

**R.C. Reddy IAS Study Circle**  
**TSPSC GROUP-1 SERVICES (2024 Notification)**  
**PRELIMINARY TEST**  
**CURRENT AFFAIRS TEST-2**  
**(DECEMBER, JANUARY, FEBRUARY 2024)**

**Key & Explanation**

1. **B**

Indian Railways has introduced a cutting-edge technology named 'Gajraj' to prevent elephant accidents on railway tracks. It uses an AI-based algorithm and a network of sensitive optical fibre cables to detect elephants getting close to railway tracks. Statement 2 is correct. It aims to address the issue of elephant fatalities resulting from train accidents. Statement 1 is incorrect.

How does it work?

Gajraj Suraksha senses pressure waves generated by the movement of elephants along the tracks. As elephants move, the optical fibres detect vibrations caused by their footsteps. These vibrations trigger signals within the optical fibre network, enabling the system to identify the presence of elephants up to 200 meters ahead of their arrival on the track. The OFC-based Intrusion Detection System works by sending alarms to station masters whenever movement is detected along the tracks. This allows them to promptly inform the locomotive drivers in the affected areas so that they either slow down or stop the train preventing its potential collisions with elephants.

Indian railway is planning to introduce this system in West Bengal, Odisha, Jharkhand, Assam, Kerala, certain parts of Chhattisgarh, and Tamil Nadu.

2. **B**

Under Article 281 of the Constitution, the President is required to cause laying of the Finance Commission report before each House of Parliament along with an explanatory note and the action taken by the government on the Commission's recommendations. Statement 1 is incorrect.

The Finance Commission is appointed by the President under Article 280 of the Constitution. The chairman and members of the commission are selected as per the provisions contained in the Finance Commission [Miscellaneous Provisions] Act, 1951 and the Finance Commission (Salaries & Allowances) Rules, 1951. Statement 2 is correct.

The Terms of Reference of the 16 FC (constituted on 31.12.2023) include:

- Disaster management financing. Statement 3 is correct.
- Determining revenue to states Increasing the consolidated fund of states
- Increasing the income of Gram Panchayats
- Augmenting the Consolidated Fund of a State
- Supplementing the resources of the Panchayats and Municipalities

3. **C**

The US Air force recently unveiled its most advanced military aircraft - the B-21 Raider. It is developed by US defence major Northrop Grumman and is being promoted by the company as a 'digital bomber'. It can hit enemy targets with conventional missiles as well as nuclear warheads.

4. **B**

- The loss and damage fund is a global financial package to ensure the rescue and rehabilitation of countries facing the cascading effects of climate change. Statement 1 is correct. The term refers to the compensation that rich nations, whose industrial growth has resulted in global warming and driven the planet into a climate crisis, must pay to poor nations, whose carbon footprint is low but are facing the brunt of rising sea levels, floods, crippling droughts, and intense cyclones, among others.

- It was first announced during COP27 in Sharm el-Sheikh, Egypt On November 20, 2022. Statement 2 is incorrect.
- The World Bank will be the "interim host" of the fund for a period of four years. It is expected to operate in accordance with the principles of the UNFCCC and the Paris Agreement. Statement 3 is correct.
- All developing countries are eligible to apply for and every country has been "invited" to contribute to the fund. A certain percentage has been set apart for a category of countries called Least Developed Countries and Small island developing states. However, there still is a lack of clarity on which countries will be eligible to receive funds.

**5. A**

Context: Recently, the Philippines has built a new coast guard station on the contested island of Thitu in the South China Sea, boosting its ability to monitor movements of Chinese vessels and aircraft in the busy disputed waterway.

Pair 1 is incorrectly matched: Thitu island also known as Pag-asa Islands is in South China Sea.

Pair 2 is incorrectly matched: Hawaii is a group of volcanic islands in the Central Pacific Ocean.

Pair 3 is incorrectly matched: Easter Island, a Chilean territory in the southeastern Pacific Ocean some 3,540 km from the mainland, is a protected national park and a UNESCO World Heritage site.

Pair 4 is correctly matched: Diego Garcia Island is a coral atoll located in the central Indian Ocean.

**6. C**

Context: Amazon recently signed an agreement with SpaceX to launch three of Elon Musk's Falcon 9 rockets to support deployment plans for its Project Kuiper.

About Project Kuiper:

Kuiper Systems LLC, also known as Project Kuiper, is a subsidiary of Amazon that was established in 2019 to build a network of 3,236 satellites in low Earth orbit - similar to SpaceX's Starlink - to provide high-speed broadband to the communities that are currently unserved and underserved by traditional internet and communication options. Project Kuiper has three main parts:

1. Ground infrastructure: It includes gateway antennas that securely send and receive customer data to and from satellites, along with telemetry, tracking, and control (TT&C) antennas that keep the satellites properly operating. Global networking connects those gateway antennas to the internet, public cloud, or private networks.
2. Satellites: They operate in low Earth orbit (LEO) and relay data traffic to and from gateway antennas and customers.
3. Customer terminals: These are the technology that Project Kuiper customers use to receive broadband service. The terminals combine antennas and processors into a single, compact system to deliver connectivity.

**7. A**

Recently, the Codex Alimentarius Commission (CAC) has praised India's Standards on Millets and accepted its proposal for the development of global standards for millets during its 46th session held in Rome, Italy.

The CAC is an international food safety and quality standard-setting body created by the WHO and the FAO in May 1963 to protect consumer's health and ensuring fair practices in food trade. It consists of 189 member countries. Membership of the Commission is open to all Member Nations and Associate Members of FAO and WHO which are interested in international food standards. India became the member of Codex Alimentarius in 1964.

The Commission meets in regular session once a year alternating between Geneva and Rome. Funding: The programme of work of the Commission is funded through the regular budgets of WHO and FAO with all work subject to approval of the two governing bodies of the parent organizations.

Currently it has standards for Sorghum and Pearl Millet.

**8. C**

Context: during the COP28 (Nov-Dec 2023), the UAE recently announced the launch of ALTERRA as a privately managed \$30 billion investment fund to catalyse climate investments. Managed by Lunate Capital, an independent global investment manager in the Abu Dhabi Global Market, Alterra seeks to become the world's largest private investment vehicle for climate change action by mobilizing US \$250 billion globally by 2030 and improve access to climate funding for the Global South - including Least Developed Countries (LDCs) and Small Island Developing States (SIDS).

**9. C**

**Context:**

The RBI and the Bank of England (BoE) recently signed an MoU for cooperation and exchange of information in relation to the Clearing Corporation of India Limited (CCIL), an RBI-regulated central counterparty (CCP) which provides clearing and settlement for transactions in government securities, foreign exchange and money markets in the country.

The MoU provides a framework for the BoE to place reliance on the RBI's regulatory and supervisory activities while safeguarding UK financial stability. It will also enable the BoE to assess the application of CCIL for recognition as a third-country central counterparty (CCP), which is a pre-requisite for UK-based banks to clear transactions through CCIL. This is seen as a tactical move that could encourage the ESMA to restore recognition to at least one of the Indian CCPs.

This MoU assumes significance in the backdrop of the EU market regulator European Securities and Market Authority (ESMA) withdrawing recognition for six CCPs from India - CCIL, Indian Clearing Corporation Ltd., NSE Clearing Ltd., Multi Commodity Exchange Clearing Ltd., India International Clearing Corporation, and NSE IFSC Clearing Corporation Ltd. - with effect from April 30, 2023, because there were no co-operation agreements between ESMA and the Indian regulators enabling the ESMA to monitor, supervise or audit Indian clearing corporations (CCPs). As a result, these CCPs ceased to provide services to clearing members and trading venues established in the European Union.

About Clearing Corporation of India Limited (CCIL):

It was set up in April, 2001 to provide guaranteed clearing and settlement functions for transactions in Money, G-Secs, Foreign Exchange, and Derivative markets. CCIL also provides non-guaranteed settlement for Rupee interest rate derivatives and cross-currency transactions through the CLS Bank.

It has been recognised as a Qualified Central Counterparty (QCCP) by the RBI in 2014. Promoters: SBI, IDBI Bank Ltd, ICICI Bank Ltd, LIC, Bank of Baroda and HDFC Bank Ltd.

It has also set up a Trade Repository to enable financial institutions to report their transactions in Over-the-Counter (OTC) derivatives. Through its fully owned subsidiary, Clearcorp Dealing Systems Limited (CDSL), CCIL has introduced various platforms for electronic execution of deals in various market segments. CCIL is also the trade repository for all OTC transactions in the Forex, Interest Rate and Credit derivative transactions. Statement 2 is correct.

**10. B**

Context: De Winton's golden mole, last sighted in 1937, has been found alive swimming through sand dunes in South Africa after an extensive search.

About De Winton's Golden Mole: It is an elusive blind mole that "swims" through sand, lives in inaccessible burrows, and has a shimmering, iridescent coat. It is endemic to South Africa. Statement 1 is incorrect.

The IUCN now rates this species as "critically endangered". It is currently the only golden mole species with that classification. Statement 2 is correct.

It is among the 25 "most wanted lost" species that are the focus of Global Wildlife Conservation's "Search for Lost Species" initiative.

**11. C**

Context: A scientist from the Indian Council of Agricultural Research (ICAR) recently discovered a new plant species of 'wild okra' named 'Abelmoschus Odishae'.

About Abelmoschus Odishae:

It is a new plant species of 'wild okra'. Option (c) is correct. It was discovered in a moist deciduous forest in Bansapal block in Keonjhar district, Odisha. It can be used for hybridisation to create a better variety with high disease resistance. It can also play a vital role in widening the genetic base of okra.

It is a perennial shrub up to 5 meters high with a densely hispid, prickly stem with retrorse hairs. It has large, deep yellow flowers.

What is Okra?

Okra, also known as gumbo or ladies' fingers, is a warm-season vegetable. It is native to the tropics of the Eastern Hemisphere and is widely cultivated or naturalized in the tropics and subtropics of the Western Hemisphere.

**12. C**

Context: Cybersecurity firm 'Promon' has identified a novel Android malware named FjordPhantom that employs virtualization to target applications.

FjordPhantom is a new malware that employs virtualization to elude detection and target applications. Option (c) is correct. It propagates through messaging services and combines app-based malware with social engineering to deceive banking customers. It strategically zeroes in on users within Southeast Asia.

It utilizes email, SMS, and messaging apps to entice users into unwittingly downloading what appears to be a legitimate banking app, which contains FjordPhantom. When this app gets installed, the attackers, posing as customer service representatives, guide the users through the steps to run the app. The malware uses virtualization to create a virtual container to run this app, and attackers can monitor the user's actions and steal their credentials.

**13. D**

Context: the question is based on an Editorial "India, disability inclusion and the power of 'by'" Which was published in The Hindu.

The ILO and the International Fund for Agricultural Development (IFAD), in collaboration with the Women's Development Corporation in Maharashtra, are implementing the Sparking Disability Inclusive Rural Transformation (SPARK) project. Statement I is incorrect

Through this project, persons with disabilities were put in the lead, being identified from the villages, and trained as Disability Inclusion Facilitators (DIFs). Statement II is correct.

The DIFs engage with the community, persons with disabilities, caregivers of persons with disabilities, women from self-help groups and other stakeholders to raise awareness about disability inclusion and barriers to inclusion. The DIFs identify women with disabilities and mainstream them in existing self-help groups for social and economic development, where these women have been able to access funds to start an enterprise.

**14. A**

Pair 1 is incorrect: Whitsun Reef is located in the South China Sea, and it comes under the Philippines' Exclusive Economic Zones (EEZ). However, China stakes claim to 90% of the South China Sea including the reef, based on the U-shaped nine -dash line etched on the map in the 1940s by a Chinese geographer.

Pair 2 is correct: The 2,891m high Mount Merapi is located on Indonesia's westernmost Sumatra island. The Indonesian archipelago sits on the Pacific Ring of Fire, where the meeting of continental plates causes high volcanic and seismic activity.

Pair 3 is incorrect: Donetsk is a city located in southeastern Ukraine, on the headwaters of the Kalmius River. It is the capital of Donetsk oblast (province) and the most prominent city in the Donets Basin (Donbas) industrial region.

With the collapse of the Soviet Union in 1991, Donetsk became a major industrial engine of the economy of independent Ukraine. After the Russian invasion of Ukraine, it has been annexed by Russia.

Pair 4 is incorrect: Guayana Esequiba also called Esequibo or Essequibo, is a disputed territory west of the Essequibo River. The territory is claimed by both Guyana and Venezuela, but Guyana has controlled the area based on the 1899 Paris Arbitral Award. The boundary dispute was inherited from the colonial powers (Spain in the case of Venezuela, and the Netherlands and the United Kingdom in the case of Guyana) and has persisted following the independence of Venezuela and Guyana.

**15. D**

Statement I is incorrect- In India, the National Lighting Code (NLC) published by the Bureau of Indian Standard (BIS) regulates the light pollution. No separate legislative measure on the lines of the Air (Prevention and Control of Pollution) Act, 1981 has been taken, as of now. The umbrella legislation for regulation of the environmental stresses such as pollution, degradation of environmental quality etc. is the Environment (Protection) Act, 1986.

The National Lighting Code (NLC) has been formulated for setting out the requirements for responsible conduct for the designers, manufacturers and suppliers of lighting. The code encourages good lighting practices and systems which would minimize light pollution, glare, light trespass and conserve energy while maintaining safety, security, utility and productivity.

The code, however, does not specify the additional requirements to be considered while designing lightening system for certain areas such as marine, railway rolling stock, theatre, television and photography etc. The code also does not cover the requirements and methods of test applicable to light sources and luminaries for which separate Indian Standards exists.

Statement II is correct- Marine organisms that evolved over millions of years to adapt to natural light now face an ever-increasing flood of light from anthropogenic sources along the coasts. Artificial light can easily wash out the glow of moonlight and starlight, which are important cues for marine organisms. This light pollution disrupts their hormonal cycles, inter-species behaviour and reproduction, noted the findings of the study published in the journal Aquatic Conservation: Marine and Freshwater Ecosystems.

Compared to prior technologies, LEDs often emit more short-wavelength light and can pierce deep into the water.

**16. B**

CRISIL stands for Credit Rating Information Services of India Limited. According to its recent report, the corporate bond market growth is expected to gather pace in the coming years, and its overall size is likely to more than double to over ₹100 lakh crore by March 2030. The push to capital expenditure, the attractiveness of the infrastructure sector and the financialisation of savings would be key drivers of growth of the Corporate Bond Market. Statement 1,3 and 4 are correct.

The growth in capex will be driven by high capacity utilisation, healthy corporate sector balance





A satellite map showing the Essequibo Region, striped, at the centre of the current border dispute between Guyana and Venezuela. IMAGE FROM COMMONS-WIKIMEDIA.ORG

sheets and a strong economic outlook. The credit risk profile for infrastructure assets is getting stronger with better recovery prospects and the ability to lend long-term.

The Demand for corporate bonds will also be driven by non-bank lenders looking to serve credit demand from the retail segment.

**17. C**

Context: The Methane Alert and Response System (MARS) notified governments of 127 plumes spanning four continents and identified 1,500 plumes in its pilot stage, according to a new report by the UN Environment Programme (UNEP) released at the COP28 of the UNFCCC.

Methane is the second-biggest cause of global warming caused by anthropogenic activity after carbon dioxide and is 80 times more powerful. Energy, agriculture and waste sectors are the primary emitters of methane, responsible for 30 per cent of the earth's warming.

Statement I is correct: The Methane Alert and Response System (MARS) is the first-ever global system that uses satellite data to monitor major emission events and notify governments and companies who can address them.

Statement II is incorrect: MARS was launched by the United Nations

Environment Programme's (UNEP) International Methane Emissions

Observatory (IMEO) at COP27 of the United Nations Framework Convention on Climate Change (UNFCCC) held in 2022.

