CURRENT AFFAIRS WEEKLY

WEEK 1
MAY, 2025

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- US-UKRAINE RARE EARTH MINERAL DEAL
- EU'S ENERGY SHIFT
- STATE VISIT OF PRESIDENT OF ANGOLA TO INDIA
- ISRAEL'S NEW GAZA PLAN
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DISCLAIMER

The current affairs articles are segregated from prelims and mains perspective, such separation is maintained in terms of structure of articles. Mains articles have more focus on analysis and prelims articles have more focus on facts.

However, this doesn't mean that Mains articles don't cover facts and PT articles can't have analysis. You are suggested to read all of them for all stages of examination.

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SECTION -A

MAINS ISSUES

OPERATION SINDOOR

Context

The Indian military launched **multiple missile attacks** targeting sites **("terrorist infrastructure")** in Pakistan and Pakistan-administered Kashmir in an attack it called **Operation Sindoor.** The missiles were India's response to the deadly **April 22 attack on tourists in Indian-administered Kashmir in Pahalgam**, during which 26 men were killed.

What is Operation Sindoor?

- Operation Sindoor is a meticulously planned military offensive targeting terrorist infrastructure in Pakistan and Pakistan-occupied Kashmir (POK). It wasn't just a big strike against terror infrastructure.
- It was the biggest anti-terror operation inside Pakistan, and the biggest military strike since the 1971 War.
- The immediate reason cited for the operation was to "deliver justice" to the victims of the **Pahalgam terror attack,** which killed multiple security personnel.
- However, India framed Operation Sindoor **not as a one-off reaction** but as a response to decades of Pakistan-sponsored terrorism, dating back to the **2001 Indian Parliament attack.**
- India shifted the **causal chain** from the **Pahalgam attack** to a **long-term pattern of cross-border terrorism**, signaling that **no major act of terror will be seen in isolation**.
  - Terrorist groups like **Jaish-e-Mohammed** and **Lashkar-e-Taiba** — both **UN-designated** entities — were highlighted as persistent actors behind these attacks.

Figure No. 01

- India described Operation Sindoor as:
  - "Focused"
  - "Measured"
  - "Non-escalatory"
- This signals to:
  - **Pakistan:** Future escalation could involve conventional military targets.
  - **International Community:** India is acting against terrorism, not provoking war.

Doctrine of Sub-Conventional Targeting

- India maintained its **doctrine of limited strikes** — targeting **terror infrastructure**, **not the Pakistan military**.
- Similar to the 2016 surgical strikes and the 2019 Balakot airstrikes, Operation Sindoor:
  - Avoided escalation into full-scale war.
  - Sent a signal that **terrorism will be met with proportional and precise force**.

- Escalation Control in Practice The Ministry of Defence stated: ***"No Pakistani military facilities have been targeted."***
- This indicates an effort to retain **strategic restraint** while demonstrating **operational resolve**.

Sites Chosen by India (Terror Hotspots)

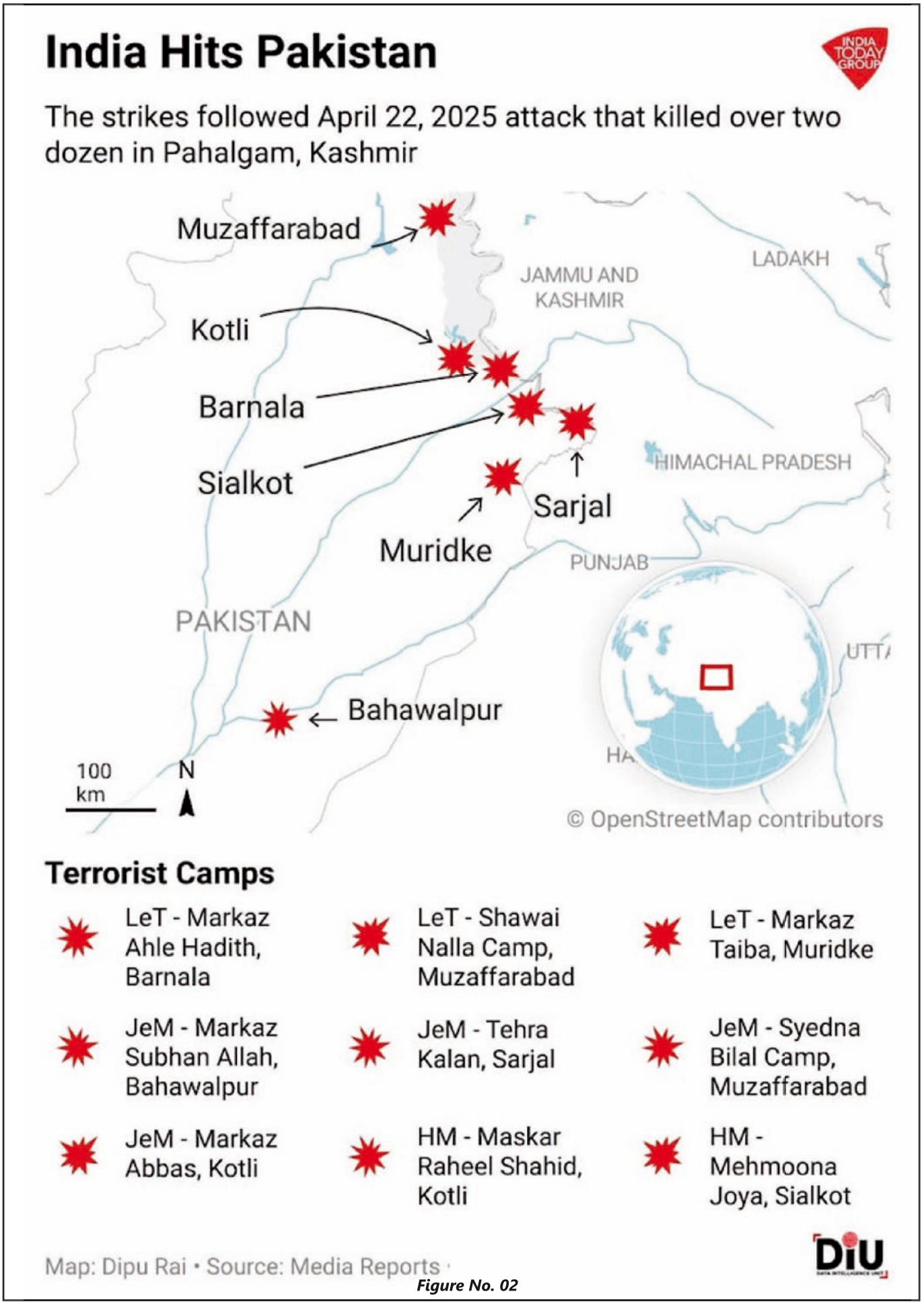
The operation targeted **nine terror camps** located in **Pakistan-occupied Kashmir (PoK)** and **mainland Pakistan**.

Site	Strategic Importance
Muridke, Punjab	LeT's Markaz Taiba camp — alleged training centre for perpetrators of 2008 Mumbai attacks, including Ajmal Kasab.
Bahawalpur, Punjab	JeM's Markaz Subhanallah headquarters — described as a hub for recruitment, training, and indoctrination.
Muzaffarabad, PoK	LeT's Sawai Nala camp and JeM's Syedna Bilal camp — training and staging areas for attacks, including April 22 Pahalgam killings.
Kotli, PoK	LeT's Gulpur camp, Abbas camp, and HuM's Mehmoona Joya facility — training grounds for up to 15 militants at a time.
Bhimber, PoK	Barnala camp — training in weapons, IEDs, and jungle survival.
Sialkot, Punjab	Sarjal camp — training ground for individuals involved in the killing of four police officers in March in Kashmir.

Precision Weapons Likely Used in the Operation

India has not officially disclosed the exact weapons used in Operation Sindoor. However, based on known Indian capabilities and official hints at "niche-technology weapons," the following advanced systems are most likely involved:

HAMMER (Highly Agile and Manoeuvrable Munition Extended Range)	◦ **Type**: Precision air-to-ground weapon system. ◦ **Range**: Up to **70 km**. ◦ **Platform**: Rafale fighter aircraft. ◦ **Origin**: France (Safran). ◦ **Capabilities**: ▸ Autonomous, all-weather targeting. ▸ Immune to jamming and GPS spoofing. ▸ Suited for strikes in rough, mountainous terrain like PoK. *Strategic Relevance*: Ideal for surgical strikes with minimal collateral damage, particularly in terrorist hideouts close to civilian areas.
SCALP (Storm Shadow)	◦ **Type**: Air-launched **cruise missile**. ◦ **Range**: Around **450 km**. ◦ **Origin**: MBDA (France/Europe). ◦ **Features**: ▸ Stealth profile; low-flying to avoid radar detection. ▸ High-precision targeting of bunkers and underground facilities. ▸ Multi-mode navigation: INS, GPS, and terrain referencing. *Strategic Relevance*: Used for **deep strikes**, including targets well inside Pakistan beyond the LoC and IB.
METEOR Missile	◦ **Type**: **Beyond Visual Range Air-to-Air Missile (BVRAAM)**. ◦ **Range**: Over **100 km**, with a large "No Escape Zone". ◦ **Technology**: Ramjet propulsion, high terminal velocity. ◦ **Origin**: MBDA. *Strategic Relevance*: Though not a strike weapon, Meteor ensures **air superiority**, enabling IAF aircraft to operate deep in hostile airspace during operations like Sindoor.
BRAHMOS Supersonic Cruise Missile	◦ **Type**: Land/sea/air-launched **supersonic cruise missile**. ◦ **Speed**: Close to **Mach 3**. ◦ **Range**: Enhanced up to **450–500 km** for newer variants. ◦ **Warhead**: 200–300 kg (conventional). ◦ **Origin**: Indo-Russian joint venture. *Strategic Relevance*: With rapid strike ability and precision, BrahMos is crucial for targeting hardened terror infrastructure with minimal warning time.
LOITERING MUNITIONS (Suicide Drones)	◦ **Type**: UAVs that **hover**, track targets, and **self-destruct** upon impact. ◦ **Function**: Reconnaissance + precision strike. ◦ **Variants in use**: ▸ *SkyStriker* (Israeli origin). ▸ *Nagastra* (indigenous). *Strategic Relevance*: Vital for **real-time intelligence and precision elimination** of moving or high-value terrorist targets.


