerland has been ranked number one.
- Nepal (146) and Pakistan (164) have been ranked lower than India.

India’s life expectancy at birth has slightly improved from 67.2 years in 2021 to 67.7 years in 2022. Statement 3 is correct.

There is an overall increase (5.88%) in expected years of schooling (EYS) from 11.9 years to 12.6 years, leading to an improvement of 18 places when the EYS aspect was considered. Statement 4 is correct.

Q96 Answer : C

Explanation :

Context:

Recently, the union Minister of Commerce & Industry joined the Indo-Pacific Economic Framework for Prosperity (IPEF) Virtual Ministerial Meeting.

About Indo-Pacific Economic Framework for Prosperity

- **It is a regional arrangement to build cooperation and economic integration in the Indo-Pacific region.**
- **It was launched in May 2022. Statement 1 is correct.**
- This framework is intended to advance resilience, sustainability, inclusiveness, economic growth, fairness, and competitiveness for member economies.
- IPEF will seek to complement and build on existing regional architecture and support the global rules-based trading system.
- **Member countries: It has 14 regional partners – Australia, Brunei, Fiji, India, Indonesia, Japan, the Republic of Korea, Malaysia, New Zealand, the Philippines, Singapore, Thailand, the United States, and Vietnam.**
- **The economic framework broadly rests on four pillars: Trade, Supply chain resilience, Clean Energy, Decarbonization, and Infrastructure Taxes and anti-corruption measures. Statement 2 is correct.**
- The IPEF is not a Free Trade Agreement (FTA), but it allows members to negotiate the parts they want to.

India and IPEF:

- **India has been actively participating in the IPEF, but not in all pillars.**
- **India has decided to opt out of the trade pillar of the IPEF as most issues promoted by the IPEF do not align with India's trade policies.**

Q97 Answer : C

Explanation :

Context:

Recently, SIDBI gets \$24.5 million from Green Climate Fund for its Avaana Sustainability Fund.

Avaana Sustainability Fund (ASF)

- **ASF is first anchored fund of the Small Industries Development Bank of India (SIDBI). ASF is a venture Capital fund.**
- **Aim:** To invest in early-stage climate technology companies
- **Project Value:** \$120 million ASF's strategies include:
 - Investing in low-carbon and climate-resilient businesses,
 - Adding value for climate and sustainability leaders etc.

About Green Climate Fund

- **Formation:** The Green Climate Fund (GCF) was formed under the United Nations Framework Convention on Climate Change.
 - It works as a Financial Mechanism entity, focusing on developing nations' efforts to adapt to and mitigate the effects of climate change.
- **Headquarters:** Incheon, South Korea.
- **Purpose:** To help developing countries reduce greenhouse gas emissions and strengthen their capacity to respond to climate change.
- **Target Countries:** The GCF primarily assists developing nations most susceptible to climate change, such as Least Developed nations (LDCs), Small Island Developing States (SIDS), and African States.

Q98 Answer : C

Explanation :

- **Lepidolite is a rare lithium-rich mica mineral that is usually pink, red or purple in colour. Statement 1 is correct.**
- **It is the most common lithium-bearing mineral and serves as a minor ore of lithium metal, with rubidium and caesium sometimes being by-products. Statement 2 is correct.**
- It is a member of the common mica group and economically important as a major source of lithium.
- It is a hard rock ore that is relatively expensive for producing lithium.
- Since it contains appreciable amounts of rubidium, it is useful in determining geological age according to strontium–rubidium ratios.

Q99 Answer : C

Explanation :

Context:

Recently Finland joined the DIANA Initiative of North Atlantic Treaty Organization (NATO).

DIANA – Defence Innovation Accelerator for the North Atlantic.

- It aims to address future challenges in defence and security by harnessing technological solutions.
- **It is an initiative of North Atlantic Treaty Organization (NATO).**
- It seeks to accelerate the development and deployment of innovative solutions with applications in both civil and defence sectors.
- DIANA has a network of more than 200 affiliated accelerator sites and test centres.
- All NATO nations are members of DIANA.
- The DIANA Board of Directors is responsible for governance and comprises representatives from every Allied country.
- DIANA accelerator programme – Aimed at helping companies and countries develop deep technologies and innovations applicable to both commercial and defence sectors.

Q100 Answer : C

Explanation :

Context:

US Army ships have sailed from Virginia with equipment to build a floating pier on the Gaza coast to deliver humanitarian aid to the enclave.

Joint Logistics Over-the-Shore (JLOTS):

- **JLOTS – It is the project to build the floating pier on the Gaza coast.**
- Pier is a large wooden or metal structure that is built out into the sea from the land.

- Boats can stop at piers so that people or goods can be taken on or off.
- **JLOTS is the American solution to deal with hunger and an impending famine in Gaza.**
- JLOTS capabilities are used to transport cargo by sea when one or more ports cannot be operated or are not available for loading or unloading.
- **Usually, JLOTS is part of a military campaign or exercise, such operations usually involve joint operations by the forces.**
- The navy transports the goods and provides protection, the army or other agencies are involved in building the last mile bridge, delivery, etc.
- The floating pier in Gaza will be built with no US boots on the ground.
- The US will take the help of the private company Fogbow, which is run by former military and intelligence officials.