The IMEO launched at the G20 Leaders Summit in 2021, gathers methane emissions-related data from satellites through MARS and from industries through the Oil and Gas Methane Partnership 2.0.

The Oil & Gas Methane Partnership 2.0 (OGMP 2.0) is UNEP's flagship programme that includes a partnership of companies to improve the accuracy and transparency of methane emissions data from the oil and gas sector through a committed framework.

**18. C**

Context: the Garden Reach Shipbuilders and Engineers (GRSE) delivered INS Sandhayak to the Indian Navy on the occasion of Navy Day.

About INS Sandhayak:

It is the largest survey vessel ever built in India. Statement 1 is correct. It is fully designed and built by the Garden Reach Shipbuilders and Engineers (GRSE), Kolkata. It is the first in the series of four Survey Vessels (Large), or SVLs, being built by GRSE.

It is the reincarnation of another ship by that name. The previous warship, also a survey vessel, was commissioned into the Navy in 1981 and decommissioned in 2021. The new INS Sandhayak and the remaining ships in the series are far more advanced than their predecessors.

Features: It is a 110-metre-long ship propelled by two marine diesel engines combined with fixed-pitch propellers. It is capable of full-scale coastal and deep-water hydrographic surveys of port and harbour approaches and the determination of navigation channels and routes. It can also undertake surveys of maritime limits and the collection of oceanographic and geographical data for defence applications. Statement 2 is correct. It can carry a helicopter, participate in low-intensity combat, and function as a hospital ship. It can also be used for humanitarian assistance and disaster relief operations.

**19. C**

Recently, the Employees' State Insurance Corporation (ESIC) bagged the "International Social Security Association's ISSA Vision Zero 2023" Award in the recently held 23rd World Congress on Safety and Health at Work in Sydney, Australia.

ISSA is the principal international institution bringing together social security agencies and organizations of the world. Its objective is to promote dynamic social security by supporting excellence in social security administration. It was founded in 1927 under the auspices of the International Labour Organization and is headquartered at Geneva (at the International Labour Office). The Liaison Office of ISSA for South Asia is also functioning from the ESI Corporation at its headquarters.

**20. C**

According to a report by Future Market Insight: Peer-to-peer lending, which sidesteps banks and financial institutions by connecting individual lenders with borrowers, has grown to \$407 billion globally as of last year.

The RBI has told peer-to-peer lending platforms to halt certain activities after inspections found rule violations and misleading sales practices.

Statement 1 is correct: P2P intermediaries are a new class of Non-banking financial companies (NBFCs). NBFCs are incorporated under Companies Act 1956 for financial intermediation in money and capital markets. But their primary business can't be related to agriculture or industrial activities and sale-purchase or construction of immovable property. Unlike banks, they can not accept demand deposits (only term deposits), can not be part of payment and settlement system, can not issue cheque, do not provide deposit insurance and do not offer incentives/gifts to depositors.

Statement 2 is correct: The P2P intermediaries provide the platform which pairs borrowers and individual lenders. It allows people to lend or borrow money from one another without going through a bank. With P2P lending, borrowers take loans from individual investors who are willing to lend their own money for an agreed interest rate. The profile of a borrower is usually displayed on a P2P online platform where investors can reassess these profiles to determine whether they want to risk lending money to a borrower. The repayments are also made through the NBFC-P2P, which processes and forwards the payments to the lenders who invested in the loan. P2P lending is also called social lending or crowd lending.

**21. B**

The R21 vaccine is the second malaria vaccine recommended by the WHO, following the RTS,S/AS01 vaccine, which received a WHO recommendation in 2021. It is a new vaccine approved for the prevention of malaria in children.

It was developed by the University of Oxford and the Serum Institute of India with support from the European and Developing Countries Clinical Trials Partnership ('EDCTP'), the Wellcome Trust, and the European Investment Bank ('EIB').

**22. C**

The National e-Governance Division (NeGD) recently organised the 40th Chief Information Security Officers (CISOs) Deep-Dive training programme under the Cyber Surakshit Bharat Initiative.

About Cyber Surakshit Bharat Initiative:

- It is an initiative of the Ministry of Electronics and Information Technology (MeitY) to spread awareness about cybercrime and build the capacities of Chief Information Security Officers (CISOs) and frontline IT officials across all government departments.
- It is an initiative to fortify the cyber security system in India with regard to the Government's vision of a Digital India.
- It was launched in cooperation with the National e-Governance Division (NeGD) and various industry partners in India.
- It is the first public-private enterprise of its kind. The partners involved in the origination of this scheme include chief IT companies like Intel, Microsoft, etc.
- It is operated on three principles: education, awareness, and enablement. It conducts a number of training programs for CISOs and technical officials from the central government, state governments, PSBs, UTs, PSUs, defense PSUs and technical arms of the Army, Navy, and Air Force.
- Its Deep-Dive training program specifically aims at educating CISOs on cyberattacks and relevant legal provisions and enabling them get the necessary exposure to the latest technologies for safeguarding e-infrastructure.

**23. B**

Alternative Investment Fund (AIF) is a special investment category that differs from conventional investment instruments. It is a privately pooled fund which adhere to the SEBI (Alternative Investment Funds) Regulations, 2012. AIFs can be formed as a company, Limited Liability Partnership (LLP), trust, etc. Generally, institutions and High Networth Individuals (HNIs) invest in Alternative Investment Funds as substantial investments are required.

Statement 1 is incorrect: Resident Indians, NRIs, and foreign nationals can invest in these funds. The minimum investment limit is Rs. 1 crore for investors, whereas the minimum investment amount for directors, employees, and fund managers is Rs. 25 lakhs.

Statement 2 is correct: AIFs come with a minimum lock-in period of three years. Also, the number of investors in every scheme is restricted to 1000. In the case of an angel fund, no scheme shall have more than forty-nine angel investors.

AIFs are not directly related to stock markets. Volatility in these funds is less, particularly when compared with traditional equity investments. So it might be suitable for risk-averse investors looking for stability.

Statement 3 is correct: Hedge funds are category-III AIFs that pool money from accredited investors and institutions. These funds invest in both domestic and international debt and equity markets. They adopt an aggressive investment strategy to generate returns for investors

**24. C**

Context: Recently, India's first patient diagnosed with the Pompe disease died after spending nearly six years in a semi-comatose state.

About the Pompe disease:

It is a rare inherited disorder that affects one child per million.

Causes: Mutations in the GAA gene cause Pompe disease. Statement 2 is correct. The GAA gene provides instructions for producing an enzyme called acid alpha glucosidase (also known as acid maltase). Statement 1 is correct.

This enzyme is active in lysosomes, which are structures that serve as recycling centres within cells. The enzyme normally breaks down glycogen into a simpler sugar called glucose, which is the main energy source for most cells. Mutations in the GAA gene prevent acid alpha-glucosidase from breaking down glycogen effectively, which allows this sugar to build up to toxic levels in lysosomes. This build up damages organs and tissues throughout the body, particularly the muscles, leading to the progressive signs and symptoms of Pompe disease.



Some common side effects and symptoms include muscle weakness, respiratory issues, heart problems and difficulty swallowing. Symptoms appear later in childhood or in adulthood. It affects males and females equally.

Treatment: The treatment includes enzyme replacement therapy (ERT).

**25. C**

NASA's Deep Space Optical Communications (DSOC)

Central Idea

NASA's DSOC experiment on boarded to Psyche spacecraft, recently demonstrated successful transmission of data over near-infrared laser signals to Earth.

This technology addresses the challenge of transmitting vast amounts of data over long distances from spacecraft, moving at high speeds in deep space.

Deep Space Optical Communications (DSOC)

NASA's DSOC experiment introduces near-infrared laser signals for spacecraft communication. Statement 1 is correct.

DSOC promises data rates at least 10 times faster than conventional radio communication systems, leading to enhanced data transfer rates, higher-resolution images, increased scientific data volume, and even real-time video streaming. Statement 2 is correct.

DSOC's laser communication technology is comparable to how fibre optics revolutionized Earth-based tele communications. Statement 3 is correct.

Psyche Spacecraft and DSOC

- The Psyche spacecraft is the first to carry a DSOC transceiver, which will test high-bandwidth optical communication with Earth during its initial two years of travel to the asteroid belt.
- DSOC's successful "first light" milestone was reached when the transceiver locked onto a powerful laser beacon transmitted from NASA's Table Mountain Facility in California.
- Achieving high data rates relies on extremely precise pointing, akin to hitting a small target from a great distance while both are in motion.
- This precision is necessary for the laser transceiver to track its target despite vibrations on the spacecraft.

Psyche Spacecraft

- NASA's Psyche mission is aimed at exploring a unique and intriguing metallic asteroid called 16 Psyche.
- This mission promises to provide valuable insights into the early history of our solar system, the formation of planetary bodies, and the mysteries of Earth's core.
- The primary goal of the Psyche mission is to unravel the mysteries of 16 Psyche, a metallic asteroid located in the asteroid belt between Mars and Jupiter.
- By studying this asteroid up close, scientists hope to gain a deeper understanding of the processes that shaped the terrestrial planets, including Earth.

**26. A**

In recent times the Government is working on new technologies such as Small Nuclear Reactors to make clean energy transition.

Small modular reactors (SMRs) are advanced nuclear reactors that have a power capacity of up to 300 MW (e) per unit, which is about 1/3rd of the generating capacity of traditional nuclear power reactors. Statement 1 is correct.

It can produce a large amount of low-carbon electricity. Given their smaller footprint, SMRs can be sited on locations not suitable for larger nuclear power plants. Statement 3 is correct.

SMRs are smaller reactors that can be factory-built, unlike conventional nuclear reactors that are built on site and cannot be a replacement to conventional large-sized nuclear power plants.

SMRs have reduced fuel requirements. Power plants based on SMRs may require less frequent refuelling, every 3 to 7 years, in comparison to between 1 and 2 years for conventional plants. Statement 2 is incorrect. Some SMRs are designed to operate for up to 30 years without refuelling.

Both public and private institutions are actively participating in efforts to bring SMR technology to fruition within this decade. The IAEA has established the Platform on SMRs and their Applications, a onestop shop for countries to coordinate support related to all aspects of SMR development, deployment.

**27. C**

The Indian Pharmacopoeia Commission (IPC) recently issued an alert regarding the common painkiller, Meftal, and said that people must take the drug only after consulting a doctor as it contains mefenamic acid which can trigger adverse reactions like DRESS syndrome, etc. Meftal is a commonly used drug for menstrual cramps and rheumatoid arthritis.

Statement 1 is correct: The Drug Rash with Eosinophilia and Systemic Symptoms (DRESS) syndrome is characterised by fever, skin rash, lymphadenopathy, haematological abnormalities and internal organ involvement and manifests two to eight weeks after the drug has been taken.

Statement 2 is correct: It is a unique and severe idiosyncratic response to a medication, marked by a protracted onset period. It is a severe allergic reaction affecting around 10 percent of individuals, potentially deadly and caused by certain medications.

**28. B**

Context: United Nations Environment Programme (UNEP) released Global Cooling Watch 2023 report.

The report demonstrates the potential and the pathways to achieve near zero emissions from cooling. Cooling acts as a double burden on climate change by raising the demand for power at one end and inducing global warming due to the release of refrigerant gases in cooling equipment. Emissions from cooling are predicted to account for more than 10 per cent of global emissions in 2050.

Key Highlights

82% of global cooling-related GHG emissions came from G20 countries, in 2022 Under the current approach to cooling, the installed capacity of cooling equipment globally will triple between now and 2050.

Recommendations

- o Passive strategies to address extreme heat and reduce cooling demand in buildings and in the cold chain.
- o Higher energy efficiency standards and norms for cooling equipment.
- o A phase-down of climate-warming hydrofluorocarbon (HFC) refrigerants at a faster rate than is required under the Kigali Amendment to the Montreal Protocol.
- o Global Cooling Pledge issued with the COP28 provides a real opportunity to act.
- o The pledge provides a strong political push to take immediate steps to reduce emissions, increase passive strategies, improve energy efficiency while phasing down HFCs etc.

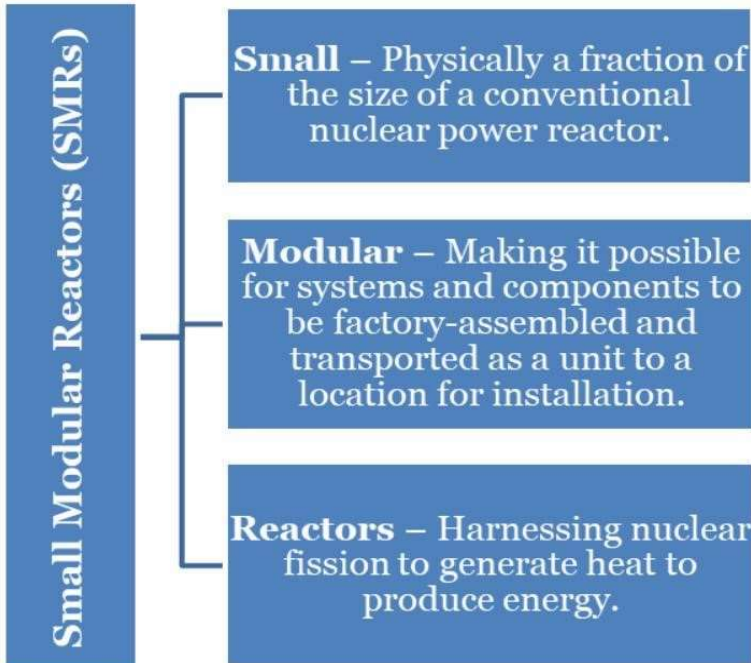
**29. B**

Context: recently, the Supreme Court inquired about the number of individuals who acquired citizenship under Section 6A of the Citizenship Act, 1955, implemented after the Assam accord.

What is Section 6A of the Citizenship Act, 1955:

Section 6A is a special provision inserted into the 1955 Act in furtherance of a Memorandum of Settlement called the 'Assam Accord' signed on August 15, 1985 by the then Rajiv Gandhi government with the leaders of the Assam Movement to preserve and protect the Assamese culture, heritage, linguistic and social identity. Statement 1 is correct.

Under Section 6A, foreigners who had entered Assam before January 1, 1966, and been "ordinarily resident" in the State, would have all the rights and obligations of Indian citizens. Statement 3 is correct.



Those who had entered the State between January 1, 1966 and March 25, 1971 would have the same rights and obligations except that they would not be able to vote for 10 years. Statement 2 is incorrect

**30. B**

The Union Education Minister recently urged the Odisha Chief Minister to implement the PM-USHA scheme for higher education in the state.

Pradhan Mantri Uchchatar Shiksha Abhiyan (PM-USHA) was launched in 2013 as a centrally sponsored programme to improve access, equity, and quality in higher education at the state level. Statement 1 is incorrect.

It is aimed at providing strategic funding to eligible state higher educational institutions. Statement 2 is correct. The central funding is based on norms and is outcome-dependent. Funds flow from the central ministry through the state governments/union territories before reaching the identified institutions.

**31. B**

Recently, the Minister of State for Home Affairs informed in the Rajya Sabha that National Automated Fingerprint Identification System (NAFIS) has been established at 1022 locations across the country.

Features of NAFIS:

- It is a Pan-India searchable database of crime and criminal-related fingerprints. Statement 2 is correct.
- It is managed by the Central fingerprint bureau at the National Crime Records Bureau (NCRB), based in New Delhi. Statement 1 is correct.
- It functions as a central information repository by consolidating fingerprint data from all states and Union Territories.
- It enables law enforcement agencies to upload, trace, and retrieve data from the database in real time on a 24×7 basis.
- It assigns a unique 10-digit National Fingerprint Number for each criminal, based on biometrics. Statement 3 is incorrect.
- The unique ID will be used for a lifetime of an offender. Different crimes registered under different FIRs will be logged as incidents belonging to the same National Fingerprint Number.
- The first two digits of the ID will be the state code of the state where the criminal is registered, followed by a sequence number. The state partition will have IDs belonging to a state.