India Hits Pakistan
INDIA TODAY GROUP
The strikes followed April 22, 2025 attack that killed over two dozen in Pahalgam, Kashmir
Muzaffarabad
Kotli
Barnala
Sialkot
Muridke
Sarjal
Bahawalpur
JAMMU AND KASHMIR
LADAKH
HIMACHAL PRADESH
PUNJAB
PAKISTAN
100 km
N
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Terrorist Camps
LeT - Markaz Ahle Hadith, Barnala
LeT - Shawai Nalla Camp, Muzaffarabad
LeT - Markaz Taiba, Muridke
JeM - Markaz Subhan Allah, Bahawalpur
JeM - Tehra Kalan, Sarjal
JeM - Syedna Bilal Camp, Muzaffarabad
JeM - Markaz Abbas, Kotli
HM - Maskar Raheel Shahid, Kotli
HM - Mehmoona Joya, Sialkot
Map: Dipu Rai • Source: Media Reports
DiU

Figure No. 02

Key Military Operations by India Against Pakistan

- **Operation Ablaze (1965):** Pre-emptive mobilisation by the Indian Army in April 1965 after the Rann of Kutch clashes; demonstrated India's readiness before the August war.
- **Operation Riddle (1965):** India's military response to Pakistan's infiltrations (Ops Gibraltar and Grand Slam) in J&K; led to full-scale war and ended with the Tashkent Agreement.
- **Operation Cactus Lily (1971):** Major Indian offensive in East Pakistan; involved Meghna River crossing, aiding rapid advance to Dhaka and aiding Bangladesh's liberation.
- **Operation Trident (1971):** Indian Navy's successful missile strike on Karachi harbour on Dec 4; caused major damage to Pakistan's navy and fuel reserves.
- **Operation Python (1971):** Follow-up naval strike on Karachi post-Trident; further damaged Pakistan's naval assets and disrupted logistics.
- **Operation Meghdoot (1984):** India's pre-emptive occupation of Siachen Glacier; secured key passes like Bilafond La and Sia La to deny Pakistan control.
- **Operation Vijay (1999):** Military operation during the Kargil War to evict Pakistani intruders from Indian territory along the LoC; restored status quo.
- **Operation Safed Sagar (1999):** IAF's air campaign during Kargil conflict; targeted enemy positions at high altitude to assist ground operations.
- **2016 Surgical Strikes:** Cross-LoC strike by Indian Special Forces targeting terror launch pads in PoK post-Uri attack; marked shift in India's response doctrine.
- **Operation Bandar (2019):** IAF air strike on JeM camp in Balakot post-Pulwama attack; first cross-LoC air raid since 1971, led to India-Pak aerial face-off.
- **Operation Sindoor (2025):** Precision air strikes by India on 21 terror camps across PoK and Pakistan in retaliation for the Pahalgam attack; showcased tech-driven retaliation.

UPSC PYQ

Q: Operations undertaken by the Army towards upliftment of the local population in remote areas to include addressing of their basic needs is called: (2024)

(a) Operation Sankalp
(b) Operation Maitri
(c) Operation Sadbhavana
(d) Operation Madad

Solution: (c)

US-UKRAINE RARE EARTH MINERAL DEAL

Context

The United States and Ukraine signed a landmark deal—called the US-Ukraine Reconstruction Investment Fund. This agreement gives Washington access to Ukraine's rich reserves of critical minerals, and in return, helps fund Ukraine's reconstruction and military support.

What exactly is this deal about?

- The agreement creates a **joint investment fund** between the US and Ukraine. This fund will help support Ukraine's **post-war economic recovery**.
- In return, the **US will get partial access and shared profits** from future sales of Ukraine's **critical minerals** like **lithium, titanium, graphite, and rare earth elements**.
- The partnership is based on a **50:50 revenue-sharing model**.
- **Ownership of Ukraine's mineral resources remains with Ukraine**, and the country retains the right to decide what and where to extract.
- Ukraine is **not obligated to repay past US aid** under this agreement.
- The deal also includes **new US military assistance** (e.g., air defense systems), although no formal **security guarantees** were offered.

What are 'critical minerals' and why are they important?

- Rare earths are a group of **17 metals** used to make magnets that turn power into motion for electric vehicles, cell phones, missile systems, and other electronics. There are no viable substitutes.
- **Critical minerals** are naturally occurring elements that are essential to **modern industries**, especially in:
  - **Green energy**: Used in electric vehicles (EVs), wind turbines, solar panels, and batteries.
  - **Defense**: Important for missile systems, radar, drones, etc.
  - **High-tech electronics**: Smartphones, laptops, semiconductors.
  - **Aerospace**: Satellites, jet engines.
- The **US Geological Survey (USGS)** considers around **50 minerals** as "critical," including **rare earths**, **lithium**, **nickel**, **cobalt**, **graphite**, and **titanium**.
- These minerals are **difficult to substitute**, and their supply chains are **concentrated**—especially in **China**, which controls about **90% of global rare-earth production**.

What minerals does Ukraine have, and where?

- Ukraine is rich in **critical minerals**. About **5% of the**

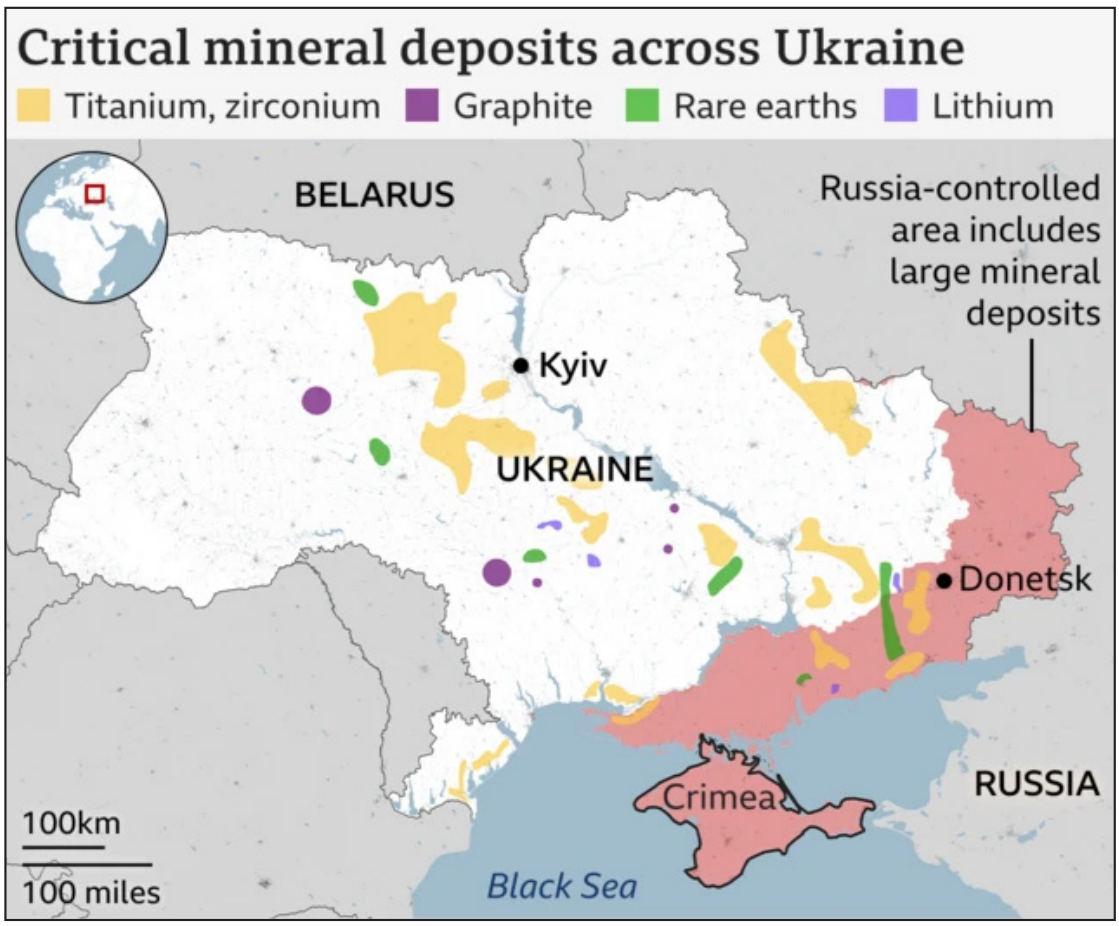

Figure No. 03

world's "critical raw materials" are in Ukraine. Ukraine has deposits of 22 of the 34 minerals identified by the European Union as critical:

- **Lithium**: Estimated **500,000 metric tons**, used in batteries; deposits found in central and southeastern regions.
- **Graphite**: Around **20% of global reserves**; key for EVs and nuclear energy.
- **Titanium**: Used in aerospace and defense; found in the northwest and central regions.
- **Rare earth elements**: Including **neodymium, cerium, lanthanum**, and others, essential for electronics and military tech.
- **Nickel, cobalt, gallium, zirconium, beryllium**, and **scandium** are also present.

- However, **40% of Ukraine's mineral reserves** (including some lithium and coal) are currently in **Russian-occupied territory**, making **control and development challenging**.

Critical Minerals in India

- India has identified '30 critical minerals', which are essential for the country's economic development and national security.
  - Antimony, Beryllium, Bismuth, Cobalt, Copper, Gallium, Germanium, Graphite, Hafnium, Indium, Lithium, Molybdenum, Niobium, Nickel, PGE, Phosphorous, Potash, REE, Rhenium, Silicon, Strontium, Tantalum, Tellurium, Tin, Titanium, Tungsten, Vanadium, Zirconium, Selenium and Cadmium.
- Ten minerals on the list are **100 per cent import-dependent**. These are lithium cobalt, nickel, vanadium, niobium, germanium, rhenium, beryllium, tantalum, and strontium.
- **India's Efforts to Secure Critical Minerals**
  - **KABIL**: It is a joint venture of **three state-owned companies** aimed at securing overseas mineral assets.
  - **Strategic Partnerships**: India has joined initiatives like the **Minerals Security Partnership** and the **Critical Raw Materials Club** to diversify supply sources and strengthen global relationships.
  - **Research and Development**: India is investing in research through organizations like the **Geological Survey of India** and the **Council for Scientific and Industrial Research (CSIR)**. The focus is on enhancing **mineral exploration**, improving **processing technologies**, and reducing dependency on virgin minerals through **recycling** and **circular economy practices**.

- **Incentive Programs**: The government is also offering **production-linked incentives** for the extraction and recycling of critical minerals to boost domestic capabilities.

EU'S ENERGY SHIFT

Context

The war in Ukraine has created a major energy crisis in Europe. Since **Russia's invasion in 2022**, the European Union (EU) has been trying to reduce its reliance on Russian gas and energy. The EU's new plan aims to phase out Russian gas completely by 2027, but some EU countries are still buying more Russian energy. The **TurkStream pipeline** is a key factor in this, as it continues to bring Russian gas into Europe.

EU's Plan to Stop Buying Russian Gas by 2027

- In response to Russia's invasion of Ukraine, the **European Commission** set a goal for the EU to stop importing Russian gas by 2027. This plan asks countries to create their own strategies to reduce gas imports from Russia.
- Although Russian pipeline gas imports have fallen significantly (from over 155 billion cubic meters (Bcm) in 2021 to under 40 Bcm in 2024), **Russian LNG (liquefied natural gas)** exports to Europe have increased.
- Countries like **France, Belgium, Spain**, and the **Netherlands** now buy more LNG directly from Russia.
- **U.S. LNG as an Alternative**: The EU is also looking for alternatives to Russian gas. **U.S. LNG exports** to Europe are expected to increase by 15% in 2025, which could help replace some of the Russian gas.
  - However, U.S. LNG is more expensive than Russian gas, and the U.S. requires long-term contracts, which may not align with the EU's goals to reduce emissions and stay flexible.
- **Opposition from Some European Countries**
  - **Hungary** and **Slovakia** are two countries in **Central and Eastern Europe** that have opposed the EU's plan to phase out Russian gas. These countries argue that it would lead to higher energy prices and hurt their economies.
  - Although Russian gas is cheaper, most of the price benefits go to **Gazprom**, Russia's state-owned energy company, rather than to European consumers.

What does this mean for the future?

The EU's efforts to stop using Russian gas face many challenges:

- **TurkStream Pipeline**: This pipeline remains a key source of Russian gas into Europe. If the EU wants to cut off all Russian energy, it will need to address this pipeline.
- **Alternatives**: The EU is turning to **U.S. LNG** as an alternative, but it comes at a higher cost and long-term contracts.
- **Energy Security**: The EU must find ways to secure enough energy from different suppliers without becoming overly dependent on one source.

About TurkStream Pipeline

- TurkStream is a pipeline that carries Russian gas under the **Black Sea to Turkey** and then to several countries in **Southeast Europe.**
- This pipeline has helped Russia continue to supply gas to European countries like **Hungary, Slovakia, Bulgaria**, and Serbia despite other routes being shut down.
- The amount of gas flowing through TurkStream has increased, and Hungary is now the biggest importer of Russian gas through this pipeline, with imports set to rise to **8 Bcm** in 2025.

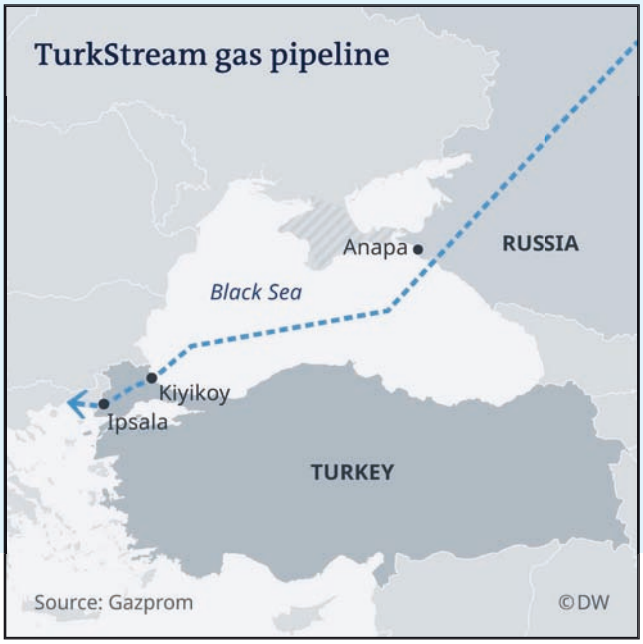

Figure No. 04

STATE VISIT OF PRESIDENT OF ANGOLA TO INDIA

Context

During **Angolan President João Lourenço's** state visit to India, India announced a **USD 200 million line of credit** for the **modernisation of Angola's defence forces**, marking a significant step in strengthening **strategic, energy, and development cooperation** between the two nations.

Key-highlights of the Visit:

- India and Angola are celebrating 40 years of diplomatic relations, underscoring a consistent foreign policy.

- **Defence Ties:** India announced a **USD 200 million Line of Credit** to help modernise Angola's armed forces. Angola operates **Soviet-origin equipment**, such as **Sukhoi Su-30 jets**, which India is well-equipped to **repair, service, and overhaul** through its **public and private defence ecosystem**.
  - This supports India's goals under **SAGAR (Security and Growth for All in the Region)** and boosts its image as a **reliable defence partner** for Africa.
- **Railway connectivity:** Angola has three major rail lines, but they are currently **not interconnected**. India has offered technical and infrastructure support in this area. Importantly, one of Angola's key railway lines is part of the **Lobito Corridor** — a major **U.S.- and EU-backed initiative** announced alongside the **India-Middle East-Europe Economic Corridor (IMEC)** at the **G20 Summit in Delhi (2023)**.
  - The **Lobito Corridor** connects the **mineral-rich Katanga province** in the Democratic Republic of Congo to Angola's **port city of Lobito**, via Zambia.
- Angola signed the **International Solar Alliance (ISA) Framework Agreement** and became the **123rd member of the ISA.**

Why this visit matters?

- The visit holds significance because President Lourenço is currently the **Chair of the African Union (AU)**, giving this bilateral dialogue a **wider continental relevance**.
- **Energy Partnership**: Angola is India's **second-largest supplier of oil and LNG in Africa**, after Nigeria. Nearly **90% of Angola's USD 3.5 billion exports** to India are energy-related. With India being one of the world's largest energy importers, this **energy-security partnership** is key to India's long-term energy strategy.
- Three **MoUs** were signed in **agriculture, traditional medicine**, and **culture**, showcasing India's **soft power and development diplomacy**.

India's Africa Strategy:

- India has re-energised Africa ties—18 of 25 new Indian missions since 2015 are in Africa, signalling diplomatic priority.
- India sees Africa as a resource-rich, youthful, and increasingly influential continent—important for securing energy, gaining market access, and pursuing UNSC reforms.
- India championed **African Union's entry into the G20**, positioning itself as a **voice of the Global South**.
- India's development model offers an **alternative to China's Belt and Road Initiative (BRI)** by avoiding debt dependency and fostering real capacity building.

Maritime and Security Engagement

- Maritime security is central—India's **AIKEYME naval exercise**, radar networks, and collaboration under SAGAR help secure Indian Ocean routes, vital for trade and energy.
- Strategic partnerships with countries like Angola contribute to securing **Sea Lines of Communication (SLOCs)** from piracy and geopolitical disruptions.

FACT BOX

India-Africa Relations

- India is Africa's fourth-largest trading partner, with bilateral trade reaching about USD 100 billion and cumulative investments exceeding USD 75 billion.
- The **African Continental Free Trade Area Agreement (AfCFTA)** promises deeper economic integration, which India supports through its **duty-free tariff preference (DFTP) scheme.**
- This scheme extends duty-free access to 98.2% of India's total tariff lines, benefiting **33 African Least Developed Countries (LDCs).**
- India supports maritime security through:
  - Djibouti Code of Conduct
  - Western Indian Ocean radar networks
  - AIKEYME naval exercises

ISRAEL'S NEW GAZA PLAN

Context

Amid stalled ceasefire negotiations and continued hostilities, Israel's Security Cabinet has approved a new military plan aiming to **capture the entirety of Gaza** and maintain a presence for an **unspecified duration**, increasing pressure on Hamas for hostage release and a ceasefire on Israeli terms.

Key Highlights of the Plan:

- **Full Military Control**: The Israeli army aims to **take over all of Gaza**, beyond the half it already controls, including border zones and key east-west corridors.
- **Continued Displacement**: The plan includes further **displacement of Palestinians** toward southern Gaza, worsening the humanitarian crisis.
- **Strategic Pressure on Hamas**: The move is designed to **coerce Hamas** into concessions, particularly on the hostage issue and ceasefire terms.

Humanitarian Crisis Deepens:

- **Mass Displacement**: Over **90% of Gaza's population** (2.3 million) has been displaced — many repeatedly.
- **Aid Blockade and Hunger**: Since early March, **Israel halted aid** into Gaza, creating famine-like conditions and widespread looting.
- **Casualties**: According to local health officials:
  - Over **52,000 Palestinians killed**, many women and children.
  - Strikes since March 18 alone have killed **over 2,600**.
- **Infrastructure Destruction**: The territory is described as an **"uninhabitable moonscape"**, with vast devastation and collapsed services.

Background of the Conflict

- The conflict between Israel and the Palestinian people roots go back over a century and are primarily centered on issues such as land ownership, borders, and national identity.
- Before 1948, the region was known as Palestine and was under **Ottoman rule** until **World War I.**
- After the **defeat of the Ottoman Empire**, Britain took control of the area under a **League of Nations mandate**. The region had a majority **Arab population** and a **minority Jewish community**, along with other ethnic groups.
  - Tensions began to rise after the **1917 Balfour Declaration**, in which Britain supported the idea of establishing a **"national home for the Jewish people"** in Palestine. While Jews saw this as a restoration of their historical homeland, Palestinian Arabs, who had lived there for centuries, strongly opposed this move.
- **Jewish Migration and UN Partition Plan:** From the 1920s to the 1940s, Jewish immigration to Palestine increased significantly, especially as many Jews fled persecution in Europe. The **Holocaust**, in which **six million Jews were murdered**, further intensified **the global Jewish demand for a safe homeland.**
- By 1947, Jews made up about 30% of the population. Violence between Jews and Arabs had escalated. The UN proposed a **partition plan** to divide Palestine into separate Jewish and Arab states, with **Jerusalem** as an international city. Arab nations rejected this plan, claiming it unfairly favored the Jewish population.

Creation of Israel:

- On 14 May 1948, the **Jewish leadership** declared the establishment of the **State of Israel**, just before the British withdrawal.
- The following day, armies from five Arab countries attacked Israel, leading to the **first Arab-Israeli war.**
- Israel emerged victorious and expanded its territory beyond what the UN plan had allocated.
  - **Egypt** took control of the Gaza Strip
  - **Jordan** occupied the West Bank and East Jerusalem
  - **Israel** held West Jerusalem
- About 750,000 Palestinians fled or were expelled during the war, an event known to Palestinians as the ***"Nakba,"*** **or "Catastrophe."** Many became long-term refugees.
- **The 1967 Six-Day War:** In 1967, tensions again erupted into war, known as the Six-Day War. Israel launched a preemptive strike against Egypt and quickly defeated the armies of **Egypt, Syria, and Jordan.** Israel captured the **Sinai Peninsula and Gaza Strip** from Egypt, the West Bank and East Jerusalem from Jordan, and the Golan Heights from Syria.
- This war brought about a new phase of Israeli occupation. Over a million Palestinians came under Israeli control in the **West Bank, East Jerusalem, and Gaza**. Israel later returned the **Sinai Peninsula to Egypt in a 1979 peace agreement but annexed East Jerusalem and the Golan Heights**—actions not recognized by most of the international community.

Key-locations:

- **West Bank:** The West Bank is home to about three million Palestinians and is considered part of the Occupied Palestinian Territories, along with East Jerusalem and Gaza. Israel retains overall control.
- **Jerusalem:** Israel controls the entire city and considers it its indivisible capital, while Palestinians claim East Jerusalem as the capital of a future Palestinian state. The city is home to key religious sites for Jews (Temple Mount), Muslims (Al Aqsa Mosque compound), and Christians.
- **Gaza Strip:** The Gaza Strip is surrounded by Israel, Egypt, and the Mediterranean Sea. Originally occupied by Egypt after the 1948 war, Gaza was captured by Israel in the 1967 war. After Hamas won elections in 2006 and took full control of Gaza in 2007, Israel and Egypt imposed a blockade. Since then, several major conflicts have erupted between Hamas and Israel.