**32. D**

**Diel Vertical Migration (DVM)**

- Diel vertical migration (DVM) is the daily, synchronized movement of marine animals between the surface and deep layers of the open ocean. It's also known as diurnal vertical migration.
  - This type of migration is the largest animal migration on the planet and is undertaken every single day by trillions of animals in every ocean.
  - This type of migration is followed by the deep-sea marine animal especially tiny free-floating zooplanktons. The timing of this migration is tuned to the natural rhythms of sunrise and sunset.
- " It is more than a survival strategy that plays a pivotal role in carbon sequestration. Animals dwelling in the mesopelagic layer (layer that extends from 200 to 1,000 meters below the ocean's surface) actively remove substantial amounts of carbon from the upper ocean as they feed on surface-dwelling plankton. When these organisms return to deeper waters, they carry the carbon with them. Even within the mesopelagic layer or twilight zone, some migratory animals become part of the food chain, passing on the carbon they have consumed to their predators. The carbon-rich waste produced by the predators then sinks to the ocean floor, where it remains trapped for millennia. This natural process is an important carbon sink that helps regulate the concentration of carbon dioxide in the atmosphere.

**33. C**

Recently, deadline for Submission of Applications for "Adopt a Heritage 2.0" Program has been decided as December 31, 2023.

What is Adopt a Heritage Scheme?

It is an initiative of the Ministry of Tourism, in collaboration with the Ministry of Culture and the Archaeological Survey of India. Statement 1 is incorrect.

It was launched in September 2017 on World Tourism Day.

Under it, the government invites entities, including public sector companies, private sector firms, as well as individuals, to develop selected monuments and heritage and tourist sites across India. Statement 2 is incorrect.

The project aims to encourage these entities to become 'Monument Mitras' and take up the responsibility of developing and upgrading the basic and advanced tourist amenities at these sites.

The corporate sector is expected to use corporate social responsibility (CSR) funds for the upkeep of the site.

The Monument Mitras, in turn, will get limited visibility on the site premises and on the Incredible India website.

**34. D**

SEBI, India's securities market regulator, is working on introducing real-time settlement of transactions in the stock exchanges, known as T+0 settlement.

Currently, the settlement process takes one day (T+1) after the trade date, but with T+0 settlement, funds and securities will be transferred instantly on the same day as the trade. This shift will bring operational efficiency, faster fund remittances, and immediate availability of money and shares for investors. Statement 2 is correct.

What is the T+1 settlement cycle?

In simple terms, T+1 settlement means that securities transactions will reflect in the demat account after a day instead of two days now under the T+2 cycle. Statement 1 is correct.

If an investor buys a stock on Thursday, it would be shown in the demat account on Friday. Now with T+0 settlement, investors can find the purchased on the same day (i.e., Thursday)

T+2: Was introduced in 2017

T+1: Was recently allowed in the Indian stock market (January 2023)

T+0: May be introduced by the next financial year (2024)

**35. B**

The National Mission for Clean Ganga (NMCG) recently signed a Memorandum of Common Purpose (MoCP) with the Mississippi River Cities and Towns Initiative (MRCTI), which represents 124 cities/towns situated along the banks of the Mississippi River, the United States.

About National Mission for Clean Ganga (NMCG):

It is a registered society under the Ministry of Jal Shakti, Government of India, to take measures for prevention, control, and abatement of environmental pollution in the river Ganga and to ensure continuous adequate flow of water so as to rejuvenate the river Ganga. Statement 1 is incorrect.

It acted as the implementation arm of the National Ganga River Basin Authority (NGRBA), which was constituted under the provisions of the Environment (Protection) Act (EPA), 1986. Statement 2 is correct.

NGRBA was dissolved on 7th October 2016, consequent to the constitution of the National Council for Rejuvenation, Protection, and Management of River Ganga (referred to as National Ganga Council). The NMCG now accomplishes the mandate of the NGRBA under the direction of National Ganga Council.

**36. A**

Why in news: Experts raises concern that there is a need to conserve Assam catkin yew.

It is a critically endangered (IUCN) and endemic plant species found only in two locations in Arunachal Pradesh: Changlagam in Anjaw district, and Deb village in Toru Hills, Papum Pare district. Statement 1 is correct.

Why does it need conservation?

This species is critical and is found nowhere else worldwide, except in two regions in Arunachal Pradesh. The species holds a unique identity in the context of Arunachal's flora, and has great potential for wildlife tourism in the state.

**37. A**

Recently, the Union Raksha Rajya Mantri informed Lok Sabha that 16 defence technologies have been successfully developed/realised under the Technology Development Fund (TDF) scheme.

It is a flagship programme of Ministry of Defence executed by Defence Research and Development Organisation (DRDO) under 'Make in India' initiative. Statement 1 is incorrect. The main objectives of the scheme are:

- To provide Grant in Aid to Indian industries, including MSMEs and Start-ups, as well as academic and scientific institutions for the development of Defence and dual use technologies that are currently not available with the Indian defence Industry. Statement 2 is correct.
- The work involvement of academia cannot exceed 40% of the total project cost. Project Duration: Maximum development period will be two years. Statement 3 is correct.

**38. B**

Context: India hosted the Annual Global Partnership on Artificial Intelligence (GPAI) Summit from December 12 - 14, 2023.

About the Global Partnership on Artificial Intelligence:

It is a multi-stakeholder initiative which aims to bridge the gap between theory and practice on AI by supporting cutting-edge research and applied activities on AI-related priorities. Statement 1 is correct.

It was officially launched on June 15, 2020 with fifteen founding members: Australia, Canada, France, Germany, India, Italy, Japan, Mexico, New Zealand, the Republic of Korea, Singapore, Slovenia, the United Kingdom, the United States, and the European Union. Membership in GPAI is open to all countries, including emerging and developing countries.

Current Member countries: At present it has 28 member countries including the European Union. Currently out of BRICS nations only Brazil and India are its members. Russia, China and South Africa are not its members. Statement 2 is incorrect. India is one of the founding members of GPAI. Statement 3 is incorrect.

Secretariat: Its secretariat is hosted at the Organisation for Economic Co-operation and Development (OECD), Paris.

Structure

It has a Council and a Steering Committee.

It has two Centres of Expertise: One in Montreal and another in Paris.

These Centres of Expertise will facilitate GPAI's four working groups and their research and practical projects, across various sectors and disciplines.

The working groups will initially focus on four themes:

1. Responsible AI
2. Data Governance
3. Future of Work
4. Innovation and Commercialization

**39. A**

Beit Lahia or Beit Lahiya is a city in the Gaza Strip, north of Jabalia, in the North Gaza Governorate of the State of Palestine.

The political party Hamas is still administering the city, together with the entire Gaza Strip.



**40. A**

**River Cities Alliance:**

It was launched in 2021.

It is a first-of-its-kind Alliance in the world, symbolising the successful partnership of the two Ministries i.e., the Ministry of Jal Shakti and the Ministry of Housing and Urban Affairs. Statement 1 is correct.

Objective: To provide the member cities with a platform to discuss and exchange information on aspects that are vital for sustainable management of urban rivers, sharing best practices and supporting innovation.

The Alliance is open to all river cities of India. Any river city can join the Alliance at any time.

The Secretariat of the Alliance is set up at the National Institute for Urban Affairs (NIUA). Statement 2 is incorrect.

The alliance has been launched initially with 30 cities namely Dehradun, Rishikesh, Haridwar, Srinagar, Varanasi, Kanpur, Prayagraj, Farrukhabad, Mirzapur, Mathura, Bijnor, Ayodhya, Patna, Bhagalpur, Begusarai, Munger, Sahibganj, Rajmahal, Howrah, Jangipur, Hugli-Chinsurah, Behrampore, Maheshtala, Aurangabad, Chennai, Bhubaneswar, Hyderabad, Pune, Udaipur and Vijaywada.

It focuses on three broad themes- Networking, Capacity Building and Technical Support. Statement 3 is correct.

**41. B**

The Universal Declaration of Human Rights (UDHR)

- UDHR is a milestone document that sets out, for the first time, fundamental human rights to be universally protected.
- It was adopted by the UN General Assembly in Paris in 1948. Statement 1 is correct. UDHR consists of the declaration consists of a preamble and 30 articles setting out fundamental rights and freedom.
- The declaration isn't a treaty and isn't legally binding in itself, but the principles it sets out have been incorporated into many countries' laws. Statement 2 is incorrect.
- Human Rights Day is observed annually on December 10 to commemorate the adoption and proclamation of the UDHR by the United Nations General Assembly on December 10, 1948.
- 2023 marks the 75th anniversary of the UDHR. The theme chosen for the 2023 celebrations is "Freedom, Equality, and Justice for All".
- India is a signatory to the Universal Declaration of Human Rights. Statement 3 is correct. To preserve and protect human rights in India, the National Human Rights Commission (NHRC) was established in 1993.
- The NHRC is a human rights institution, which is a recommendatory body as per the Protection of Human Rights Act.

**42. D**

- Arsenic & Metal Removal by Indian Technology (AMRIT) is an affordable solution for providing clean drinking water in arsenic-affected areas.
- It is a gravity-fed water purification unit in which arsenic and iron-containing water is passed through a composite filter unit to obtain water, conforming to international standards.
- The Indian Institute of Technology (IIT) - Madras has developed the technology for the removal of Arsenic and Metal ions from water.
- The technology uses Nano-scale iron oxy-hydroxide, which selectively removes arsenic when water is passed through it. Statement I is incorrect
- Statement II is correct: This water purifier has been developed for both domestic as well as community levels.
- Also, the technology has been recommended by the erstwhile 'Standing Committee' of the Department of Drinking Water and Sanitation for the examination of the best technologies concerning water and sanitation.

**43. A**

The Ministry of Corporate Affairs (MCA) has moved a step forward by centralising the strike-off process of companies with the establishment of the Centre for Processing Accelerated Corporate Exit (C-PACE).

Statement 1 is correct: The Corporate Affairs Ministry operationalised the C-PACE on May 1, 2023, to facilitate the applications filed for voluntary exit of Companies.

Statement 2 is incorrect: It is set up under the provisions of Section 248 (2) of the Companies Act, 2013 (not the Insolvency and Bankruptcy Code, 2016)

Statement 3 is correct: The applications for voluntary closure under C-PACE are processed in a centralised manner for an efficient and uniform outcome.

Since the setting up of C-PACE, the time taken under C-PACE for voluntary exit has been reduced to around 110 days during the current year.

The Insolvency and Bankruptcy Code (IBC): When insolvency is triggered under the IBC, there can be two outcomes: resolution or liquidation; all attempts are made to resolve the insolvency by either coming up with a restructuring or new ownership plan and if resolution attempts fail, the company's assets are liquidated.

**44. B**

- On December 11, 2023, a new text on the Global Goal on Adaptation (GGA) was introduced by the COP28 presidency. The major changes were the addition of a paragraph on a commitment

to close the adaptation finance gap, and the absence of the principle of common but differentiated responsibilities and respective capabilities.

- Global Goal on Adaptation (GGA) is meant to serve as a unifying framework that can drive political action and finance for adaptation on the same scale as mitigation. It was proposed by the African Group of Negotiators (AGN) in 2013 and established in 2015 under Paris agreement. Statement 2 is incorrect.
- An effective GGA framework should define a clear set of targets and indicators to guide national efforts on adaptation and resilience, with a focus on strengthening and tracking adaptation action and support. Statement 1 is correct.
- At COP28, negotiators will work to finalize and implement the GGA, a task which was originally delegated to the Adaptation Committee (AC) and the Least Developed Countries Expert Group (LEG) in 2015.
- The GlaSS programme is expected to conclude at COP28 with an annual report. Statement 3 is



correct.

45. D

#### **INDIAN CHEVROTAIN**

India's smallest deer, also known as the Mouse deer is endemic to the Indian subcontinent. This unique deer is spread across the peninsular India, and their habitat ranges from deciduous, semi-evergreen, to evergreen forest. Chevrotain are often seen climbing the tree trunk, to make a hollow den to avoid the predators. Best places to look for these unique species are Kanha National Parks, Nagarhole National Park and Western Ghats. Pair 1 is correct.



#### **HIMALAYAN MUSK DEER**

This is found all across the Western Himalayas through Himachal Pradesh to Sikkim.

Commonly called White-bellied Musk Deer this species has large canines protruding from the mouth, which when broken grows back easily. They communicate mostly through olfaction (a process of smelling). Males have a scent sac that secretes a substance called musk, which they use to mark their territory and to attract the females. The musk is highly valued in cosmetic industries and has pharmaceutical properties, which makes them vulnerable to poaching.



Best Seen: Few places where you can get a chance to see them are Govind Pashu Vihar National Park and Sanctuary and Great Himalayan National Park. Pair 2 is correct.

#### SAMBAR DEER

With the grandest of antlers, Sambar deer is India's largest forest ruminant, with a dark brown coat, weighing up to 180-270 kilograms. Males have huge three-tined antlers that can grow upto 1 metre long. They are found throughout India, except high Himalayas, desert, kutch and the coast.



This mighty creature is highly territorial and are often seen fighting for their land.

Both male and female have a sore spot on the neck which is a gland that is associated with communication during the rut/mating. Males live a solitary life and are occasionally spotted associating with each other, mostly in the rutting season.

Best seen: Since they are shy, they often run when they are near human dominated areas, but few places like Satpura National Park, Kanha National Park, Kaziranga National Park gives a good chance to spot this big species. Pair 3 is correct.



#### KASHMIR RED DEER

One of the iconic species, Hangul is the state animal of Jammu and Kashmir and is now classified as a critically endangered species by IUCN.

These grimy looking deer have fine-tined antlers and are known to roar during the rutting season. Hangul are territorial and like to move around and guard their territory. As the population of the hinds are more as compared to stags, the rutting takes place rarely.

Best Seen: Their habitat differs from moist, broadleaved and coniferous forest and is restricted to Dachigam National Park, Waraghat-Narang and Chandaji Nullah in Jammu -Kashmir. Pair 4 is correct.

**46. C**

The Financial Stability Board has released a report on Multifunction Crypto-Asset Intermediaries.

Statement I is correct: Multifunction crypto-asset intermediaries (MCIs) are individual firms, or groups of affiliated firms, that combine a broad range of cryptoasset services, products, and functions typically centred around the operation of a trading platform.

Many MCIs have proprietary trading and investment functions, while some are also involved in issuing, promoting, and distributing crypto-assets or related products, including so-called stable coins.

Statement II is incorrect: MCI vulnerabilities are not very different from those of traditional finance, including leverage, liquidity mismatch, technology and operational vulnerabilities, and interconnections.

These vulnerabilities are further amplified by a lack of effective controls and operational transparency, poor or no disclosures, and conflicts of interest. There are also additional vulnerabilities stemming from the centrality of MCIs in the cryptoasset ecosystem and their concentration and market power.

**47. A**

Universal Dynamic Crosslinker (UDC)

Context: Researchers at IIT Madras, Columbia University and Colorado State developed a sustainable plastic recycling technique known as UDC.

- UDC avoids the need for deconstruction and reconstruction of plastics and successfully blends usually incompatible plastics. Option (a) is correct.
- UDC helps to address plastic waste crisis and could potentially revolutionise the plastics recycling industry.
- Resulting upcycled materials can be used and reprocessed through multiple cycles and have enhanced performance over virgin plastics.

**48. A**

Statement II is correct. Open-pit mining involves digging large pits on the surface, leading to significant land clearing, deforestation, soil erosion, and habitat fragmentation. Statement II is correct explanation of Statement I.