Figure No. 05

RESTORE FMR, STOP BORDER FENCING: UNC

Context

The **United Naga Council (UNC)** has demanded the **reinstatement of the Free Movement Regime (FMR)** along the India-Myanmar border, following its **scrapping by the Indian government in February 2023**, which disrupted the cultural and economic ties of the Naga communities living across the border. The UNC also seeks the **rollback of districts** created in 2016, which it argues disregarded the rights of the Naga people.

Figure No. 06

What was FMR?

- The **Free Movement Regime (FMR)** allowed individuals from certain **hill tribes** in India and Myanmar to move freely across the border without a visa, provided they lived within **16 km** of the border.
- They were allowed to stay for up to **two weeks** per visit.
- This system helped maintain cross-border interactions, especially for the **Naga communities** who have lived in these border regions for generations.
- In 2023, the **Ministry of Home Affairs** decided to **scrap the FMR**, citing security concerns, such as the prevention of arms smuggling, drug trafficking, and illegal immigration.
- The UNC argues that this decision severed the **historical, cultural, and familial ties** between the Naga people on both sides of the border.
- **Impact on the Naga Communities:** The removal of the FMR has created disruptions in the lives of many Naga tribes, especially those from the **Tangkhul, Anal, Moyon, Lamkang, and Maring** Naga communities.
  - These communities live in the border areas between **Manipur (India)** and the **Sagaing Division (Myanmar)**.
  - Their livelihoods, which have historically relied on **cross-border trade, familial connections, and cultural exchange**, have been severely affected.
- **Violation of Indigenous Rights:** The UNC argues that the scrapping of the FMR violates **Article 36** of the **United Nations Declaration on the Rights of Indigenous Peoples (2007)**.
  - This article states that indigenous peoples, especially those divided by international borders, have the right to maintain and develop cross-border relationships for cultural, social, and economic purposes.
  - While ***India did not sign this declaration***, it did vote in favor of its adoption, adding weight to the UNC's argument.
  - The removal of the FMR, according to the UNC, disrupts these fundamental rights of the Naga people.

The Creation of New Districts in 2016:

- In **2016**, the **Manipur state government** created **seven new districts**.
  - These new districts—**Jiribam, Kamjong, Kakching, Tengnoupal, Noney, Pherzawl,** and **Kangpokpi**—were carved out from existing districts, such as **Ukhrul, Senapati, Chandel**, and **Tamenglong**, which are areas with a significant **Naga population**.
- **Naga Opposition:** The Naga community strongly opposed the creation of these districts, arguing that the move ignored their **stakeholders** and violated previous **agreements**.
  - The UNC highlights that the creation of these districts dishonored memoranda of understanding between the government and Naga groups, as well as an assurance given by the Centre in **2011** to maintain the **status quo** regarding the administrative boundaries.

Myanmar Border Sharing

- India and Myanmar share a **1,643-km-long porous border** which is shared by multiple North Indian states like **Mizoram, Manipur, Nagaland, and Arunachal Pradesh**.

- Manipur shares approximately 390 km of a porous border with Myanmar, with only about 10 km fenced as of now.
- Mizoram has a porous border spanning 510 kilometres with Myanmar.
- Arunachal Pradesh shares a 520-kilometre border with Myanmar
- Nagaland's border with the country spans 215 kilometres.

- Currently, all these states come under FMR.

CORPORATE INSOLVENCY UNDER SCRUTINY

Context

Under India's **Insolvency and Bankruptcy Code (IBC),** when a company cannot repay its debts, a structured process called the **Corporate Insolvency Resolution Process (CIRP)** allows for either its revival through a resolution plan or liquidation. The recent Supreme Court judgment cancelling JSW Steel's resolution plan for **Bhushan Power & Steel Ltd (BPSL)** has brought attention to serious procedural lapses and legal violations in high-value insolvency cases.

What is IBC?

- The **Insolvency and Bankruptcy Code (IBC), 2016** is a legal framework to **resolve financial stress** in companies.
- It aims for **time-bound resolution** of bad loans through either:
  - A **resolution plan** (reviving the company), or
  - **Liquidation** (selling assets to repay creditors).

Key Steps in Insolvency Resolution:

- **Initiation**: A creditor or the company itself applies for insolvency at the NCLT.
- **CIRP (Corporate Insolvency Resolution Process)** begins. An **RP (Resolution Professional)** is appointed.
- **CoC (Committee of Creditors)** evaluates and votes on resolution plans.
  - If approved, the plan is sent to **NCLT** for final approval.
  - If no plan is approved within the timeline, **liquidation** follows.

What Did the Supreme Court Say?

The Supreme Court **rejected JSW Steel's plan** and ordered **liquidation of BPSL** for several serious reasons:

- **Missed Legal Timelines:** Under IBC, the resolution process must be completed within 270 days (can be extended to 330 days in special cases). JSW's plan was approved by the CoC in Oct 2018, but submitted to NCLT only in Feb 2019. The court found no valid reason for this delay, making the entire process time-barred.
- **Violation of Section 29A of IBC: Section 29A** disqualifies defaulting promoters or those "acting in concert" with them from submitting resolution plans. The court found the RP failed to check JSW's eligibility under this rule. It raised questions about connected entities or promoters, possibly being ineligible.
- **Unfair Treatment of Operational Creditors: Section 30(2) of IBC** requires fair and equitable treatment of all creditors. Operational creditors (suppliers, vendors) argued that their dues were not fairly addressed. The court agreed, noting a lack of transparency and diligence.
- **Failure to Address Avoidance Transactions**: RPs are supposed to check for fraudulent or undervalued transactions by the former management (called **avoidance transactions**). The RP did not take proper action, weakening the credibility of the entire process.
- **Delayed Implementation by JSW Steel:** After NCLT cleared the plan in 2019, JSW Steel delayed payments to creditors for over 2 years, until 2021–22. The court said this delay may have helped JSW gain from rising steel prices, raising concerns of commercial opportunism.

Why is this a big deal?

This ruling could **change how insolvency resolutions work in India**, especially for large deals:

- It shows courts will **strictly enforce timelines**, not tolerate delays.
- Resolution professionals (RPs) must now **act more diligently** — in checking eligibility, treating creditors fairly, and pursuing frauds.
- It puts **commercial wisdom of creditors** under scrutiny when due process is not followed.
- Raises concerns for **investors and bidders** about the finality and enforceability of approved resolution plans.

Wider Implications

- **For the IBC Ecosystem:** This judgment reasserts IBC's core principles — speed, transparency, and fairness. But it may also make large investors more cautious, as even approved plans can be reversed.
- **For Operational Creditors:** A rare case where operational creditors won — often they are left behind in the resolution process. It could lead to stronger enforcement of their rights going forward.
- **For Promoters and RPs:** RPs can no longer be passive facilitators — they must now show rigorous compliance. Promoters or their allies can't find backdoor entries into the resolution process.

FACT BOX

About Non-Performing Assets (NPAs)

- The Reserve Bank of India (RBI) defines Non-Performing Assets (NPAs) as loans or advances that are overdue for more than 90 days.

- **Types of NPAs**
  - **Sub-Standard Assets**: These are NPAs that have been overdue for less than or equal to 12 months.
  - **Doubtful Assets:** These are NPAs that have been overdue for more than 12 months.
  - **Loss Assets**: These are assets that are considered "uncollectible" and have little value, though some recovery may still be possible. These assets have not yet been fully written off by the bank.

About National Company Law Tribunal (NCLT)

- **Formed:** 2016
- NCLT is a **quasi-judicial body** in India. It was constituted under section 408 of the Companies Act, 2013.
- It has the authority to adjudicate issues related to Indian companies. This includes:
  - Proceedings related to arbitration.
  - Compromise and arrangements.
  - Reconstructions and winding up of companies.
  - Insolvency resolution processes for companies.
  - Insolvency resolution for limited liability partnerships under the Insolvency and Bankruptcy Code, 2016.

UPSC PYQ

Q: Consider the following statements: (2018) Non-performing assets (NPAs) decline in value when-

1. Demand revives in the economy
2. Capacity utilisation increases
3. Capacity utilisation, through substantive, is yet optimal
4. Capacity utilisation decreases consequently upon merger of unit.

Which of the above statements are correct?

(a) 1, 3 and 4 only (b) 1, 2 and 4 only

(c) 1, 2 and 3 only (d) 1, 2, 3, 4

Solution: (c)

INDIA'S SPORTING INDUSTRY

Context

India is hosting the **7th edition of the Khelo India Youth Games (KIYG)**, across five cities in Bihar, with some events in New Delhi. The event brings together over 6,000 athletes competing in 27 sports for 284 gold medals. This edition is particularly significant as it showcases the growing sports culture in India, a key part of the government's broader goal: hosting the **2036 Olympic Games** and positioning sports as both a **development tool** and a driver of **soft power.**

India's Sports Sector

- Sports is listed as a **state subject** in the Constitution of India.
- **Sports Authority of India** is the premier sports body that is in charge of implementing the sports schemes to promote sports culture in India.
- In India, sports contribute about **1% of the national economy.**
- India's sports market is projected to grow to USD 130 billion by 2030 from a market size of USD 52 billion now, accelerating at a CAGR of 14%, according to a recent report.
- The sector is expected to create **10.5 million jobs** and generate **USD 21 billion** in **indirect tax revenue** by 2030.
- India ranks **13th among G20 countries** in the **Think Sports Index**, with the US, UK and Australia leading the rankings. The Index evaluates commercial factors, performance and heritage, and sporting foundations.
- Sports is not something restricted to playing area, it has expanded, becoming a career option for thousands of people in the country.
- **Sub-Sectors**: Physiotherapy, data analytics, sports technology, broadcasting, e-sports, management, etc.
- **Factors responsible for expansion:** Increased government investment, widespread digital adoption, healthier lifestyles, rising discretionary incomes, and a surge in high-quality sports content.

What Are India's Soft Powers?

- Soft power refers to a country's ability to influence others not through force or money, but through appeal, culture, values, and ideas.
- India has developed a strong identity globally through several soft power assets. These include:
  - Cultural Heritage
  - Democracy and Diversity
  - Indian Diaspora
  - Digital and Tech Leadership
  - Education and Knowledge Economy
  - Media and Connectivity

How Sports Will Enhance India's Soft Power?

Sports is an emerging and powerful form of soft power that India is now actively cultivating.

- **National Branding and Global Image:** Success in international sports events can shape India's image as a rising and confident nation. Hosting international events like the **Khelo India Youth Games**, and potentially the 2036 Olympics, can signal India's ability to lead, organise, and engage globally.
- **Cultural Integration through Sports:** Sports allow nations to connect across cultures and geographies.

Promoting traditional Indian sports (like kabaddi and kho-kho) internationally can serve as a cultural export, just like yoga or Ayurveda.

- **Youth Engagement and Talent Diplomacy:** Platforms like Khelo India identify and nurture grassroots talent, creating a large base of young athletes who can become brand ambassadors for the country.
- **Economic and Strategic Influence**: The global sports industry is a multi-billion-dollar sector. As India builds sports infrastructure and manufacturing, it creates jobs and draws international attention.
- **Inclusivity and Inspiration**: Sports can project a progressive and inclusive image of India, showcasing how talent from all regions, castes, and genders is being given a platform. Events like the **Khelo India Youth Games** involve athletes from states like **Bihar, Ladakh, and Lakshadweep**, reinforcing India's diversity narrative.
- **Showcasing Organisational Capability**: Successfully managing large-scale sporting events enhances India's reputation for logistical excellence, readiness, and international cooperation.

Challenges in India's Sports Landscape

- **Infrastructure Gaps**: While urban areas have seen development, rural regions still lack adequate sports facilities.
- **Resource Allocation**: Ensuring equitable distribution of resources to all states and regions remains a challenge.
- **Talent Retention**: Identifying talent is only the first step; retaining and nurturing athletes through their careers requires sustained support.
- **Public Awareness**: Increasing public interest and participation in sports, especially in non-traditional disciplines, is essential.

Government Initiatives:

- **Boost in Sports Budget:** In the Union Budget for 2025-26, the Ministry of Youth Affairs and Sports received an allocation of Rs 3,794.30 crore, marking a significant increase from the previous year.
- **Khelo India Programme**: It is a flagship initiative to identify and nurture young sporting talent through structured competitions and infrastructure development.
- **Target Olympic Podium Scheme (TOPS):** It is aimed at providing financial assistance and support to athletes with potential to win medals at the Olympics
- **Market Access Initiative (MAI)** provides financial assistance to export and trade promotion organizations, national institutes, research institutes, and exporters to promote the export of Indian goods to international markets.
- **Market Development Assistance (MDA) Scheme** assists exporters in export promotion activities in international markets, focusing on regions such as Latin America, Africa, CIS, and ASEAN economies.
- **Remission of Duties and Taxes on Export Products (RoDTEP)** aims to make Indian exports more competitive by refunding duties and taxes on exported products.
- **National Sports Development Funds (NSDF):** Under NSDF, Government supports various institutions and individuals for creation and upgradation of sports facilities across the country.

India and the Olympics

- India first participated in the Olympics in 1900 in Paris with Norman Pritchard.
- **Indian Olympic Association** was founded and recognised by the IOC in 1927. The IOA coordinates with National Sports Federations to manage India's participation in international games.

UPSC PYQ

Q: Consider the following statements in respect of the Laureus World Sports Award which was instituted in the year 2000: (2021)

(1) American golfer Tiger Woods was the first winner of this award.

(2) The award was received mostly by 'Formula One' players so far.

(3) Roger Federer received this award the maximum number of times compared to others.

Which of the above statements are correct?

(a) 1 and 2 only (b) 2 and 3 only

(c) 1 and 3 only (d) 1, 2 and 3

Solution: (c)

Q: Consider the following statements in respect of the ICC World Test Championship: (2021)

(4) The finalists were decided by the number of matches they won.

(5) New Zealand was ranked ahead of England because it won more matches than England.

Which of the above statements is/are correct?

(a) 1 only (b) 2 only

(c) Both 1 and 2 (d) Neither 1 nor 2

Solution: (d)

ONLINE GAMING, TAXATION, AND LEGAL UNCERTAINTY IN INDIA

Context

In a landmark case, the central government has taken a strong position before the Supreme Court regarding the

taxation of online games under the **Goods and Services Tax (GST) framework.** The Centre has argued that it makes no difference whether a game is based on skill or chance when it comes to tax classification. The core argument is that any form of betting on an outcome, regardless of whether the underlying game is skill-based or chance-based, should be treated as gambling for tax purposes.

Key-Arguments made by the Government

- Petitioners argue that such a **tax regime violates Article 14 (equality before law) and Article 19(1)(g) (freedom to practise any profession).** They say it unfairly places skill-based games in the same category as games of chance, imposing disproportionate financial and compliance burdens.

Government's Arguments:

- **Stakes Define the Activity:** The classification of a game as skill-based or chance-based is irrelevant when determining its tax liability.

Taxation

Traditionally, the online gaming industry had been paying GST at **18 per cent,** treating its activity as a **service.** This interpretation was disputed by the GST authorities, who chose to characterise the activity as betting and gambling, thereby subject to **28 per cent GST.**

- The activity of betting on the outcome of any game, regardless of its nature, falls under the **broader umbrella of gambling**.
- **GST Law Operates Independently**: Even in states like **Nagaland**, where skill-based games are allowed and legally protected, betting on the outcomes of those games should still be categorized as gambling and subjected to the 28% GST rate.
- **Valuation Rules Are Valid: Rule 31A(3) of the CGST Rules**, which is under challenge, is consistent with earlier court-approved frameworks.
- **Centre Has Taxing Power:** The **101st Constitutional Amendment** gives the Centre taxation rights over betting and gambling. State regulatory powers do not override this.

- If the Supreme Court upholds this stance, it could result in many online gaming platforms facing the same tax burden as traditional gambling activities, which would make participation in games like fantasy sports significantly more expensive for users.

Gambling Laws in India

- Online gambling in India falls into a **gray area** because there are no specific laws at the national level regulating it.
- Gambling in India has long been regulated by colonial-era laws like the **Gaming Act of 1845** and the **Betting Act of 1853**, which were enacted during British rule to govern gambling activities.
- Now, **gambling is a state subject** under the Indian Constitution, each state has the power to create laws governing gambling within its jurisdiction.
  - For instance, some states like **Nagaland** have legalized certain forms of skill-based gaming, including **fantasy sports**, while others, like **Tamil Nadu**, have imposed a ban on online gaming activities.
- Telangana was one of the first states that banned online gambling with a legislation in 2017, which was then followed by Kerala, Tamil Nadu, Andhra Pradesh and very recently, Karnataka.
- The **Prevention of Money Laundering Act 2022, Telecom Commercial Communications Customer Preference Regulations 2010, The Prize Competition Act 1955, Foreign Exchange Management Act 1999 and the Cable Television Network Rules 1994** put forth some regulations on the promotion of gambling.

Challenges

- **Conflicting state laws**: This inconsistency has led to a lack of clarity, creating challenges for businesses that operate across state lines.
- **Regulatory vacuum:** There is no central authority or set of laws to govern the sector as a whole.

India's Online Gaming Sector

- India is home to **591 million gamers** - about 20% of the total global gamers, around 11.2 billion mobile game app downloads with strong emerging alternatives to Google Playstore, and around 1,900 gaming companies, employing 1.3 lakh highly skilled professionals.
- The online gaming sector in India is expected to grow by over two-fold to USD 9.1 billion by 2029, largely dominated by real money games.
- India's online gaming market revenue was USD 3.7 billion in 2024.
  - RMG (Real Money Gaming) continues to dominate, contributing **85.7% of the sector's revenue,** valued at USD 3.2 billion, and growing at 18% during 2024
- The sector has received USD 3 billion in FDI, out of which 85% of the FDI was channelled to the Pay-to-Play segment.

INDIA'S ORANGE ECONOMY

Context

Prime Minister Narendra Modi inaugurated the World Audio Visual and Entertainment Summit (WAVES) 2025 at the Jio World Convention Centre in Mumbai. The event is being

seen as a milestone for India's growing creative economy, often referred to as the "Orange Economy" — a sector that includes music, film, gaming, animation, fashion, digital content, and more.

What is the Orange Economy?

- The **Orange Economy** (also called the **Creative Economy**) refers to industries whose **products and services are based on creativity, culture, and intellectual property**. This includes:
  - Film and Television
  - Music and Performing Arts
  - Gaming and Animation
  - Digital Content & OTT Platforms
  - Fashion and Design
  - Advertising, Publishing, and Cultural Tourism
- The term was popularized by **UNESCO** and the **Inter-American Development Bank (IDB)** to describe sectors that **generate economic value through cultural expressions and creativity**.
- 112 years ago, on May 3, 1913, **Raja Harishchandra**, widely recognised as India's first full-length feature film directed and produced by **Dadasaheb Phalke**, was released.
- **Government Initiatives**: The government has announced a **USD 1 billion creative economy fund,** and is setting up an **Indian Institute of Creative Technology (IICT)** in Mumbai to skill the next generation.
  - The government has announced a USD 1 billion creative economy fund, and is setting up an **Indian Institute of Creative Technology (IICT)** in Mumbai to skill the next generation.

Economic Contributions:

- India's creative economy already contributes **USD 30 billion to GDP**, employing **8% of the workforce.**
- Creative exports exceed **USD 11 billion annually**, and sectors like YouTube and digital design are enabling small-town creators to reach global audiences.
- It can grow to **over USD 100 billion within the next decade**.
- **Challenges:** Weak IP enforcement, limited rural digital access, and lack of formal financing persist

What is WAVES 2025?

- **WAVES** stands for **World Audio Visual and Entertainment Summit**. It is a **global platform** that brings together:
  - **Artists and Creators**
  - **Technology Companies**
  - **Media Giants**
  - **Investors and Policymakers**
  - **Industry Leaders from over 100 countries**
- WAVES 2025 will serve as a major gathering of global storytellers, fostering innovation, creativity, and collaboration in film, series, gaming, and digital entertainment. The event will bring together over 10,000 delegates, 1,000 creators, 300 companies, 350 startups, and leaders from over 90 countries.
- The goal is to position India as a **hub for the global creative economy**, explore **new partnerships**, and promote **India's soft power** through entertainment, culture, and technology.

Why is there a shift in focus on Orange Economy?

- **Demographic Strength**: India has one of the **youngest populations** globally with strong digital skills and creativity.
- **Digital Infrastructure**: The **OTT platforms**, **mobile gaming**, and **streaming services are witnessing rapid growth.** There is growth of **AI-driven content creation** and **animation studios**.
- **Global Cultural Impact**: Indian cinema, music, and digital creators have **growing international audiences**.
- **Soft Power Strategy**: Cultural exports like **Bollywood**, yoga, and Indian cuisine are part of India's **diplomatic and image-building toolkit**.
- **Policy Push**: GOI has rolled out incentives like **film shooting subsidies**, **startup policies**, and is promoting India as a **global content production destination**.

INDIA-UK FTA

Context

India and the United Kingdom finally signed a **Free Trade Agreement (FTA)**, after nearly **three years of negotiations**. The deal comes at a time when **global trade faces uncertainty** due to rising tariffs, particularly those initiated by the US. It marks a major post-Brexit milestone for the UK and is expected to boost bilateral trade significantly.