Statement I is correct. Open-pit mining generally has a higher environmental impact than underground mining due to several factors such as: Dust and pollution, Water pollution, leave lasting scars on the landscape, affecting scenic beauty and potentially impacting tourism potential which also leads to habitat fragmentation, deforestation, and soil erosion.

Underground Mining: Underground mining is used to extract ore from below the surface of the earth safely, economically and with as little waste as possible. The entry from the surface to an underground mine may be through a horizontal or vertical tunnel, known as a shaft or decline.

**49. A**

India recently rejected a statement issued by the OIC on a judgment of the Supreme Court upholding the abrogation of Article 370 that guaranteed special status to Jammu and Kashmir.

About Organization of Islamic Cooperation (OIC):

It is the second-largest intergovernmental organization in the world after the United Nations, with a collective population reaching over 1.8 billion. Statement 1 is correct.

The OIC is the collective voice of the Muslim world to preserve Islamic values, safeguard and defend the national sovereignty and independence of member states, and contribute to international peace and security.

It has a membership of 57 states spread over four continents and is headquartered in Jeddah, Saudi Arabia. Statement 2 is incorrect.

**50. D**

The Minister of Science and Technology recently announced that India is set to launch Vyommitra, a female robot astronaut, into space as part of Gaganyaan project.

About Vyommitra:

- Vyommitra is a combination of two Sanskrit words Vyoma (Space) and Mitra (Friend).
- It is a female robot designed and developed by the ISRO to fly aboard unmanned test missions ahead of the Gaganyaan human spaceflight mission. Statement II is correct.
- It is referred to as a half-humanoid robot as she doesn't have legs. However, she can bend forward and sideways. Statement I is incorrect.
- Besides going on uncrewed Gaganyaan missions, she will accompany astronauts on manned missions too.
- It can perform tasks such as operating switch panels, and serving as a companion to astronauts, engaging in conversations, recognising them, and responding to their inquiries.

**51. C**

Ude Desh ki Aam Nagrik (UDAN) Scheme

The scheme has successfully completed 6 years. UDAN (Ude Desh Ka Aam Nagrik) is a government-backed initiative to improve infrastructure and connectivity in India, especially in remote and underserved regions, by using smaller aircraft with seating capacity that ranges from 20 to 80 seater.

- It is a vital component of India's National Civil Aviation Policy (NCAP) 2016, launched by the Ministry of Civil Aviation (MoCA) on 2016. Statement 1 and 2 are correct.
  - The Regional Air Connectivity Fund Trust provides viability gap funding that the civil aviation ministry offers the operators to help run the routes successfully.
  - The partner State Governments (other than UTs and NER states where contribution will be 10%) would contribute a 20% share to this fund.
- o Statement 3 is correct.

What is the Gaganyaan mission?

- Under the Gaganyaan Mission, ISRO will be sending three humans to an orbit of 400 km for a 3-day mission and bringing them back safely to Earth
- Launch Vehicle: The Mark-3 (LVM3/GSLV Mk3) rocket.
- The Astronaut Training Facility established in Bengaluru provides a comprehensive training program for astronauts of the Gaganyaan mission.

**52. B**

- NASA is gearing up to enhance our understanding of Earth's atmosphere with the upcoming Plankton, Aerosol, Cloud, ocean Ecosystem (PACE) mission, scheduled for launch in early 2024. Statement 1 is incorrect.
- The mission will employ advanced polarimeters to study the interplay of light, aerosols, and clouds, contributing to a deeper comprehension of their impact on air quality and climate. Statement 2 is correct.
- The PACE mission will not only analyse aerosols but also study the colour of the ocean. Its Ocean Colour Instrument (OCI) which is designed to measure the ocean's colour across a spectrum from ultraviolet to shortwave infrared.
- It will feature two polarimeters - the Spectro-polarimeter for Planetary Exploration (SPEXone) and the Hyper Angular Research Polarimeter (HARP2).
- This combination aims to provide improved atmospheric correction and a comprehensive range of aerosol and cloud science data beyond what the OCI alone could achieve.
- The synergistic payload of OCI, SPEXone and HARP2 is poised to make significant breakthroughs in aerosol-cloud-ocean research.

**53. D**

Tropospheric Emissions: Monitoring of Pollution (TEMPO) Satellite

Recently the TEMPO Satellite was launched by the NASA to provide hourly updates on atmospheric pollutants.

- The Tropospheric Emissions: Monitoring of Pollution (TEMPO) satellite is a spectrometer that monitors air pollution over North America. Statement 1 is incorrect.
- It is an initiative of NASA to provides hourly updates on atmospheric pollutants. Statement 2 is incorrect.
- Its measurements, from geostationary orbit, of tropospheric ozone, ozone precursors, aerosols, and clouds will create a revolutionary dataset that improves prediction of air quality (AQ) and climate forcing.

**54. A**

International Debt Report 2023

The International Debt Report 2023 was recently released by the World Bank that analyse 122 low and middle-income countries that report to the World Bank Debt Reporting System (DRS).

- The International Debt Report 2023 is the 50th edition of the World Bank's annual publication on external debt along with the International Debt Statistics (IDS) database. Statement 1 is incorrect.
- It is the most comprehensive and transparent source of verifiable, cross-country comparable external debt data of low and middle-income countries (LMICs). Statement 2 is correct.
- The report analyse 122 low and middle-income countries that report to the World Bank Debt Reporting System (DRS). Statement 3 is correct.
- Developing countries: Debt-service payments, which include principal and interest, increased by 5% in 2022 over the previous year for all developing countries. For the first time since 2015, the private creditors have received more funds than they put into developing countries.
- LMICs: Debt servicing costs on public and publicly guaranteed debt are projected to grow by 10% for all developing countries over the 2023-24 period and by nearly 40 % for low-income countries. LMICs in particular are struggling with the effects of an ongoing war in Europe, rising energy prices, sharply higher interest rates and slowing growth.
- In 2022, the low and middle-income countries paid a record USD 443.5 billion to service their external public and publicly guaranteed debt. The external debt stock of low and middle-income countries (LMICs) decreased by 3.4%.
- Poor countries - Over the past decade, interest payments by poor countries have quadrupled to an all-time high of USD 23.6 billion in 2022. Overall, debt-servicing costs for the 24 poorest countries are expected to increase by 39% in 2023 and 2024.
- 2023 projection - Global gross domestic product (GDP) growth is set to slow in 2023. According to the World Bank's latest projections, global growth in 2023 is expected to slow to 2.1%.

**55. D**

The Indian National Hydrographic Office (INHO), located at Dehradun, is the sole national authority for the publication of nautical charts and other publications for navigation at sea. As part of its international responsibilities, the office provides coverage for Maritime Safety Information (MSI) in the region NAVAREA VIII comprising of the Indian Ocean, Arabian Sea, and Bay of Bengal.

India is providing hydrographic assistance to maritime nations of the region. This includes joint hydrographic surveys with on-board training, structured training at the National Institute of Hydrography (NIH), Goa, and specialised courses for Multibeam and Electronic Navigational Charts (ENCs) production training at NHO.

INHO has carried out hydrographic surveys in:

Maldives

Mauritius  
Kenya  
Tanzania  
Myanmar  
Sri Lanka  
Seychelles

**56. A**

VINBAX, SURYA KIRAN, VAJRA PRAHAR and HARIMAU SHAKTI

VINBAX - It is a Joint Military Exercise between India and Vietnam. Pair 1 is incorrectly matched.

The VINBAX-2023, 4th edition was held at Hanoi, Vietnam.

Exercise VINBAX was instituted in 2018 and the first edition was conducted at Jabalpur, Madhya Pradesh.

SURYA KIRAN - It is a Joint Military Exercise between India and Nepal. Pair 2 is correctly matched.

It is an annual event and conducted alternatively in the two countries.

The 17th edition was held at Pithoragarh, Uttarakhand.

VAJRA PRAHAR - It is a joint exercise conducted between Indian Army and USA Army Special Forces. Pair 3 is incorrectly matched.

The 14th Edition of the exercise was held at Umroi, Shillong of Meghalaya.

HARIMAU SHAKTI - It is a Joint bilateral training exercise between Indian and Malaysian Army. Pair 4 is incorrectly matched.

**57. B**

- Visitors' admission, withdrawal and removal in the Lok Sabha is governed by Rule 386 and 387 of the Rules of Procedure and Conduct of Business in the Lok Sabha. Strangers can only enter the Lok Sabha with prior permission from a member of Parliament (MP).
- Visitors such as academics, students, and members of the general public are frequently admitted in the Parliament.
- They ask MPs for passes so they can observe how laws are made. MPs requesting visitor passes must give a declaration that they know the guest personally and take full responsibility for him or her.

Why in the News?

Recently, two persons visiting the Parliament jumped into the Lok Sabha chamber from the visitor's gallery and opened canisters that emitted yellow smoke.

What does the Lok Sabha Rules say on the entry of visitors in Lok Sabha?

- Rule 386: It states that the admission of strangers during the sittings of the House to those portions of the House which are not reserved for the exclusive use of members shall be regulated in accordance with orders made by the Speaker.
- Rule 387: It gives the Speaker the power to withdraw "strangers" from any part of the House if he/she deems it fit.

**58. B**

The first round of crash testing of the cars under the Bharat New Car Assessment Programme (Bharat NCAP) has been successfully completed recently.

About Bharat New Car Assessment Programme (Bharat NCAP):

- It is an indigenous star-rating system for crash testing cars, under which vehicles will be assigned between one to five stars, indicating their safety in a collision. Statement 1 is correct.
- Bharat NCAP is an ambitious joint project between the Government of India
- (GoI) and Global NCAP, the regulatory body behind the safety crash test ratings.
- Objective: To help consumers make an informed decision before purchasing a car, thereby spurring demand for safer cars.

- Under the Bharat NCAP, cars voluntarily nominated by automobile manufacturers will be crash tested as per protocols laid down in the Automotive Industry Standard (AIS) 197.

Applicability:

- The programme is applicable to passenger vehicles with not more than eight seats in addition to the driver's seat, with a gross vehicle weight not exceeding 3,500 kg. Statement 2 is incorrect.
- Only the base model of a particular variant will be tested.
- Besides internal combustion engine (ICE) models, CNG cars as well as battery-powered electric vehicles are eligible to undergo the safety test.
- It is a voluntary programme under which the cost of the car for assessment for star rating and the cost of such assessment are borne by the respective vehicle manufacturer or importer. Statement 3 is correct.
- Unlike in other countries where the NCAP is carried out by non-government entities, there will be a Bharat NCAP Authority in India. The authority will also host the safety ratings of all new car models on a website for public knowledge.
- Though it will be optional for the vehicle manufacturers to submit their cars for an assessment, the central government can also ask the authority to select a particular variant of a model for assessment "in interest of public safety" at any of the designated crash test centres.

## 59. A

What is Sodium Ion Battery (NIB)?

- A NIB is a type of rechargeable battery that uses sodium ions as the charge carriers to store and release electrical energy. Statement 1 is correct.
- Similar in principle to lithium-ion batteries, sodium-ion batteries offer an alternative energy storage solution with potential benefits such as cost-effectiveness and abundance of sodium resources.

Key characteristics

- **Working Principle:** Sodium-ion batteries operate on the same basic principle as lithium-ion batteries. During charging, sodium ions are moved from the positive electrode (cathode) to the negative electrode (anode), and during discharge, they move back to the cathode, generating electrical energy in the process.
- **Sodium Anode:** In a sodium-ion battery, the anode typically consists of materials that can intercalate (absorb) sodium ions during charging. Graphite and other carbon-based materials are commonly used for the anode in sodium-ion batteries.
- **Cathode Materials:** Various materials can be used as cathodes in sodium-ion batteries, such as transition metal oxides or polyanionic compounds. These cathode materials allow sodium ions to be stored and released, enabling the battery's energy storage function.
- **Electrolyte:** The electrolyte in a sodium-ion battery is responsible for facilitating the movement of sodium ions between the anode and cathode during charge and discharge cycles. Sodium-ion batteries typically use a solid electrolyte or a liquid electrolyte containing sodium salts. Statement 2 is correct.

Advantages offered

- **Abundance of Resources:** Sodium is more abundant and widely available than lithium, which can potentially make sodium-ion batteries more cost-effective.
- **Environmental Impact:** They may have a lower environmental impact compared to lithium-ion batteries due to the more widespread availability of sodium resources.

Challenges:

- **Energy Density:** Sodium-ion batteries generally have lower energy density compared to lithium-ion batteries, which can limit their use in applications requiring high energy storage capacity.

- Cycle Life: Ensuring a long cycle life (the number of charge and discharge cycles a battery can go through before losing capacity) remains a challenge for sodium-ion batteries. Statement 3 is incorrect.

**60. C**

Parts of the Rhine River in south Germany remained closed to shipping recently after heavy rain and melting snow increased water levels.

About Rhine River:

It is the 12th longest river in Europe, stretching approximately 1,230 kilometers from its source in Switzerland to its mouth on the North Sea in the Netherlands.

It is the largest tributary of the North Sea. It originates from the south-eastern part of the Swiss Alps in the Canton of Grisons, Switzerland.

**61. D**

**Krutrim**

Context: Ola has recently launched the Krutrim, which is a large language model (LLM) trained specifically for Indian languages. Krutrim can understand 22 Indian languages and generate content in about 10.

About Large Language Model (LLM):

- They are deep learning algorithms that can recognize, summarize, translate, predict, and generate content using very large datasets.
- They are also referred to as neural networks (NNs), which are computing systems inspired by the human brain. Some of the famous LLMs are Open AI's ChatGPT, Google's Gemini, etc.

**62. B**

**Dark Fibre Case**

Context: Securities Appellate Tribunal (SAT) has quashed SEBI's order of imposing a fine on the National Stock Exchange in the dark-fibre case.

About Dark Fibre Case:

The case relates to the alleged differential access given to certain broking firms in the form of 'dark fibre' at NSE, to connect across the colocation facilities before other members.

The dark fibre or unlit fibre, with respect to network connectivity, refers to an already laid but unused or passive optical fibre, which is not connected to active electronics/equipment and does not have other data flowing through it and is available for use in fibre-optic communication.

They are named dark because no light pulse is transmitted through these cables. Even after these fibres are used, they are referred as dark fibre, as they are independent of other network cables.

Benefits: Low latency, high security etc.

**63. B**

In a written reply in Rajya Sabha, the Coal and Mines Minister recently said the District Mineral Foundation (DMF) has been set up in 644 districts in 23 states.

About District Mineral Foundation (DMF):

- DMF is a trust set up as a non-profit body under the Mines and Minerals (Development and Regulation) (MMDR) Amendment Act 2015. Statement 1 is correct.
- Purpose: To work in the interest and benefits of persons and areas affected by mining-related operations in a manner as maybe prescribed by the respective State Government
- Funding: It is funded through the contributions from the holders of major or minor mineral concessions in the district, as may be prescribed by the Central or State Government. Statement 2 is incorrect.
- the operation of DMFs falls under the jurisdiction of the relevant State Government. Statement 3 is correct.
- The composition and functions of the District Mineral Foundation shall be such as may be prescribed by the State Government. The fund for DMF is collected at the district level.

**64. D**

Raising Accelerating MSME Performance (RAMP) program

Context: Ministry of Micro, Small & Medium Enterprises (MSME) launches three sub-schemes under the RAMP program.

- Raising Accelerating MSME Performance (RAMP) program & is a World Bank supported Central Sector Scheme for MSMEs to accelerate center-state collaboration in MSME promotion and development and to improve access of MSMEs to market and credit, technology upgradation.

Key details of sub-schemes:

- MSME Green Investment and Financing for Transformation Scheme (MSE GIFT Scheme): intends to help MSMEs adopt green technology with interest subvention and credit guarantee support.
- MSE Scheme for Promotion and Investment in Circular Economy (MSE SPICE Scheme): to support circular economy projects through credit subsidy and will lead to realizing the dream of the MSME sector towards zero emissions by 2070.
- MSE Scheme on Online Dispute Resolution for Delayed Payments (MSE ODR scheme): to synergize legal support with modern IT tools and Artificial Intelligence to address the incidences of delayed payments for MSME.

Other announcements by Ministry of MSME

- Zero Defect and Zero Effect (ZED) scheme which promotes manufacturing without negative impact on environment, has been made free for women led MSMEs.
- Support for the Commercialisation of the IP Programme (MSME-SCIP Programme) for MSME innovators to commercialize their intellectual property rights.

**65. A**

Recently, Tamil author Rajasekaran (Devibharathi), Telugu writer T. Patanjali Sastry and Malayalam litterateur E.V. Ramakrishnan were among those named for the Sahitya Akademi Award.

- It is awarded for the most outstanding books of literary merit published in any of the major Indian languages recognised by the Akademi. Statement 1 is correct.
- Akademi gives 24 awards annually to literary works in the languages it has recognized and an equal number of awards to literary translations from and into the languages of India
- Besides the 22 languages enumerated in the Constitution of India, the SahityaAkademi has recognised English and Rajasthani as languages in which its programme may be implemented. Statement 2 is incorrect.
- The award, in the form of a casket containing an engraved copper-plaque, a shawl and 1,00,000 rupees will be presented.

Key points about the Sahitya Akademi:

- It was formally inaugurated by the Government of India on 12 March 1954.
- Sahitya Akademi, India's National Academy of Letters, is the only institution that undertakes literary activities in 24 Indian languages, including English.
- Though set up by the Government, the Akademi functions as an autonomous organisation. It was registered as a society under the Societies Registration Act, 1860.

**66. B**

India cyber threat report, 2023 has been released by Seqrite and the Data Security Council of India (DSCI).

Statement 1 is correct: Cryptojacking has emerged as a significant threat, with over 5.28 million detections in a year.

Cryptojacking is a cyber-attack wherein a computing device is hijacked and controlled by the attacker, and its resources are used to illicitly mine cryptocurrency. In most cases, the malicious



program is installed when the user clicks on an unsafe link or visits an infected website, unknowingly providing access to their Internet-connected device.

Statement 2 is correct: The automobile industry experienced the highest number of detections, followed by the government and education sector, according to the report.

Statement 3 is incorrect: India saw over 761 cyber threat detections per minute in 2023: Android Detections included 39% malware, 32% adware, and 29% Potentially Unwanted Apps.

**67. B**

Central Industrial Security Force (CISF)

- After the recent incident of Parliament security breach, the ministry of home affairs has decided to hand over the Parliament security to Central Industrial Security Force (CISF).
- Central Industrial Security Force (CISF) is an armed force of the Union which is established under an Act of Parliament (Central Industrial Security Force Act, 1968). Statement 1 is correct.
- It was created "for the better protection and security of Industrial Undertakings. It was first inducted at the Fertilizer Corporation of India manufacturing plant in Trombay, Maharashtra, on November 1969.
- It was expanded to include joint-ventures and private undertakings in 2009 and also provides consultancy services to the private sector.
- It is a compensatory cost force that has 12 reserve battalions and 08 training institutes.
- It is mandated to provide security to the premises staff along with the security of property and establishments.

It is one of 7 Central Armed Police Forces (CAPF) under the Ministry of Home Affairs the other 6 includes: Statement 3 is incorrect.

Border Security Force

Indo-Tibetan Border Police

Sashastra Seema Bal

Assam Rifles

National Security Guard

Central Reserve Police Force

CISF is the only force with a customized and dedicated fire wing. Statement 2 is correct.

It provides security to the strategic establishment such as:

Department of Space and Department of Atomic Energy,

Airports, ports and Delhi Metro,

Historical monuments and Basic areas of Indian economy such as petroleum and natural gas, electricity, coal, steel and mining.

It is the Central Armed Police Forces (CAPF) with the largest public interface.

CISF has the largest percentage of women in its force, in comparison to all other CAPFs.

It is currently headed by Special DG Nina Singh, the first woman to occupy the post.

It also provides protection to some private sector units and important government buildings in Delhi.

At present, CISF is also provides security to the protected persons classified as Z Plus, Z, X, Y.

**68. C**

Statement I is correct: Neglected Tropical Diseases (NTDs) have gained increasing attention and funding from global health organizations in recent years.

The World Health Organization (WHO) and other organizations have made significant efforts to raise awareness and mobilize resources for the prevention and control of NTDs.

Statement II is incorrect: Neglected Tropical Diseases generally have low mortality rates compared to other infectious diseases like malaria, tuberculosis, or HIV/AIDS.

They are called "neglected" because they have been historically overlooked due to their limited impact on mortality, primarily affecting impoverished communities in tropical and subtropical regions.

Why in the News?

World Health Organisation (WHO) has recently added 'Noma' to its official list of neglected tropical diseases (NTD).

What is Noma?

It is a severe gangrenous (decaying because the blood has stopped flowing there) disease affecting the mouth and face. Noma eats away facial tissue and bones if not treated early.

It is caused by the bacteria spirochete *Borrelia vincenti*, commonly found in the mouth.

It typically begins as inflammation of gums but progresses rapidly, leading to extensive tissue destruction and eventually exposing facial bones.

It is also called cancrum oris or gangrenous stomatitis.

It has a mortality rate of around 90%.

It primarily affects children aged 2 to 6 years old who are malnourished, infected with infectious diseases, living in extreme poverty with poor oral health, or who have weakened immune systems.

Treatment- Immediate action with antibiotics, rehydration, correcting electrolyte imbalances, and providing nutritional supplements can halt the disease's progression.

Preventive measures- Enhancing living conditions and healthcare access for vulnerable populations, ensuring proper nutrition, immunization, oral hygiene, and sanitation practices.

The illness's neglected nature is most likely due to the fact that it affects the world's most marginalised children.

**69. B**

Statements 1 and 2 are correct: India has the world's second-largest standing armed forces, with over 1.4 million active personnel.

As of 2023, India has the third-largest defence budget globally, following the United States and China.

Statement 3 is incorrect: While India and Malaysia do maintain cordial diplomatic relations and have collaborated on defence training exercises, their current level of military partnership wouldn't be considered very strong.

India has strong military partnerships with key allies like the US, France, and Israel, providing access to advanced technology and training.

What are the challenges faced by India's defence?

**Reduced Squadron Strength:** The IAF's current squadron strength is 32, far below the desired number, with a slow growth plan to reach 35 in ten years.

**Budgetary Limitations:** The defence budget is under pressure due to electoral commitments. For example, in 2023-24, the defence capital acquisition

budget was short by ₹13,746 crores from the requested amount.

**Low R&D Expenditure:** India's research and development spending in defence is low at 0.7% of GDP, compared to China's 2.54%. Globally, India ranks 53rd in R&D spending, while China spent \$421 billion in 2022.

**Change in Military Strategy:** Post the Russia-Ukraine war, India's military strategy has shifted from preparing for short, intense conflicts to envisioning extended warfare scenarios.

What are the Government's Initiatives?

**Innovations For Defence Excellence (iDEX):** A key initiative to foster innovation in defence, enhancing self-reliance.

**Service-Specific Competitions:** The IAF's Baba Mehar Singh competition, for example, promotes the development of unmanned aerial vehicles.

**Ordnance Factory Board Restructuring:** This move is aimed at improving efficiency in defence manufacturing, a significant step in defence sector reform.

**Private Sector Participation:** Emphasizing on private sector involvement, with 25% of R&D funds dedicated to private companies.

**The Atmanirbhar Bharat Drive:** It is promoting self-reliance in defence, includes restricting certain imports and boosting local manufacturing, leading to an encouraging rise in India's defence exports. For example, in 2022-23, India's defence exports reached a record high of approximately Rs 16,000 crore, a tenfold increase from Rs 1,521 crore in 2016-17.

## 70. B

The Zuari Bridge is a bridge between North Goa and South Goa, India. It carries the NH 66 over the tidal part of the Zuari River, between the villages of Agaçaim and Cortalim. It is a few metres downstream of the Konkan Railway Bridge. The 640-metre-long bridge and the 13.20 km roads on both sides have been built in 3 phases. The Zuari Bridge work began in June 2016.

Zuari Bridge's 1st (northbound) carriageway was inaugurated by Union Minister Nitin Gadkari on December 29, 2022. The 2nd (southbound) bridge was opened on December 24, 2023.

## What is the current state of India's defense?

### India's defence exports rose 24% in FY23, and tenfold in six years

India's defence exports (in Rs crore) and year-on-year change (%)



Includes only export by defence public sector undertakings.

Source: Ministry of Defence • [Get the data](#)

mint

**71. B**

Pair 1 is not correct, Nallur Tamarind Grove is located in Devanahalli Taluk, near Bengaluru, Karnataka.

Pair 2 is correct, Ambaragudda is located in the Western Ghats village of Sagara taluk of Karnataka.

Pair 3 is not correct, Ameenpur is situated in the Sangareddy District of Telangana.

Pair 4 is correct, Arittapatti is a village set near a rocky hill close to Madurai in Tamil Nadu.

**72. B**

Recently, on the occasion of Good Governance Day the Union Minister of Personnel, Public Grievances & Pensions launched the Extended Version of Mission Karmayogi, at a function in New Delhi.

Mission Karmayogi - National Programme for Civil Services Capacity Building (NPCSCB) aims to prepare Civil Servants for the future by making them more creative, constructive & innovative through transparency and technology. Statement 1 is correct.

On 2nd September 2020, Government approved the National Programme for Civil Services Capacity Building (NPCSCB) with six key pillars including Policy Framework, Institutional Framework, Competency Framework, Digital Learning Framework (iGOT-Karmayogi), the electronic Human Resource Management System (e-HRMS) and the Monitoring and Evaluation Framework. The Programme will cover all civil servants (including contractual employees) across different ministries, departments, organizations and agencies of the Union Government.

Nodal Ministry: Ministry of Personnel, Public Grievances & Pensions. Statement 2 is incorrect.

On the Good Governance Day (25th December, 2023), the Department of Personnel and Training launched three new features on the iGOT Karmayogi platform:

1. My iGOT: It delivers targeted training courses on home page of individual officer that directly address the unique capacity building needs of the officer as identified in the Capacity-Building Plan for their Ministries/Departments.
2. Blended Programs: This programme will facilitate equitable access to training methodologies across all levels to meet dynamic training needs of the officials. Blended Programs integrate traditional offline (in person) classroom courses with online learning components. It enables officers and faculty to leverage the flexibility and convenience of online courses while retaining the invaluable benefits of face-to-face classroom interactions.
3. Curated Programs: These are designed to cater to diverse learning needs of the Ministries/Departments and Training Institutions. This Course Providers will be able to curate relevant content, resources, and assessments from the repository of iGOT with a Programmatic approach to provide a tailored learning journey.

**73. C**

Context:

Many farmers in Maharashtra suffer from the pesticide poisoning.

Data Analysis

- In 2017, reports of pesticide poisoning emerged from Maharashtra, drawing global criticism against India's pesticide regulation policies.
- In 2021, Pesticide Action Network (PAN) International released a list of highly hazardous pesticides, of which over 100 are currently approved for use in India.
- On August 4, 2023, the Maharashtra government introduced the Insecticides (Maharashtra Amendment) Act, 2023, which amends the Insecticide Act, 1968, to apply to the state of Maharashtra.

Regulatory Framework:

- The government of India regulates the sale, distribution, and use of pesticides through the Insecticides Act, 1968. Statement 1 is correct.

- The Central Insecticides Board and Registration Committee (CIB&RC) oversee the registration of pesticides, setting permissible limits for residues, and ensuring compliance with safety standards. Statement 2 is correct.

**74. C**

In order to make digital payments more secure, safe and sound the Reserve Bank of India (RBI) has now enabled card-on-file tokenisation (CoFT) through card issuing banks and institutions.

- Tokenisation refers to replacement of actual credit and debit card details with an alternate code called the "token". Statement 1 is correct.
- It is a combination of card, token requestor and device. The card detail when stored with a merchant is known as card-on-file (CoF).
- This token is a randomly generated string of characters that has no intrinsic value and is meaningless outside of the context of a specific transaction. The token is used as a surrogate for the actual card details, making it more secure to store and transmit.

Requirements for enabling CoFT through card issuers:

- Generation of CoFT tokens for a card can be enabled through mobile banking and internet banking channels.
- The token can be generated only on explicit customer consent and with AFA (additional factor authentication) validation.
- The cardholder may tokenise the card at any time of their convenience, either on receipt of the new card or at a later stage. Statement 3 is correct.
- The cardholder can select the merchants with whom he/she wishes to maintain tokens.
- The card token so issued may be either by the card network or the issuer or both. Statement 2 is correct.

**75. C**

**About E Ink displays:**

- These are a special type of screen technology often used in e-readers like the Amazon Kindle.
- The technology was originally developed in the 1990s at MIT and is now owned by E Ink Corporation.

Working:

- The screens work using tiny microcapsules filled with positively charged white particles and negatively charged black ones suspended in fluid inside the display. Statement 1 is correct.
- By applying positive or negative electrical charges to different areas of the screen, the white or black particles can be made to rise to the surface, creating the text and images on the display.
- Unlike LCD and LED displays that use a backlight, E Ink displays reflect light - just like paper. This makes them easier on the eyes for long reading sessions. Statement 2 is correct.
- They also require very little power since they don't need a backlight and only use energy when the image changes.
- The lack of backlighting also means that they are easier to read under brighter lighting conditions, which isn't the case with LCD/LED displays at all - legibility actually takes a hit under bright sunlight.

Advantages:

- They consume very little power compared to LCD and OLED displays. An E Ink display only draws power when the image is changed, meaning it can display a static image for weeks or months without needing a charge.
- They cause less eye strain for the user.

Disadvantages:

- It has a slow refresh rate compared to LCD and OLED displays, making them unsuitable for video or animation. Statement 3 is incorrect.

- It has limitations on colour and resolution compared to other display technologies.
- The niche nature of E Ink manufacturing means the displays remain expensive, especially in larger sizes.
- Other applications: It is used in bus stop displays and walking direction signs and restaurants menu boards etc. Statement 4 is correct.

**76. D**

Shumang Leela:

- It is a traditional form of theatre in Manipur. Statement 1 and 2 are incorrect.
- In this the roles of female artists are all played by male actors and male characters are played by female artists in case of female theatre groups.
- It was started as a comic genre for royalty and has evolved into a powerful medium for mass education, entertainment, and relaxation.
- In this, the roles of women are all played by men, called Nupi Shabis.
- The female roles are taken up by transgender actors.
- The tradition is believed to be descended from Lai Haraoba, a ritual of the Meitei community of Manipur.

Purpose: The plays provide a vehicle for educating the public about social, political, and economic issues.

Types - Shumang Leela is of two types:

- Nupa Shumang Leela - It is Performed only by men.
- Nupi Shumang Leela - It is Performed only by women.

**77. C**

Context:

Goa-based National Institute of Oceanography has launched an autonomous underwater vehicle called C-bot.

About:

- C- bot is a robot with advanced features for increased surveillance over coral reefs.
- It can travel to a depth of 200 metres underwater.
- It will help Indian Navy perform bathymetry studies (mapping of sea floor) to help plot navigation channels.
- It will help in finding the active hydro thermal vents where geothermally heated water seeps up from deep below the ocean floor.

**78. C**

Context:

Recently, the International Energy Agency (IEA) agreed to start discussions with India to become a full member.

About the IEA

- It is a Paris-based intergovernmental organisation of 31 nations.
- It was established in 1974 as a response to physical disruptions in global oil supplies and to promote energy savings and conservation.