Key Takeaways from India–UK FTA

- **Trade Expansion Potential:** The agreement is projected to enhance bilateral trade by approximately British Pounds 25.5 billion annually by 2040. In 2024, total trade stood at British Pounds 42.6 billion, indicating a substantial opportunity for growth.

Tariff Rationalisation

- **Spirits and alcoholic beverages**: Tariffs on whisky and gin are to be gradually reduced from 150% to 40% over a decade—offering relief to the UK's Scotch whisky industry and Indian consumers alike.
- **Automotive sector**: Tariffs exceeding 100% on select UK vehicles will be lowered to 10% under a quota-based mechanism.
- **Other goods**: Concessions have been extended to items such as **medical devices**, **aerospace components**, **cosmetics**, **chocolates**, **biscuits**, **lamb**, and **salmon**, many of which are core to UK's export basket.

- **Movement of Professionals:** India sought liberalisation in professional mobility, especially for its IT and healthcare workforce. The final arrangement is modest, allowing for approximately 100 additional annual visas, indicating limited progress in this domain due to the UK's political sensitivities around immigration.
- **Regulatory Challenges Addressed:** Negotiations also confronted and eventually navigated contentious issues such as the **UK's proposed carbon border tax** on high-emission imports (notably metals), which could have disadvantaged Indian exporters. The two sides arrived at a mutually acceptable understanding.

Significance for India

- **Strategic Market Diversification:** The agreement enables India to further its quest for alternative trade partners and reduce strategic vulnerability, especially in light of geopolitical frictions and China-centric supply chain risks.
- **Support for Domestic Manufacturing:** By easing access to the UK market for Indian goods, the FTA is expected to create a more favourable environment for initiatives such as **'Make in India'**, particularly in **textiles**, **pharmaceuticals**, **engineering goods**, and **agri-products**.
- **Post-Brexit Opportunity Realisation**: For India, this FTA serves as an opportunity to gain more predictable access to the UK market, especially as London seeks to deepen economic linkages beyond the European Union.
- **Muted Gains in Services:** According to the **Global Trade Research Initiative (GTRI)**, the deal may not substantially transform India's export landscape, since many Indian products already enter the UK with low or zero tariffs. Gains in the **services sector**, which remains a core Indian interest, appear rather limited.

What is a Free Trade Agreement (FTA)?

- An **FTA** is a pact between two or more countries to **reduce or eliminate tariffs, import quotas, and preferences** on most (if not all) goods and services traded between them.
- It may also address **non-tariff barriers**, **investment flows**, **intellectual property**, and **movement of professionals**.
- FTAs aim to **enhance market access**, boost economic ties, and **simplify trade procedures**.
- India's FTAs with Other Countries: India has signed multiple bilateral and regional FTAs, including:
  - **ASEAN-India FTA**
  - **India–Japan Comprehensive Economic Partnership Agreement (CEPA)**
  - **India–South Korea CEPA**
  - **India–UAE Comprehensive Economic Partnership Agreement (CEPA)**
  - **India–Australia Economic Cooperation and Trade Agreement (ECTA)**
  - **India–Mauritius Comprehensive Economic Cooperation and Partnership Agreement (CECPA)**
  - Ongoing negotiations: **India-EU**, **India-Canada**, **India-GCC**, **India-SACU**

UPSC PYQ

Q: Consider the following countries: (2018)

(1) Australia
(2) Canada
(3) China
(4) India
(5) Japan
(6) USA

Which of the above are among the 'free-trade partners' of ASEAN?

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

Solution: (c)

AGRIVOLTAICS

Context

Agrivoltaics, a concept that **integrates solar energy generation with agricultural production**, is emerging as a promising solution to address India's challenges in food security, energy access, and climate resilience. By installing **solar panels above crops**, this dual-use approach allows for simultaneous cultivation and electricity generation, offering a sustainable path forward.

What is Agrivoltaics?

- Agrivoltaics involves **elevating solar panels**—typically 2 to 3 meters above the ground—to create space for crops to grow beneath them.
- This setup not only generates renewable energy but also provides shade and protection to the crops, enhancing their resilience to extreme weather conditions.
- The concept was first proposed in **1981 by German scientists Adolf Goetzberger and Armin Zastrow**, who recognized the potential of combining agriculture and solar energy on the same land.

Why is it relevant for India?

- India's vast agricultural landscape, accounting for over **60% of its total land area**, faces increasing pressure from **climate change, water scarcity, and land-use conflicts.**
- **Traditional farming methods** are becoming less viable, and the demand for renewable energy is on the rise.

Agrivoltaics offers a solution by enabling farmers to generate income from both crops and electricity, thereby improving their economic stability and reducing dependence on fossil fuels.

How does it benefit Farmers?

- **Enhanced Income Streams**: Farmers can earn revenue from leasing land for solar installations and selling excess electricity to the grid.
- **Improved Crop Yields**: The shade provided by solar panels can **reduce soil evaporation** by up to 29%, conserving water and enhancing soil moisture. Certain crops, such as tomatoes and lettuce, have shown increased yields under agrivoltaic systems due to moderated temperatures and reduced heat stress.
- **Water Conservation**: Agrivoltaic systems can incorporate rainwater harvesting mechanisms, capturing up to 80% of the rainwater falling on the panels. This water can be used for irrigation and cleaning the panels, addressing water scarcity issues.
- **Energy creation**: In India's clean energy transition, the most ambitious target is for solar power, which would need to install an additional 211 GW by 2030—roughly 40 GW a year over the next five years.

Challenges and Barriers

Despite its potential, the adoption of agrivoltaics in India faces several challenges:

- **High Initial Costs**: The infrastructure required for agrivoltaic systems is more expensive than traditional solar installations, making it less accessible for smallholder farmers without financial support.
- **Regulatory Hurdles**: India lacks standardized norms for agrivoltaics, leading to ambiguity in project design and implementation. Countries like Japan and Germany have established guidelines that India could adapt to ensure sustainable development.
- **Land Use Conflicts**: There are concerns about the repurposing of agricultural land for solar projects, which may lead to disputes with local communities and affect food production.

Policy and Institutional Support

- The government has launched initiatives like the **PM KUSUM scheme** to promote solar energy among farmers.
- However, integrating agrivoltaics into such programs requires policy adjustments and the development of clear standards.
- Collaborations between farmers, developers, and institutions are essential to overcome financial and technical barriers and ensure the successful implementation of agrivoltaic systems.

Global Lessons and Future Outlook

- Countries like **Japan and Germany** have successfully implemented agrivoltaic systems, providing valuable lessons in design, regulation, and community engagement.
- India can learn from these experiences to tailor solutions that fit its unique agricultural and socio-economic context.

Pradhan Mantri Kisan Urja Suraksha Evam Utthaan Mahabhiyan (PM-KUSUM) scheme

- Launched in: 2019
- The PM-KUSUM scheme was launched with the ambitious goal of solarising agriculture in India.
- The scheme is divided into three components:
  - **Component A**: Installation of mini-grids on barren lands.
  - **Component B:** Replacement of diesel water pumps with off-grid solar water pumps.
  - **Component C:** Replacement of electric water pumps with on-grid solar water pumps and installation of mini-grids for agriculture feeder solarisation.
- It is aimed at ensuring **energy security for farmers in India**, along with honouring India's commitment to increase the share of installed capacity of electric power from non-fossil-fuel sources to 40% by 2030 as part of **Intended Nationally Determined Contributions (INDCs).**
- **Nodal Ministry:** Ministry of New and Renewable Energy (MNRE)

BIODIVERSITY CONSERVATION VS. INDIGENOUS RIGHTS

Context

As the global biodiversity crisis intensifies, conservation efforts around the world are facing criticism for sidelining **Indigenous Peoples and Local Communities (IPLCs).** In this backdrop, India's **Forest Rights Act (FRA), 2006**, offers a unique legal framework that integrates biodiversity conservation with the rights and traditional knowledge of Adivasis and other forest-dependent communities.

How the Forest Rights Act (FRA) makes India different?

- India's **Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006**, commonly known as the **Forest Rights Act (FRA)**, offers a **progressive legal model** that integrates **indigenous rights with biodiversity conservation**.
- It embodies all these principles and provides the legal framework for securing forest tenure and other pre-existing rights of Adivasi and local communities.

Key Contributions of FRA:

- **Recognises the historical injustice** faced by Adivasis and forest dwellers who were denied legal rights to their ancestral lands.

- **Empowers gram sabhas** (village assemblies) to manage and govern community forest resources.
  - Recognises a range of rights — from **individual land titles** to **community rights over forest produce**, biodiversity, and traditional knowledge.
  - Legally enables a **bottom-up approach** to forest governance, unlike the top-down, state-led protected area model.
- This makes India **one of the few countries** where **conservation and indigenous rights are not in conflict by law**, at least on paper.

Why IPLCs matter for biodiversity?

- Globally, there's a growing recognition that **indigenous communities are crucial for conservation**. Research has shown that **biodiversity thrives better in territories managed by IPLCs** than in many state-run protected areas.
- **International institutions have also taken note:**
  - **Convention on Biological Diversity (CBD)**: Through **Article 8(j)**, it urges countries to respect and integrate traditional knowledge and practices in biodiversity conservation.
  - **UN Declaration on the Rights of Indigenous Peoples (2007)**: Affirms the rights of IPLCs to manage their own lands and resources.
  - **Kunming-Montreal Global Biodiversity Framework (2022)**: Envisions a more inclusive conservation approach and targets like **"30 by 30"**, which aims to bring 30% of the world's lands and oceans under conservation by 2030 — with community participation.
- However, the **implementation remains uneven**, and fortress-style conservation still displaces communities in several countries.

India's Constitutional and Legal Support for IPLCs:

- While India does **not officially use the term "indigenous peoples"**, it has a strong constitutional framework to support **Scheduled Tribes** through:
  - **Fifth and Sixth Schedules**
  - **PESA Act, 1996** (recognising self-rule in tribal areas)
  - Constitution of India provides **Articles 244 & 244A**, enabling tribal governance in Scheduled Areas.
- With over **104 million Adivasis**, India has the **world's largest indigenous population in a single country**.
- Laws like the **FRA** and **PESA** allow for a unique and legally supported model of **decentralised, democratic resource management**.

Gaps between Policy and Practice (Challenges)

Despite progressive laws like FRA, India's **biodiversity governance still faces major issues**:

- **Implementation Gaps**: The Forest Rights Act has not been effectively implemented in many states. Many communities still await title recognition.
- **Displacement under Protected Areas**: India has over **1,134 protected areas**, and at least **6 lakh people have been displaced** due to such conservation models.
- **Updated Biodiversity Action Plan (NBSAPs)**: While India's new plan under CBD mentions bottom-up governance and community rights, it still **relies heavily on State-led mechanisms** and does not fully integrate the FRA framework.
- **Weakening of Biodiversity Management Committees (BMCs)**: These local institutions are often under-resourced or not functional. Without their full operationalisation, inclusive biodiversity governance is difficult.