Criteria For Membership of IEA

- The Agreement on an International Energy Program (IEP Agreement) established the mandates and structure of the IEA under the umbrella of the Organisation for Economic Co-operation and Development (OECD). Hence, a candidate country to the IEA must be a member country of the OECD.
- Crude oil and/or product reserves equivalent to 90 days of the previous year's net imports, to which the government has immediate access (even if it does not own them directly) and could be used to address disruptions to global oil supply; Statement 1 is correct.

- A demand restraint programme to reduce national oil consumption by up to 10%; Statement 2 is correct.
- Legislation and organisation to operate the Coordinated Emergency Response Measures (CERM) on a national basis. Statement 3 is correct.

Current Members

- Currently, it has 31 member countries, 13 association countries, and 5 accession countries.
- Association countries was formally launched in 2015 and currently includes 11 countries including India, Brazil, China, South Africa.
- Countries seeking full membership: Chile, Colombia, Israel, Latvia and Costa Rica.

**79. B**

Context:

Recently, the Tribal people have been carrying broom grass at a village in Karbi Anglong district of Assam.

About Broom Grass:

- It is a type of grass that is native to the Indian subcontinent and Southeast Asia. Karbi Anglong, in Assam, is the largest producer of brooms in India.

Cultivation:

- The cultivation of broom grass is comparatively easy and requires small financial inputs. It can be grown on marginal lands, wasteland, and in Jhum fallow land. The planting can be done by seeds or rhizomes.

Significance:

- It is a cash crop, and its cultivation is a significant source of income for many farmers, and has the potential to generate local employment in rural areas.

**80. C**

Context:

It is being reported that Bahrain is the only Middle Eastern nation to have joined the Operation Prosperity Guardian.

About the operation:

- It is a US-led military operation by a multinational coalition formed in December 2023. Statement 1 is correct.
- It is formed to respond to Houthi-led attacks on shipping in the Red Sea. Statement 2 is correct.
- United States Secretary of Defence announced the formation of an international maritime security force to end the Houthi blockade of Israel in the Red Sea.
- It is also aimed to counter threats by Houthi forces against international maritime commerce heading or related to Israel following weeks of attacks against commercial vessels amid the 2023 Israel-Hamas war.
- The operation objective is to ensure the safety of maritime traffic in the Red Sea, Bab al-Mandeb and Gulf of Aden.
- Combined Task Force 153 which is under control of the U.S. Combined Maritime Forces will control the vessels of the operation that currently includes the United States Navy's Carrier Strike Group 2.

**81. C**

Context:

Research has identified climate change as a primary cause of poor air quality in Mumbai during the winter of 2022. The study, titled "Triple dip La-Nina, unorthodox circulation and unusual spin in air quality of India," links the city's high pollution levels to delayed wind reversals and less frequent calm winds triggered by La Nina and Climate Change.

What is Triple Dip La Nina?

- It refers to an unusual and prolonged La Nina phenomenon lasting three consecutive years, which significantly impacts global weather patterns. Statement I is correct.
- La Nina typically involves cooler-than-average sea surface temperatures in the central and eastern Pacific Ocean, leading to various climatic effects worldwide, such as altered rainfall patterns, increased tropical cyclone activity, and shifts in temperature gradients.
- WMO had stated in August 2022 that for the first time this century, La Nina would span three consecutive northern hemisphere winters to become a 'triple dip' La Nina.

What does the study indicate?

- During the winter of 2022-23, an unusual trend reversal in pollution levels, particularly PM2.5, was observed in India. South-Western regions experienced unusually poor air quality, while North India showed relatively cleaner air, contrary to typical patterns.

Factors responsible for this included:

- Triple-dip La Niña event: The winter coincided with the last phase of an unusual triple-dip La Niña event, affecting atmospheric conditions.
- Change in wind direction: Normally, winds blow from Punjab towards the Gangetic plains in north-westerly direction, carrying pollutants from stubble burning towards Delhi. However, during the winter of 2022, wind circulation changed to a north-south direction.
- This led to air pollutants from Punjab and Haryana bypassing Delhi, resulting in lesser pollution in the capital and surrounding areas.
- Instead, pollutants flew over western and southern regions, contributing to the poor air quality observed in South-Western India. Statement II is incorrect.

**82. A**

Context:

The Indian government has recently emphasized that Aadhaar is not proof of citizenship or date of birth (D.O.B).

The new Aadhaar cards and PDF versions of the identity document have started including a more explicit and prominent disclaimer that they are "a proof of identity, not of citizenship or date of birth," signalling to government departments and other organizations to not use it for those purposes.

What are the Legal Clarifications on the Use of Aadhaar as an Identity Document?

Bombay High Court:

- Bombay High Court in State of Maharashtra vs UIDAI Case, 2022 clarified the scope and limitations of Aadhaar as an identity document. The Court stated that Aadhaar is only a proof of identity and residence, not of citizenship or date of birth.

Supreme Court of India:

- The Supreme Court, in the case of Justice K.S. Puttaswamy (Retd.) and Anr. vs Union of India, 2018, has upheld the constitutional validity of Aadhaar Act.
- Section 9 of the Aadhaar Act, 2016 states that "The Aadhaar number or the authentication thereof shall not, by itself, confer any right of, or be proof of, citizenship or domicile in respect of an Aadhaar number holder".

Ministry of Electronics and Information Technology (MeitY):

- MeitY clarified in a 2018 memorandum that Aadhaar is "per se ... not a proof of date of birth," as the date of birth is based on a different document given by Aadhaar applicants.

Employees' Provident Fund Organisation (EPFO):

- The EPFO which administers the mandatory retirement fund for salaried employees in India.
- The EPFO issued a circular in January 2024 deleting Aadhaar from the list of documents acceptable as a proof of date of birth.



**83. D**

Context:

Fresh protests have erupted in Senegal against the postponement of the presidential election that was scheduled for February 25.

- Senegal is a country in West Africa, on the Atlantic Ocean coastline.

Senegal is bordered by:

- Mauritania to the north,
- Mali to the east,
- Guinea to the southeast,
- Guinea-Bissau to the southwest.
- The Gambia to the west

**84. B**

Context: In February 2024, for the first time in India, a spur-winged lapwing, native to North Africa, the Middle East and Mediterranean regions, was spotted near Bhattupalle village in Warangal by a team of birdwatchers-Indaram Nageshwar Rao and Jagan Pannala-participating in the Hyderabad Bird Race. The 14th edition of the Hyderabad Bird Race was organised by Deccan Birders together with HSBC.

Aldabra giant tortoise:

- It is the second-largest species of land tortoise in the world, after the Galapagos giant tortoise (*Chelonoidis nigra*).
- IUCN: Vulnerable. Pair 1 is correct.
- CITES: Appendix II

Himalayan Griffon:

- The Himalayan Griffon Vulture, *Gyps himalayensis*, is an Old-World vulture in the family Accipitridae, which also includes eagles, kites, buzzards and hawks.
- IUCN Red List: Near Threatened (NT). Pair 2 is correct.

Olive Ridley turtle

- The Olive Ridley turtles are the smallest and most abundant of all sea turtles found in the world.
- They are best known for their unique mass nesting called Arribada, where thousands of females come together on the same beach to lay eggs.
- They are carnivores and get their name from their olive-coloured carapace, which is heart-shaped and rounded.
- IUCN Red List: Vulnerable. Pair 3 is incorrect.
- Wildlife Protection Act, 1972: Schedule 1
- CITES Appendix I

Spur-winged lapwing:

- Native: North Africa, the Middle East and Mediterranean regions.
- Habitat: It is found around wetlands, but also away from water in cultivated areas and even suburbia and urban settings.
- IUCN Status: Least Concern. Pair 4 is incorrect.

**85. B**

Context:

ISRO Announces Young Scientist Programme 2024 (YUVIKA).

Objective

- **Fostering Interest:** Cultivate curiosity and interest in Space Science, Technology, and Applications among school children, especially in rural areas.
- **STEM Promotion:** Encourage students to pursue careers in Science, Technology, Engineering, and Mathematics (STEM) fields.

**Eligibility**

" Grade Level: Open to students who have completed 8th grade and are currently studying in 9th grade.

**Selection Criteria:**

- **Academic Performance:** Based on 8th-grade academic results.
- **Extracurricular Activities:** Participation and achievements in extra curricular activities.
- **Rural Representation:** Special consideration given to students from rural areas.
- **Priority for Younger Candidates:** In case of a tie, preference given to younger applicants.

**Participation and Selection Process**

- **National Representation:** Three students from each state/Union Territory participate annually.
- **Application and Selection:** Students apply based on the eligibility criteria. Selection is made considering academic performance, extra curricular activities, and rural representation.
- **Equal Opportunity:** ISRO ensures representation from every region to provide equal opportunities to students nationwide.

**86. B**

**Context:**

The European Union recently launched Mission Aspides to protect commercial vessels in the Red Sea from attacks by Iran-backed Houthi rebels.

**About Mission Aspides**

- It is a European Union (EU) naval mission to protect cargo ships in the Red Sea from attacks from Yemen's Houthi rebels. Statement 1 is incorrect.
- It will send European warships and airborne early warning systems to the Red Sea, Gulf of Aden and surrounding waters.
- So far, France, Germany, Italy and Belgium have said they plan to contribute ships.
- Aspides vessels, whose operational command centre will be in the Greek city of Larissa, will have orders to fire on the Houthis only if they attack first and will not be authorised to shoot pre-emptively. Statement 2 is correct.
- The mission is planned for one year but may be renewed.

**87. D**

**Context:**

Tamil Nadu banned the sale and production of cotton candy or candy floss due to the presence of Rhodamine B.

- Rhodamine B is a chemical commonly used for dyeing in the textile, paper, leather, and paints industry as a colouring agent that helps in attaining the red and pink spectrum. It is a water-soluble chemical generally used in incense and match sticks.
- Even if consumed in small quantities, the chemical is highly toxic and carcinogenic. The Food Safety and Standards Authority of India (FSSAI) has banned its usage in food products.

**88. B**

**Context:**

Asteroids named Iris and Massalia (rich in silicate) were found to emit the unique wavelength that "unambiguously" indicated the presence of water molecules.

**About:**

- Discovery was made by studying the SOFIA's observations.

- SOFIA (Stratospheric Observatory for Infrared Astronomy), retired in 2022, was the world's largest airborne astronomical observatory, and was operated jointly by NASA and the German space agency.

## 89. B

Context:

The 2024 edition of the Global Resources Outlook Report will be tabled at the 6th UN Environment Assembly which is to be held in Nairobi, Kenya.

Global Resources Outlook Report

- Launched in - 2019
- Published by - International Resource Panel of UN.
- Aim - To provide regular reporting on the state and impact of, and outlook for, resource use globally.

The International Resource Panel (IRP) was launched by the United Nations Environment Programme (UNEP) in 2007 to build and share the knowledge needed to improve our use of resources worldwide.

Highlights of the Report

- Consumption - Consumption of natural resources globally is set to rise by 60% by 2060, already 4 times higher than the 1970 levels.
- Technosphere - It is the totality of human-made products, from airports to Zimmer frames and it is heavier than the biosphere and have exceeded that of all life on Earth since 2020.
- Equity over GDP - The report prioritises equity and human wellbeing measurements over GDP growth alone.
- Against Green Production - It proposes actions to reduce overall demand rather than simply increasing "green" production.
- o Greener Energy transition technologies requires 'strategic and critical minerals', whose extraction demands more energy.
- o For example, Electric vehicles use almost 10 times more critical raw materials than conventional cars.
- o Reaching net zero transport emissions by 2050 would require 6-fold increase of critical mineral extraction within 15 years.
- Extraction - The extractive activities like mining are disrupting the balance of the planet's ecosystems.
- Decline in Urban mining - The current economic system makes extractive mining cheaper and easier than urban mining.
- o Urban mining is a practice that literally pull waste out of landfill and reclaim non-renewable materials to be recycled and reused.
- o It is often labour-intensive and requires a complex and state-enforced regulation of waste streams.
- o Extractive mining, a process to extract raw materials from the earth, becomes cheaper due to the cheap availability of land in developing countries.

## 90. C

Context:

India's Department of Atomic Energy (DAE) begins the construction phase for contributions to the Proton Improvement Plan (PIP-II) project.

About:

- PIP-II is the first particle accelerator on U.S. soil (at Fermilab) to be built with significant contributions from international partners.

- Institutions from India, France, Italy, Poland and UK are part of collaboration. India will contribute \$140 million worth components.
- It will power the world's most high-energy neutrino beam to the under construction Deep Underground Neutrino Experiment (DUNE) at Long-Baseline Neutrino Facility (LBNF).
- Particle accelerators propel charged particles (Protons, Atomic Nuclei, Electrons etc.) at high speeds, close to the speed of light.
- Accelerators feature four principal components - Source for producing particles, Composite device to speed them up, Metallic tubes in vacuum to allow free movement and Electromagnets to steer the beam particles.

**91. B**

Context:

Recently, the National Council for Transgender Persons (NCTP) convened its pivotal meeting under the Chairmanship of Secretary, Ministry of Social Justice and Empowerment.

About National Council for Transgender Persons:

- It is a statutory body constituted under the Transgender Persons (Protection of Rights) Act 2019 to safeguard the rights of transgender persons in India. Statement 1 is correct.
- It is responsible for monitoring and evaluating the implementation of the provisions of the Transgender Persons (Protection of Rights) Act, 2019 and making recommendations to the government on measures to promote and protect the rights of transgender persons.

Aims:

- To focus on livelihood issues as well as to raise awareness about the trans community for achieving the goal of social justice so that transpersons are accepted within families and in the larger society.
- To ensure to set up of transgender welfare boards in all states and also ensure that essential needs of the transgender community, like housing, food, healthcare, and education are met.

Composition:

- The Union Minister of Social Justice & Empowerment is the Chairperson (ex-officio). Statement 2 is incorrect.
- The Union Minister of State for Social Justice & Empowerment is the Vice-Chairperson (ex-officio) of the council.
- The other members of the Council include representatives of various Ministries/Departments
- Five representatives of the transgender community.
- Representatives of the National Human Rights Commission (NHRC) and the National Commission for Women (NCW), representatives of State Governments and UTs, and experts representing NGOs.

Functions:

- It advises the Central Government on the formulation of policies, programmes, legislation and projects with respect to transgender persons.
- It Monitors and evaluates the impact of policies and programmes designed for achieving equality and full participation of transgender persons.
- It reviews and coordinates the activities of all the departments of Government and other Governmental and non-Governmental Organisations which are dealing with matters relating to transgender persons. Statement 3 is correct.
- It redresses the grievances of transgender persons.
- Performs such other functions as may be prescribed by the Central Government.

**92. A**

Context:

- Archaeologists recently discovered a Harappan-era fortified settlement named Morodharo.

- It is a fortified settlement dating back to the Harappan-era.
- Location: Kutch District, Gujarat.

Babar Kot: Gujarat. Pair 1 is incorrect.

- A stone fortification wall plant remains of millets & gram.

Daimabad: Maharashtra. Pair 2 is correct.

- A sculpture of a bronze chariot, 45 cm long and 16 cm wide, yoked to two oxen, driven by a man 16 cm high standing in it; and three other bronze sculptures. Southernmost IVC site in India, Late Harappan Phase.

Farmana: Haryana. Pair 3 is incorrect.

- Largest burial site of IVC, with 65 burials, found in India.

Bargaon: Uttar Pradesh. Pair 4 is incorrect.

**93. B**

Context:

The recently concluded COP-14 to the Convention on the Conservation of Migratory Species and Wild Animals (CMS) held at Uzbekistan has prepared International Light Pollution Guidelines for migratory species.

International Light Pollution Guidelines:

- Draft resolution - By EU and Australia during CMS COP13 in 2020, where the issue of light pollution 1st emerged.
- Reference materials - 'National Light Pollution Guidelines' prepared by Australia in 2020.
- Observation at COP-14, CMS - Between 1992 and 2017, artificial light emissions have increased over 49%.
- It noted that natural darkness has conservation value equal to clean water, air and soil.

Guidelines:

- Reduce light pollution to minimise its effect on wildlife and undertake environmental impact assessments to understand the impacts on species.
- Avoid lighting in the 20-km radius around wildlife home & light spill, use non-reflective, dark-coloured surfaces and avoid specific colour wavelengths.

Use best practices in lighting, managing light time, colour and intensity.

**94. C**

Context:

In the recent talks between the government and farmers, the government has proposed a solution involving cooperative societies like NAFED to ensure the purchases at MSP without quantity limitations.

- National Agricultural Cooperative Marketing Federation of India (NAFED) is an apex organization that deals with marketing cooperatives for agricultural produce in India.
- It was established on 2nd October 1958 and registered under the Multi State Co-operative Societies Act.
- NAFED was setup with the object to promote Co-operative marketing of agricultural produce to benefit the farmers.
- Agricultural farmers are the main members of Nafed, who have the authority to say in the form of members of the General Body in the working of Nafed.
- It is a nodal agency to implement price stabilization measures under "Operation Greens" which aims to double the farmers' income by 2022.

**95. B**

Context:

India is planning to invite private companies to invest approximately \$26 billion in its nuclear energy sector.

About:

- The government plans to build 11,000 megawatts (MW) of new nuclear power generation capacity by 2040.
- Under the funding plan, the private companies will make the investments in the nuclear plants, acquire land, water and undertake construction in areas outside the reactor complex of the plants.
- However, the rights to build and run the stations and their fuel management will rest with the Nuclear Power Corporation of India (NPCIL).
- The plan will not require any amendment to India's Atomic Energy Act of 1962 but will need a final go-ahead from the Department of Atomic Energy. Statement 3 is incorrect.
- Though, Indian law bars private companies from setting up nuclear power plants but allows them to supply components, equipment and sign construction contracts for work outside of the reactors. Statement 1 and 2 are correct.

**96. C**

Context:

The Supreme Court nullified the outcome of the January 30 Chandigarh mayoral poll citing Article 142 of Constitution.

- Article 142 provides discretionary power to the Supreme Court as it states that the SC in the exercise of its jurisdiction may pass such decree or make such order as is necessary for doing complete justice in any cause or matter pending before it. Statement 1 is correct.
- It allows the Supreme Court to intervene in matters of public interest, human rights, constitutional values, or fundamental rights and to protect them from any violation or infringement. Statement 2 is correct.
- It enhances the Supreme Court's role as the guardian of the constitution and the final arbiter of the law, and as a source of judicial activism and innovation.
- It also makes such decree or order enforceable throughout the territory of India.

**97. C**

A decrease in pollination hampers fruit production and yield quality. Statement I is correct.

- The reduction of yield quality and production has been evident in apples and almonds grown in the Himalayan region.
- Hence, commercial orchard owners now import honeybees and are diversifying pollinators to ensure pollination.

Cross-pollination allows plants to mix genes and add new traits. Statement II is incorrect.

- Self-pollination can induce inbreeding depression in species, make them more prone to diseases and reduce diversity, which lowers their ability to fight climate change.

The presence of invasive species is known to cause a displacement of pollinators from their traditional plant species.

- According to the International Union for Conservation of Nature (IUCN), climate change can increase the cover of invasive species.
- The presence of the Invasive species introduces both risks and opportunities for pollinator nutrition, alters species interactions and influences native pollination dynamics and community stability.

**98. C**

Places in news

Located in

1. Al-Haditha Saudi Arabia
2. Haradh Saudi Arabia

3. Al Ghuwaifat UAE
4. Haifa Israel

The proposed IMEC (India Middle East Europe Corridor) will consist of Railroad, Ship-to-Rail networks and Road transport routes. The routes will extend across two corridors:

- The East Corridor - connecting India to the Arabian Gulf,
- The Northern Corridor - connecting the Gulf to Europe.

The ports to be connected via this corridor are:

- India: Mundra (Gujarat), Kandla (Gujarat), and Jawaharlal Nehru Port Trust (Navi Mumbai).
- Middle East: Fujairah, Jebel Ali, and Abu Dhabi in the UAE as well as Dammam and Ras Al Khair ports in Saudi Arabia.
- Israel: Haifa port.
- Europe: Piraeus port in Greece, Messina in South Italy, and Marseille in France.

**99. B**

Context:

In today's digital age, where smartphones are practically an extension of ourselves, smishing poses a real and growing threat.

About Smishing:

- It is a form of phishing that targets individuals through text messages or SMS.
- It is just like phishing emails, smishing messages aim to trick you into divulging personal information or downloading malware onto your device.

It is done in through following ways:

- Fake alerts and warnings: Scammers send texts pretending to be from legitimate institutions like banks, government agencies, or delivery services. They'll claim there's a problem with your account or a package delivery, prompting you to click on a link for more information.
- Urgent requests: Smishers play on your emotions by creating a sense of urgency. They might promise prizes, warn of impending legal action, or claim your account is compromised, pressuring you to act quickly without thinking.
- Exploiting current events: During tax season, scammers might pose as the IRS, offering tax refunds or threatening penalties if you don't respond immediately. Similarly, they might capitalise on natural disasters or health crises to solicit donations or spread misinformation.

**100. D**

Context:

Recently, the Cabinet Committee on Economic Affairs approved ₹340/quintal as the Fair and Remunerative Price (FRP) of sugarcane for sugar season 2024-25 at sugar recovery rate of 10.25%.

About Fair and Remunerative Price:

- It is the price declared by the government, which mills are legally bound to pay to farmers for the cane procured from them. Statement 1 is correct.
- Who determines it? The FRP is fixed by the Union government (Cabinet Committee on Economic Affairs (CCEA)) on the basis of recommendations of the Commission for Agricultural Costs and Prices (CACP).
- The payment of FRP across the country is governed by the Sugarcane Control order, 1966 which mandates payment within 14 days of the date of delivery of the cane. Statement 2 is correct.
- Mills have the option of signing an agreement with farmers, which would allow them to pay the FRP in instalments.

- Delays in payment can attract an interest up to 15% per annum, and the sugar commissioner can recover unpaid FRP as dues in revenue recovery by attaching properties of the mills. Statement 3 is correct.

The amended provisions of the Sugarcane (Control) Order, 1966 provides for fixation of FRP of sugarcane having regard to the following factors:

- cost of production of sugarcane
- return to the growers from alternative crops and the general trend of prices of agricultural commodities
- availability of sugar to consumers at a fair price
- price at which sugar produced from sugarcane is sold by sugar producers;
- recovery of sugar from sugarcane;
- the realization made from sale of by-products viz. molasses, bagasse and press mud or their imputed value
- reasonable margins for the growers of sugarcane on account of risk and profits.

The FRP is based on the Rangarajan Committee report on reorganizing the sugarcane industry. Statement 4 is correct.

**101. D**

The Yadadri Sri Lakshmi Narasimha Swamy temple has secured the 'Blissful Hygienic Offering to God' (BHOG) tag from the Food Safety and Standards Authority of India (FSSAI). The Sri Vidya Saraswathi Shani Temple at Warangal too has earned the tag.

BHOG is an initiative put forth by FSSAI to encourage places of worship to adopt and maintain food safety and hygiene as well as convey food safety messages through such places to the people to follow as responsible citizens.

**102. C**

Telangana Chief Minister launched Indiramma housing scheme in Bhadarachalam. Under this scheme as many as 4.50 lakh houses have been sanctioned with an outlay of Rs. 22,500 crore to provide a roof over the heads of the homeless poor people under the scheme.

Under this scheme:

- Sanction of Rs. 5 lakh financial assistance to the eligible poor people for construction of houses in their own plots and a housing site as well as Rs. 5 lakh financial aid to the landless and homeless poor people.
- SC and ST beneficiaries under the scheme are entitled for Rs. 6 lakh financial assistance.

**103. C**

The secondary and tertiary sectors of Telangana's economy saw a decline in growth rates. Notable decreases were observed in sectors like electricity, gas, water supply, trade and repair services, hotels and restaurants, railways, and air transport. However, the manufacturing sector presented a contrasting trend, growing at 5.9% compared to just 1.3% in the previous year. Other sectors such as real estate, construction, and mining & quarrying also experienced higher growth rates in 2023-24 compared to the preceding year.

**104. B**

Acute poverty in Telangana has shown a sharp decline over the past one decade, the National Multidimensional Poverty Index of Niti Aayog shows.

- The headcount of people living in acute poverty is calculated to have dropped to 3.76% by 2022-23.
- It was 13.18% at the time of formation of the new State.

The data has been extrapolated from the National Family Health Survey information of (2019-21) and shows an overall reduction in multidimensional poverty in India from 29.17% in 2013-14 to 11.28% in 2022-23 with about 24.82 crore people escaping poverty during this period.

**105. C**



The electricity officials issuing "zero electricity bills" to domestic consumers under the state government's Gruha Jyothi scheme

- The beneficiaries of this scheme are eligible for free electricity for up to 200 units.
- Around 40 lakh white ration card holders will benefit from the Gruha Jyothi scheme.

**106. C**

A public grievance mobile application called "Janavani- Kalushya Nivarani", developed by the Telangana State Pollution Control Board (TSPCB) for registering various types of complaints related to environmental pollution.

**107. A**

Nagoba Jatara is Gond tribal festival held in a Keslapur village of Adilabad district. It is the second biggest tribal carnival and celebrated by Mesaram clan of Gond & Pardhan tribes for 10 days.

- The Gusadi dance performed as part of the festivities is a special attraction for tourists.

About Gonds:

Gond people are one of the largest indigenous tribes in spread across several states in Central and South-Central India, including Madhya Pradesh, Maharashtra, Chhattisgarh, Telangana, Andhra Pradesh, and Odisha. Their native language is Gondi, which belongs to the Dravidian family

**108. D**

Centre for the Fourth Industrial Revolution is established in Hyderabad. It is a collaborative effort between World Economic Forum and Telangana government. This will be the world's first thematic centre focused on healthcare and life sciences.

The C4IR focuses on three key areas: Real-world evidence, healthcare analytics and informatics, and software as a medical device.

**109. C**

The Telangana Government introduced a new prototyping facility called T- Works in Hyderabad. It is considered to be the largest prototyping facility in India. The center which is located beside T-Hub (a research and innovation facility launched by the Government as well) will provide a prototyping platform to several Micro Small and Medium Enterprises, innovators, start-ups, students and other young entrepreneurs. Additionally, it will also help them rent and use equipment.

A prototyping facility is a place where design ideas can be converted into a prototype, an initial version of the product to be delivered into market. This facility has equipment that will allow users to create, test and refined their designs.

**110. D**

The Telangana government has appointed two new Additional Advocate General (AAG). One of them is the state's youngest AAG and another is the first from the minority community.

Advocate Mohammed Imran Khan was appointed as the third AAG since the formation of the state on December 31, 2023. He is the first AAG of Telangana from the minority community. Also, advocate Tera Rajnikanth Reddy, who was appointed as second AAG is the youngest person holding the post.

**111. D**

The Municipal Corporation of Karimnagar has earned the first Water Plus city certification after Hyderabad under the Swachh Survekshan 2023 awards.

While 15 cities were selected under water plus category across the country, seven were from South India. Hyderabad and Karimnagar cities were selected for the award from Telangana.

**112. A**

In a significant development, the State government has transferred 1,174 hectares of forest land under the Damagudem Reserve Forest near Pudur village in Vikarabad district to the Indian Navy to set up India's second Very Low Frequency (VLF) radar station.

The new VLF centre is slated for completion in 2027, marking a significant milestone in strengthening the Indian Navy's communication. The Navy has chosen Telangana as a strategic

location for its second Very Low Frequency (VLF) communication station. VLF communication is crucial for naval operations as it facilitates communication with ships and submarines.

This marks the second VLF station in the country, with the first being the INS Kattabomman Radar Station at Vijayanarayanam in Tirunelveli district, Tamil Nadu, operational since 1990. The Eastern Naval Command in Visakhapatnam had identified Telangana as an ideal location for a second radar station several years ago.

**113. C**

The 21st BioAsia Summit, which is Asia's largest life sciences and healthcare forum, held in Hyderabad.

- The theme of the 2024 Bio Asia summit was Transforming Life Sciences with Data and AI. This theme highlighted the potential of advanced analytics and machine learning to revolutionize drug discovery and healthcare delivery through evidence-based interventions.

**114. B**

With its consistent performance in promoting and implementing energy efficiency and conservation measures, Telangana State Renewable Energy Development Corporation (TSREDCO) has won the second prize of the National Energy Conservation Award in the State Designated Agency (SDA) category in Group II.

The Bureau of Energy Efficiency has divided the States into four groups based on their energy consumption levels. Telangana State has been classified as a Group-II State, with its total fuel energy consumption (TFEC) being in the range of 5 to 15 million tonnes of oil equivalent (MTOE). The State was chosen as the best performer in Group II and achieved 78 points in state energy efficiency index, 2023. The state improved its score by around 15.4 per cent compared to its score of 66 last year.

**115. A**

Designated senior advocate A. Sudarshan Reddy was appointed the new Advocate General for Telangana state, as per orders issued by the law secretary

- Sudarshan Reddy had served as the Advocate General (AG) of erstwhile united Andhra Pradesh from January 17, 2011, to June 3, 2014, during Kiran Kumar Reddy's tenure as the chief minister.
- Sudarshan Reddy was the first Telangana-origin AG to serve in the position in united AP. He also served as the AG for AP and Telangana during the President's Rule in 2014, during the demarcation of the state.

Advocate general of state:

Article 165 of Constitution has provided for the office of the advocate general for the states.

- He is the highest law officer in the state.
- The advocate general is appointed by the governor.
- He must be a person who is qualified to be appointed a judge of a high court.

**116. C**

The Telangana cabinet has decided to change its official abbreviation and adopt a new state anthem.

- State Anthem: 'Jaya Jaya Ho Telangana, a popular song written by poet Ande Sri, as the official song
- State's abbreviation will be changed to TG from TS. All the new vehicles will be registered in the name of TG forthwith.

**117. D**

The Palamuru Rangareddy Lift Irrigation Scheme (PRLIS) is a large-scale irrigation project in the state of Telangana. It is designed to irrigate lands in the erstwhile combined Mahabubnagar, Rangareddy and Nalgonda districts.

It envisaged to create irrigation potential in upland areas of Nagarkurnool, Mahabubnagar, Vikarabad, Rangareddy and Nalgonda districts for an ayacut of 10.00 lakh acres, (proposal for enhanced ayacut of 12.30 Lakh Acres is under consideration at Government) drinking water to enroute villages, GHMC and industrial use by lifting 2 TMC per day for 60 days during flood season (1.50 TMC for PRLIS + 0.50 TMC for Dindi L.I.S) from foreshore of Srisailem Reservoir on Krishna river near at Yellur(V), Kollapur(M) to K.P. Laxmidevipally(V), Kondurg (M) with 5 stage lifting and then utilizing water by gravity

**118. B**

The water resources authorities of Maharashtra commenced release of 0.6 tmc ft water from Babli Barrage across the river Godavari near Dharmabad in Nanded district to Telangana in tune with the February 2013 Supreme Court judgement given while clearing the project.

The Babli Barrage is a major irrigation project located in Maharashtra. It is constructed across the Godavari River near the village of Babli in the Nanded district of Maharashtra. The primary purpose of the barrage is to provide water for irrigation and to facilitate hydroelectric power generation. The project has been a subject of contention between the states of Maharashtra and Telangana due to disputes over water sharing agreements and its impact on downstream areas.