- **Subject:** Polity & Governance (GS-II)

CIVIL DEFENCE MOCK DRILL

Context

India is set to conduct a **nationwide civil defence mock drill**, aimed at **testing emergency preparedness** in the wake of rising border tensions and the terror attack in Pahalgam that killed 26 civilians on April 22.

What are Civil Defence districts in India?

- Civil Defence districts are designated regions where the Government of India actively implements civil defence programs.
- These districts serve as administrative and operational hubs for preparedness activities in case of emergencies like wars, air raids, missile strikes, or large-scale terror attacks.
- Their role is to organize resources, train civilians and volunteers, and coordinate responses involving multiple government and civilian agencies.
- They carry out functions such as:
  - Training and mobilizing volunteers
  - Conducting blackout and evacuation drills
  - Managing coordination with Home Guards, NCC, NSS, NYKS, police, and local authorities
  - Running public awareness campaigns and shelter planning

What is a Civil Defence mock drill?

- A civil defence mock drill is a planned simulation of emergency scenarios — such as an aerial attack or missile strike — to test public and administrative readiness.
- These drills are governed by the **Civil Defence Rules, 1968**, and simulate situations like: Power blackouts
  - Air raid sirens
  - Evacuation alerts
  - Emergency communication breakdowns
  - Shelter-in-place protocols
- The mock drills help reduce civilian panic, identify response gaps, train volunteers and responders and build awareness and resilience.

- The exercise is not a signal of imminent conflict but part of a longstanding framework under **the Civil Defence Rules, 1968** — regulations dating back to the **Cold War era** but being recalibrated for contemporary threats.

PAKISTAN'S TERROR INFRASTRUCTURE

Context

For decades, Pakistan has been a focal point in discussions about terrorism, primarily because of the close connections between its security forces, particularly the **Inter-Services Intelligence (ISI)**, and various militant groups. These groups have become key tools in Pakistan's foreign policy, particularly in its approach toward India, Afghanistan, and the broader region.

Roots of the Terror Infrastructure: The Soviet-Afghan War

- The origins of Pakistan's militant networks trace back to the **Soviet-Afghan War** (1979–1989).
- During this period, Pakistan used jihadist groups as a counterforce against the Soviet invasion of Afghanistan.
- The **ISI** played a central role in recruiting and training fighters, many of whom became part of a larger, more complex web of terror organizations.
- Initially, these groups were focused on fighting against the Soviet forces, but after the war ended, they evolved to pursue Pakistan's broader strategic objectives, especially targeting India and influencing Afghanistan.

Key Terror Groups with Links to Pakistan

- **Lashkar-e-Taiba (LeT): Founded in the early 1990s**, **LeT** has been one of Pakistan's most prominent proxy organizations. Its primary objective is to carry out attacks against India, particularly focusing on **Kashmir**.
  - **Training and Operations**: LeT operates training camps not just in **Pakistan**, but also in **Pakistan-occupied Kashmir** (PoK). Their infamous attacks, such as the **2008 Mumbai attacks**, have left a lasting mark. LeT has also been implicated in various other incidents, such as the **2006 Mumbai train bombings** and attacks on Indian military establishments.
- **Jaish-e-Mohammed (JeM): Founded in 2000** by **Masood Azhar**, JeM has been responsible for numerous high-profile attacks against India, including the **2001 Indian Parliament attack** and the **2019 Pulwama suicide bombing**.
  - Unlike LeT, JeM specializes in **suicide bombings**, particularly using **fidayeen (suicide) attacks**.

- **Support Structures and State Links**: Pakistan's terror infrastructure isn't just about these two groups. Several smaller but significant outfits also play a role in its broader strategy. For example:
  - The **Haqqani Network**, which operates primarily in Afghanistan, serves as both an **ISI proxy** and a facilitator for anti-India operations. Even though it operates in Afghanistan, it has longstanding ties with Pakistan's military establishment.
  - **ISIS-Khorasan (ISIS-K)**, an offshoot of the **Tehrik-i-Taliban Pakistan (TTP)**, operates in Afghanistan and Pakistan's tribal areas. While ideologically opposed to Pakistan, there are indications that some elements within the Pakistani security establishment tacitly allow their operations, particularly in areas of mutual interest.

Financing and Radicalization

A key aspect of Pakistan's terror network is its **financing** and **radicalization mechanisms**.

- **Charitable Fronts**: Many terror groups rely on **religious charities** as a primary source of funds. These groups are often registered as humanitarian organizations but funnel money into militant activities.
- **State Sponsorship**: Despite officially claiming to be part of the global "War on Terror" post-9/11, **Pakistan's security apparatus** continues to support certain terror groups, often in the form of **direct funding**. Estimates suggest that Pakistan allocates between **$100-125 million annually** to these groups.
- **Money Laundering and Smuggling**: Networks like **hawala** (illegal money transfer systems) and **narcotics trafficking** play an important role in funding terrorist activities. The **Afghanistan-Pakistan-India corridor** is a major route for the drug trade, generating substantial revenue for these organizations.
- **Radicalization Infrastructure: Madrassas** (religious schools) are a central feature of Pakistan's radicalization process. There are over **30,000 madrassas** in Pakistan, with around **10-15% directly linked** to extremist organizations.

Global Impact and Regional Stability

- Pakistan's continued support for terrorism poses significant challenges to **regional stability**, particularly in **South Asia**.
- India remains the primary target of these terror organizations, suffering both direct attacks (like the **Mumbai attacks** and **Pulwama bombing**) and indirect effects (such as the long-term instability in Kashmir).
- The **international community** has long recognized the need to address Pakistan's role in sustaining these terror networks.
  - Pakistan's repeated appearance on the **Financial Action Task Force's (FATF) grey list** highlights the systemic failure to curb terror financing. The FATF has demanded that Pakistan take concrete actions to dismantle these networks, yet little progress has been made.

SECTION -B

QUICK BYTES

GUNDARAM INSCRIPTIONS IN TELANGANA

Context

The Archaeological Survey of India (ASI) has discovered **eleven ancient inscriptions** in the **Gundaram Reserve Forest** near **Peddapalli, Telangana**. Dating from the **1st century BCE to the 6th century CE**, these inscriptions provide new insights into the early history of the Deccan, particularly the **Satavahana period.**

Key Findings

- **Link to Satavahana Dynasty**: One of the inscriptions, written in early **Brahmi script**, records that a person from the **Hāritiputra lineage**, likely part of the **Chutu dynasty**, excavated a cave for Buddhist monks. He describes himself as a friend of **Kumāra Hakusiri,** a prince of the **Satavahana dynasty.**
- **Religious Symbolism**: Another inscription includes **religious symbols** such as a **trident and a *damaru*** (a small drum associated with Lord Shiva). This is considered the first known instance of such religious iconography being used in early South Indian inscriptions. It may show how political authority was beginning to associate with religious symbolism during that time.
- **Additional Names**: Other inscriptions mention royal figures like **Kumāra Sakasiri and Akusiri**, suggesting that the region was of political importance during the **Satavahana period**.
- **Confirmation of Telangana's Ancient Role**: These discoveries support earlier evidence from other sites, such as **Kotilingala**, showing that Telangana was historically part of **Asmaka**—one of the **sixteen major states (Mahājanapadas)** in ancient India, known from texts dating back to the 6th century BCE.
- **Possible Buddhist Monastic Site**: Based on the location and nature of the inscriptions, the area may have once served as a burial ground or spiritual retreat for Buddhist monks.

FACT BOX

Satavahana Empire

- The **Satavahana Empire** was one of **ancient India's longest-ruling dynasties**, emerging shortly after the fall of the Mauryan Empire around **230 BCE and lasting up to 220–250 CE.**
- It played a vital role in bridging the cultural and political transition between the Mauryan and Gupta periods, especially across the **Deccan region**.
- **Origin:** The Satavahanas are often identified with the Andhras mentioned in the Puranas, also referred to as **Andhrabhrityas ("servants of the Andhras").**
  - Their founder is widely believed to be **Simuka Satavahana**, as confirmed by coins and inscriptions found in **Kotilingala (Telangana)** and **Kondapur**.
- **Capital Cities:** The Satavahana capital shifted over time:
  - **Amaravati/Dhanyakataka (Andhra Pradesh)** – often regarded as the primary capital, especially in the east.
  - **Paithan/Pratishthana (Maharashtra)** – served as the western capital during their conflict with western invaders.

Political and Military Achievements

- They restored order in the Deccan after the Mauryas, resisting invasions by **Sakas (Western Kshatrapas), Yavanas (Greeks), and Pahlavas (Parthians)**.
- Notable rulers like **Gautamiputra Satakarni** and **Sri Yajna Satakarni** successfully defended the empire and expanded its territory.
- As per classical sources like **Pliny**, they commanded massive armies with over **100,000 infantry and 1,000 elephants**, indicating significant power and military strength.

Cultural and Religious Contributions

- The Satavahanas patronized **Sanatana Dharma (Hinduism)** and also supported **Buddhism**.
- They are among the earliest dynasties to issue **coins with rulers' portraits**, contributing to **Indian numismatics** and administrative evolution.
- Their reign saw the flourishing of **Prakrit literature** and inscriptions in **Brahmi script**.

Chutu Dynasty (1-3rd Century CE)

- The Chutu Dynasty (or **Ananda Dynasty**), ruled parts of the **Deccan region** in South India.
- **Capital**: Banvasi (Karnataka).
- They rose to power as feudatories of the **Satavahanas** and claimed sovereignty after the decline of **Satavahana rule.**
- The Chutu Dynasty succeeded the **Maharathis of Karnataka** and issued coins in large numbers.
- Three series of coins have been identified from this dynasty: **Chutukulananda, Mulananda, and Sivalananda.** These coins represent families, not individual kings.
- This Extremely-rare alloy copper unit of Chutukulananda weighs 6.21g.

SAMYUKTA MAHARASHTRA MOVEMENT (1946-1960)

CONTEXT

After Independence, India promised to reorganise states on linguistic lines. But the Marathi-speaking population was denied a unified state, even as states like Andhra were formed based on language. This led to a mass movement demanding a **"Samyukta Maharashtra" (United Maharashtra)** with Mumbai as its capital.

What Was the Samyukta Maharashtra Movement?