**119. B**

Centre has identified 468 villages in districts of Adilabad, Komaram-Bheem Asifabad, Nagarkurnool, Rangareddy and Vikarabad for all-round development of the identified vulnerable tribal communities under the PM Janjati Adivasi Nyaya Maha Abhiyan (PM Janman).

Within TS, Adilabad district has the highest number of vulnerable tribal communities and these will be eligible for improvement of basic amenities like roads, power, telecom, houses, health cards, farmers' credit cards, land ownership papers, ration cards, caste certificates and so on like their identified brethren in other States.

PM JANMAN

The Union Cabinet has approved Pradhan Mantri Janjati Adivasi Nyaya Maha Abhiyan (PM JANMAN) focuses on 11 critical interventions through 9 Ministries and is aimed to improve socio-economic conditions of the PVTGs by saturating PVTG households and habitations with basic facilities such as safe housing, clean drinking water and sanitation, improved access to education, health and nutrition, electricity, road and telecom connectivity, and sustainable livelihood opportunities.

**120. D**

With its consistent performance in promoting and implementing energy efficiency and conservation measures, Telangana State Renewable Energy Development Corporation (TSREDCO) has won the second prize of the National Energy Conservation Award in the State Designated Agency (SDA) category in Group II.

The Bureau of Energy Efficiency has divided the States into four groups based on their energy consumption levels. Telangana State has been classified as a Group-II State, with its total fuel energy consumption (TFEC) being in the range of 5 to 15 million tonnes of oil equivalent (MTOE). The State was chosen as the best performer in Group II and achieved 78 points in state energy efficiency index, 2023. The state improved its score by around 15.4 per cent compared to its score of 66 last year.

**121. B**

The four-day tribal fair Sammakka Saralamma Jatara, popular as the Medaram Jatara, at Medaram village of Tadwai mandal ended with the goddesses' "Tallula Vanapravesham" (entry into the forest) as the vermilion casket was carried back to Chilukalagutta and kept there until the next jatara.

During the jatara, thousands of devotees offered 'bangaram' (jaggery) to the goddesses and took the holy bath in Jampanna Vagu. The jaggery offered to the tribal deities is viewed as precious as gold and is called 'bangaram'.

Sammakka Saralamma Jatara

Sammakka Saralamma Jatara is a biennial tribal festival (Primarily celebrated by Koya tribe) held in Telangana is one of the largest tribal gatherings in the world. The festival is celebrated in honor of the goddesses Sammakka and Saralamma, who are believed to be the protectors of the tribal people.

The festival begins with the installation of the goddesses' idols in the Jampanna Vagu stream. The idols are then taken in a procession to the nearby village of Medaram, where they are placed in a specially constructed temple. The festival culminates with the goddesses' return to the forest.

Note:

- The goddesses Sammakka and Saralamma are believed to be the wives of Pagididda Raju, a tribal chieftain.
- Medaram is a remote place in the Eturnagaram Wildlife Sanctuary, a part of Dandakaranya, the largest surviving forest belt in the Deccan.
- Jampanna Vagu is a tributary to the river Godavari. According to history, Jampanna was a tribal warrior and the son of tribal goddess Sammakka. The Jampanna Vagu took his name after he died in a battle fighting against the Kakatiyan Army in that stream

**122. D**

Recently Telangana State Board for wild life proposed to create Indian Bison sanctuary in Sathupalli and Kinnerasani forests where its population had been rising.

- Kinnerasani Wildlife Sanctuary is a forest located in Bhadradi Kothagudem district.
- The gaur also known as the Indian bison has been listed as Vulnerable on the IUCN Red list

**123. A**

The Telangana government announced a substantial increase in the insurance coverage offered under the Aarogyasri scheme. The coverage has been hiked from Rs. 5 lakh per family per annum to Rs. 10 lakh.

- At present, the Aarogyasri scheme extends its benefits to 90.1 lakh families falling Below the Poverty Line (BPL).
- The initiative encompasses a range of 1,672 treatments across 21 specialties.

**124. C**

The GHMC was ranked ninth in the Swachh Survekshan 2023, as per the announcement made by the Ministry of Housing and Urban Affairs (MoHUA).

- Gundlapochampally bagged the zonal award for cleanest city in the south zone category with less than one lakh population
- Nizampet bagged the award for the cleanest city in the south zone category with a population between 25,000 and 50,000
- Siddipet bagged an award for the cleanest city in the south zone category with a population between 50,000 and 1,00,000.

**125. B**

The union cabinet has approved the creation of a Central Tribal University in Mulugu district Telangana by amending the Central Universities Act, 2009. This decision aligns with the Andhra Pradesh Reorganisation Act, 2014, which called for a Tribal University in both Andhra Pradesh and Telangana after the formation of Telangana

The new university in Telangana aims to enhance access to higher education, improve its quality and promote tribal art, culture and traditional knowledge systems. It will offer instructional and research facilities to benefit the tribal population while advancing knowledge in these areas. The new university will also create additional capacity and will strive to remove regional imbalances.

**126. A**

A State Public Service Commission consists of a chairman and other members appointed by the governor of the state. The Constitution does not specify the strength of the Commission but has left the matter to the discretion of the Governor. Further, no qualifications are prescribed for the

commission's membership except that one-half of the members of the commission should be such persons who have held office for at least ten years either under the government of India or under the Government of a state.

- The Constitution also authorises the governor to determine the conditions of service of the chairman and members of the Commission.
- The chairman and members of the Commission hold office for a term of six years or until they attain the age of 62 years, whichever is earlier (in the case of UPSC, the age limit is 65 years). However, they can relinquish their offices at any time by addressing their resignation to the governor.

**127. B**

The outstanding debt of the state (without off-budget borrowings) is expected to touch Rs. 3,89,673 crore at the end of the financial year 2023-24.

The debt-to-GSDP ratio of the state was one of the lowest in the country in 2015-16 at 15.7 percent. By 2023-24, the ratio went up to 27.8 percent.

**128. C**

Archaeologists have unearthed two ancient temples dating back to the Badami Chalukyan period, along with a rare inscription, in Mudimanikyam village of Nalgonda district, Telangana. The finding sheds more light on the rich cultural heritage of the region.

- The temples, estimated to be at least 1,300 years old, showcase unique architectural styles, blending Badami Chalukyan and Kadamba Nagara influences.

The discovery also includes an inscription, labelled as 'Gandaloranru', dating back to the 8th or 9th Century AD, offering clues about the historical context of the region

**129. B**

Telangana Legislative Assembly unanimously adopted a resolution to conduct a comprehensive door-to-door household caste survey across the state. The primary objective of the survey, also known as "Kula Ganana", is to gather socio-economic, educational, employment, political, and caste-based data of the entire Telangana population.

With this, Telangana will become the third state to hold such a caste-based headcount after Andhra Pradesh and Bihar

**130. C**

The first State Finance Commission constituted after the State was formed.

1. The State Finance Commission in its report recommended that 11 per cent of the State Own Net Revenue (SONR) taxes shall be devolved on the institutions of self governance.
2. The Commission further recommended that this 11% has to be given to rural and urban local bodies in the ratio of 61:39. Government has accepted that recommendation.

**131. C**

In February 2024, the Telangana government announced that it would establish three integrated greenfield pharma villages in Vikarabad, Medak, and Nalgonda to promote the state's pharmaceutical industry. The villages will cover 1,000-2,000 acres. The government plans to invest Rs. 1 lakh crore in the projects, which are part of its Genome Valley development.

**132. B**

The Telangana Cabinet has appointed retired Supreme Court Justice Pinaki Chandra Ghose to probe the irregularities that are alleged to have taken place in the execution of the Kaleshwaram Lift Irrigation Scheme (KLIS). The cabinet set a 100-day time frame for the retired justice to complete the inquiry.

- Justice (retd) Ghose was the first Lokpal of India, holding the post from 23 March, 2019, to 27 May, 2022.

The Kaleshwaram Lift Irrigation Project (KLIP) is a multi-purpose irrigation project on the Godavari River in Telangana

**133. B**

Telangana state government would present awards to film personalities, poets and artistes named after late folk singer Gaddar. Born as Gummadi Vittal Rao in a poor Dalit family in Medak district of Telangana, Gaddar was a voice of the poor during his lifetime.

**134. D**

The Sita Rama Lift Irrigation Project is a large-scale irrigation project under construction in the state of Telangana. It aims to divert water from the Godavari River to irrigate land in the Bhadradri Kothagudem, Khammam, and Mahabubabad districts.

Once completed, the project is expected to irrigate over 674,000 acres of land and provide water for drinking and industrial purposes.

**135. C**

Adani Group Chairman Gautam Adani met newly elected Telangana CM at the World Economic Forum in Davos and declared that the conglomerate will invest Rs 12,400 crore in multiple businesses in the state.

Adani Group's ambitious plans include Adani Green Energy's Rs 5,000 crore investment in setting up two pumped storage projects of 1350 MW capacity in the state.

AdaniConneX Data Centers is scheduled to invest Rs 5,000 Crores for a Data Center campus in Chandanvelly with a total capacity of 100 MW, while Ambuja Cements will invest Rs 1,400 crore in a Cement Grinding unit with a capacity of 6.0 MTPA in the state.

Adani Aerospace and Defence is scheduled to invest Rs 1,000 crore in Counter Drone Systems and Missile Development and Manufacturing Centres at the Adani Aerospace and Defence Park.

The Rudram-2 is not currently operational, but it is planned to be manufactured in Hyderabad by Adani Defence and Aerospace. The Rudram-2 is the hypersonic variant of the Rudram-1 anti-radiation missile.

**136. B**

Hyderabad, the capital city of Telangana, is the first Telangana city with a population of over one lakh to be rated five stars for sanitation and to receive the "Water Plus" certification. It also received the award for being the ninth cleanest city in India in 2023, and for being a "Five Star rated Garbage Free City in India.

**137. A**

In the fiscal year 2023-24, Telangana's economy demonstrated varied performances across its sub-sectors, influenced by a range of factors. The primary sector, particularly agriculture, experienced a notable decline. The Gross Value Added in the crops sub-sector decreased from Rs.49,059 crores in 2022-23 to Rs.45,723 crores in 2023-24. This significant drop, which translated into a growth rate of -6.8%, was primarily due to adverse seasonal conditions. The Southwest monsoon was delayed by 17 days, and there were large fluctuations in rainfall during the season. Notably, during the critical stages of crop growth in August and October, rainfall was markedly deficient. These conditions, coupled with prolonged dry spells, groundwater depletion, and insufficient water levels in the Krishna basin, led to a drastic reduction in the sown area of key crops such as paddy, cotton, maize, red gram, and Bengal gram.

**138. B**

On the back of the success of the Makka and Makka-1 maize seed varieties, the Agriculture Research Station, Karimnagar (ARSK), affiliated with the Professor Jayashankar Telangana State Agriculture University (PJTSAU), is now set to release a new maize seed variety with enhanced wilt tolerance in a hybrid form.

**139. A**

Telangana Finance minister presented the vote-on-account budget for 2024- 25 financial year with a total outlay of ₹2.76 lakh crore in the State Legislative Assembly.

- In the fiscal year 2023-24, the Gross State Domestic Product (GSDP) of Telangana, showed an increase in current prices from ₹13,02,371 crore in 2022-23 to ₹14,49,708 crore.
- Revenue surplus is ₹9,031 crore, and fiscal deficit is ₹33,786 crore.
- ₹53,196 crore was allocated in the budget towards the implementation of the guarantees.

- Announced a Rs. 5 lakh accident insurance plan for gig workers under the social security scheme.
- Providing 200 units of free power to eligible households under the Gruhalakshmi scheme.
- Implementation of the LPG cylinder at Rs. 500 scheme in the near future.
- Establishment of two leather parks and pharma clusters across the state.

**140. B**

The Ministry of Home Affairs invites Telangana government to review the progress of educational institutions/ infrastructural projects in the State as enumerated under Schedule XIII of the AP Reorganisation Act, 2014.

Under the Schedule XIII of the Reorganisation Act, the Centre had assured to set up a tribal university each in the two successor States while Telangana was assured a horticulture university.

- The Schedule contains another important provision - establishment of an integrated steel plant in Khammam district.
- Schedule XIII mandates that NTPC would establish a 4,000-MW power facility after establishing all coal linkages and also take steps to improve road connectivity in the backward regions of Telangana.

**141. C**

The Dr. B.R. Ambedkar Pranahita Chevella Lift Irrigation Project is an ambitious project to divert water from the Pranahita River, a tributary of the Godavari River, to the Krishna River basin.

- The project aims to provide irrigation water to drought-prone areas in Telangana, as well as drinking water to Hyderabad, the state capital.

**142. C**

The country's first digital National Museum of Epigraphy is set to be established in a wing of Salar Jung Museum in Hyderabad. Over one lakh ancient inscriptions including stone inscriptions and copper plate grants, will be exhibited at museum.

Note:

In 2023, the central govt announced the establishment of Bharat Shared Repository of Inscriptions (BharatSHRI), with the digitization of one lakh ancient inscriptions to be set up in the epigraphy museum.

**143. D**

The Telangana State Wildlife Board approved the establishment of Kawal tiger corridor conservation zone, a bison sanctuary in Kothagudem and increase in compensation for wildlife attack deaths to 10 lakh.

- The board also sanctioned T-Fiber connectivity to all villages and settlements in forested regions across the state
- Additionally, establishing a conservation reserve linking the Kawal Tiger Reserve (KTR) and Tadoba Tiger Reserve was approved

**144. C**

The world's first 3D printed Hindu temple is being built in Telangana. Situated within Charvitha Meadows, a gated villa community at Burugupally in Siddipet, the 3D printed temple is a three-part structure being built in an area of 3,800 square feet by city.

**145. D**

The government conferred Bharat Ratna on former Prime Ministers Chaudhary Charan Singh and PV Narasimha Rao

- Pamulaparthi Venkata Narasimha Rao, popularly known as P. V. Narasimha Rao served as the 9th prime minister of India from 1991 to 1996. He is known for introducing various liberal reforms to India's economy.
- He became the 4th Chief minister of undivided Andhra Pradesh in 1971 and implemented land reforms and land ceiling acts strictly.

President's rule had to be imposed to counter the Jai Andhra movement during his tenure

**146. D**

Telangana government has issued guidelines for the implementation of Maha Lakshmi scheme, aimed at providing free travel to women in TSRTC buses.

- The Maha Lakshmi scheme aims to provide free travel for girls, women of all age groups, and transgender persons in state-run Palle Velugu and express buses operated by the Telangana State Road Transport Corporation (TSRTC) within the borders of Telangana State.

**147. D**

Muhammad Quli Qutb Shah was the fifth sultan of the Qutb Shahi dynasty of Golkonda. He reigned from 1580 to 1612 and is best known for founding the city of Hyderabad. He also built many important buildings in Hyderabad, including the Charminar, the Golconda Fort, and the Qutb Shahi Tombs.

**148. B**

Pradhan Mantri Rashtriya Bal Puraskar (PMRBP) -is given to children with exceptional abilities and outstanding achievements. The awards are given to children in the age group 5 - 18 years for their excellence in seven categories for Bravery, Art & Culture, Environment, Innovation, Science & Technology, Social Service and Sports that deserve national recognition.

- Fifteen-year-old Laxmi Priya Pendyala from Hanumakonda has received Pradhan Mantri Rashtriya Bal Puraskar.

**149. C**

In the fiscal year 2023-24, the Gross State Domestic Product (GSDP) of Telangana showed an increase in current prices from Rs. 13,02,371 crores in 2022-23 to Rs. 14,49,708 crores. However, the economic growth rate exhibited a downward trend, declining from 14.7% to 11.3% during the same period.

**150. C**

Chief Minister of Telangana announced an insurance policy of 5 lakh for gig workers and free treatment up to 10 lakhs under Rajiv Aarogyasri.