- The **Samyukta Maharashtra Movement (1946–1960)** was a **mass movement demanding a separate state for Marathi-speaking people** including regions like **Mumbai, Vidarbha, Marathwada, Belgaum, Karwar, and Nippani.**
- The core demand was for a unified state called **'Samyukta Maharashtra' with Mumbai (Bombay) as its capital**, and it sought to bring together Marathi-speaking regions including **Mumbai, Marathwada, Vidarbha, Belgaum, Karwar, and Nippani**.
- It was **not just a political demand**, but also a **cultural assertion** of Marathi language, identity, and historical legacy, tracing back to the **Maratha Empire under Shivaji**.
- **Importance of Mumbai to the Movement**: Mumbai (then Bombay) was:
  - **Economically powerful**, being India's financial and industrial hub
  - **Culturally significant** to Marathi people, despite also having large Gujarati, Parsi, and other communities
  - Home to **Maharashtrian working-class communities**, mill workers, artists, and intellectuals
- However, **Gujarati-speaking elites and business communities**, with support from the **Bombay Citizens Committee**, wanted Bombay to remain a separate bilingual or centrally administered area.
- This led to intense conflict, as **Marathi-speaking masses saw Mumbai as inseparable from Maharashtra**, not only for emotional reasons but for practical and cultural ones as well.
- **Formation of Maharashtra (1960):** The Samyukta Maharashtra Movement finally achieved its goal when, on **May 1, 1960**, the state of **Maharashtra** was formed with **Mumbai as its capital**. Simultaneously, **Gujarat was also carved out**, satisfying the demands of both linguistic groups.

Key-Figures Involved:

- **Annabhau Sathe:** Lokshahir Annabhau Sathe played a crucial cultural role in mobilising the masses, especially the rural and working-class Marathi-speaking people. He was a folk artist, writer, and activist from a Dalit background.
  - He was the founder of the **Lal Bavta Kalapathak (Red Flag Cultural Troupe)**, which performed across villages to spread awareness of the movement
  - His iconic song **"Majhi Maina Gavavar Rahili"** became an anthem of the movement, emotionally uniting people.
  - Annabhau Sathe's cultural activism helped bridge **class, caste, and gender boundaries**, giving the movement a **broad-based and inclusive character**.
- **Dr. B. R. Ambedkar:** Dr. Ambedkar, though not always acknowledged in mainstream narratives of this movement, was a pioneering voice for Samyukta Maharashtra:
  - As early as **1948**, his party, the **Scheduled Caste Federation (SCF)**, introduced a resolution in the Bombay Municipal Corporation demanding a **unified Marathi state**.

- He **submitted proposals to the Dhar Commission**, which was set up to examine the viability of linguistic states.
- In his writings such as **"States and Minorities"** and **"Thoughts on Linguistic States"**, he argued that linguistic states could empower marginalized communities and enhance administrative efficiency.

- **Resistance and Setbacks** Despite popular support, the movement faced:
  - **Opposition from Gujarati elites**, business interests, and central leaders
  - Resistance from **RSS leaders like M.S. Golwalkar**
  - Suppression by police, leading to the **death of over 100 protesters**
  - **Indifference from national leaders**, until **pressure from electoral defeats and public protests** forced a change in approach
  - In fact, it was only after continued unrest and the resignation of Union Finance Minister **C. D. Deshmukh** in protest that Nehru began to seriously reconsider.

CHENAB RIVER

CONTEXT

The **Chenab River almost ran dry** in Jammu & Kashmir's **Akhnoor sector** near the Line of Control (LoC), after the **sluice gates of two major dams — Salal and Baglihar — were closed** for desiltation. The river's level returned to normal a day later when the water release was resumed. This event came shortly after **India put the Indus Waters Treaty (IWT) of 1960 in abeyance**.

Understanding the Chenab River

- The **Chenab River** originates in Himachal Pradesh (**Bara Lacha Pass** in the **Lahul-Spiti part** of the **Zaskar Range**) and flows through Jammu & Kashmir before entering Pakistan.
- Through the plains of **Punjab (Pakistan),** it joins the **Satluj** after receiving the waters of **Jhelum and Ravi** rivers, before ultimately flowing into the Indus River.
- It is one of the three **"Western Rivers"** under the **Indus Waters Treaty (IWT)** — the others being the **Indus** and the **Jhelum**.
- As per the IWT, **Pakistan has control over the waters of these three rivers**, but **India is allowed limited use** for:
  - **Domestic and non-consumptive purposes**
  - **Limited agriculture** (as per specific cusec limits)
  - **Run-of-the-river hydroelectric projects** (no large-scale storage or diversion)

India's Dams on the Chenab (Technical Highlights)

Project	Type	Height	Capacity	Operator
Salal Dam	Concrete gr avity dam	81.38 m	690 MW	NHPC
Baglihar Dam	Concrete-face rockfill dam	143 m	450 MW (Stage-I)	J&K Power Development Corp.

- Both are **run-of-the-river** dams — allowed under IWT with strict technical guidelines to prevent large-scale diversion or storage.
- These dams are **vital for J&K's energy security** and part of a broader strategy to tap hydroelectric potential in the region.

Indus Waters Treaty (IWT)

- The six-decade-old treaty governs the sharing of waters of six rivers in the Indus system between the two countries.
- **Main Rivers:** Indus River, Jhelum, Chenab, Ravi, Beas, and Sutlej.
- The basin is mainly shared by India and Pakistan with a small share of China and Afghanistan.
- Under the treaty signed between India and Pakistan in 1960, all the waters of
  - **Eastern rivers-** namely Ravi, Sutlej, and Beas were allocated to India for exclusive use
  - **Western rivers**- Indus, Jhelum, and Chenab were allocated to Pakistan except for specified domestic, non-consumptive, and agricultural use permitted to India as provided in the Treaty.

INDIA-PAKISTAN BORDER AND CROSS-BORDER ESCALATION

CONTEXT

Pakistan resorted to heavy shelling in the border districts in Jammu and Kashmir along the Line of Control and the International Border hours after India launched 'Operation Sindoor' in retaliation to the Pahalgam carnage, in which terrorists gunned down 26 civilians. The shelling and firing led to the injury and **death of civilians.**

India-Pakistan Border:

- The **India-Pakistan border**, also called the **International Border (IB)**, extends from **Jammu and Kashmir** in the north to the **Zero Point** between **Gujarat** in India and **Sindh province** in Pakistan.
- Spanning a total length of **3,323 km**, this frontier is one of the most sensitive and heavily guarded borders in the world.

Figure No. 01

- **Visibility from Space**: Due to the installation of approximately **150,000 floodlights on 50,000 poles**, this border is visible from space at night, symbolising the scale of India's security measures.
- Indian States and Union Territories Sharing Border with Pakistan (Total: 3,323 km)
  - **Jammu and Kashmir**: 1,222 km
  - **Rajasthan**: 1,170 km
  - **Gujarat:** 506 km
  - **Punjab:** 425 km
- The **Border Security Force (BSF)** is India's border protecting organisation on its border with Pakistan and Bangladesh. It is one of the **five Central Armed Police Forces of India**, and was raised in the awaken of the 1965 War on 1 December 1965.

MINERALS IN AFRICA

CONTEXT

The U.S. is pursuing a significant minerals deal in Africa's **Great Lakes region**, particularly focusing on the **Democratic Republic of Congo (DRC)**. This initiative is a response to the **M23 rebel group** seizing control of key mining areas, threatening vital mineral resources.

Minerals Present in Africa

- Africa is rich in essential minerals, many of which are critical for **global industries** like electronics, renewable energy, and defense. The key minerals include:
  - **Tin, Tungsten, and Tantalum (3T minerals)**: These are important for electronics manufacturing, used in smartphones, laptops, and other technology.

- **Cobalt**: Crucial for **electric vehicle (EV) batteries** and renewable energy technologies.
- **Gold**: Widely mined across the continent, used for various industrial and financial purposes.
- **Copper**: A key metal for electrical wiring, used in renewable energy infrastructure.
- **Diamonds**: Important for both industrial applications and luxury goods.

Key Locations

- **Democratic Republic of Congo (DRC)**: Particularly in the **Kivu** provinces (North and South Kivu), the DRC is rich in **tin**, **tungsten**, **coltan**, and **cobalt**. The **southern Katanga region** is especially known for **cobalt** and **copper**.
- **South Africa**: Known for its **platinum group metals (PGMs)**, **gold**, and **diamonds**.
- **Zimbabwe**: Rich in **platinum**, **gold**, and **diamonds**.
- **Namibia**: Significant sources of **copper**, **zinc**, and **uranium**.
- **Ghana**: One of the largest gold producers in Africa.
- **Mozambique**: Known for **tantalum** and **coal**.

These regions are central to the global minerals trade and face ongoing challenges related to **conflict**, **illegal mining**, and **geopolitical competition**.

ECI'S UNIFIED DIGITAL PLATFORM FOR ELECTIONS

CONTEXT

In a major step towards simplifying electoral processes and digital governance, the **Election Commission of India (ECI)** is developing **ECINET**, a comprehensive and user-friendly digital platform that will unify and streamline over 40 of its existing mobile and web applications.

What is ECINET?

- **ECINET** stands for **Election Commission of India Network** — a **one-stop digital platform** integrating various electoral apps and tools under a **single, cohesive interface**.
- It is designed with an **aesthetic UI (User Interface)** and **simplified UX (User Experience)**.
- It will **replace and subsume over 40 apps**, eliminating the need for multiple downloads and logins.
- It enables access through **both desktop and mobile**.
- Data on ECINET will be entered **only by authorized ECI officials** to ensure **accuracy and authenticity**.
- **Who Will Benefit?** The platform is designed to serve:
  - **Voters (~100 crore)** across India
  - **Booth Level Officers (10.5 lakh)**
  - **Booth Level Agents (15 lakh)** from political parties
  - **Polling officials (45 lakh)**
  - **Assistant Electoral Registration Officers (15,597)**
  - **Electoral Registration Officers (4,123)**
  - **District Election Officers (767)**
- **Apps to Be Integrated into ECINET:** Some of the key apps being unified under ECINET include:
  - **Voter Helpline App** – Voter registration, status checks, and more
  - **Voter Turnout App –** Real-time turnout tracking
  - **cVIGIL** – Citizens can report election violations
  - **Suvidha 2.0** – Candidate permissions and nominations
  - **Saksham** – Accessibility for Persons with Disabilities
  - **ESMS** – Election security management
  - **KYC App** – Know Your Candidate info

UNITED NATIONS HUMAN DEVELOPMENT INDEX (HDI), 2023

CONTEXT

India has climbed four places to rank **130th out of 193 countries** in the **United Nations Human Development Index (HDI) 2023,** as per the report titled **"A Matter of Choice: People and Possibilities in the Age of Artificial Intelligence"** released by the **United Nations Development Programme (UNDP**). The improvement reflects India's gains in health, education, and income, but also highlights persistent inequality and gender gaps.

Key Findings of the 2023 HDI Report

- **India's Performance:**
  - **HDI Score**: Improved from **0.644 (2022)** to **0.685 (2023)** — still within the **Medium Human Development** category.
  - **Life Expectancy**: Rose to **72 years** (from 67.7 in 2022).
  - **Expected Years of Schooling**: Increased to **13 years**.
  - **Average Years of Schooling**: Rose to **6.9 years**.
  - **GNI per capita (PPP 2021)**: Increased from **USD 6,951 to USD 9,047**.
- **Inequality-Adjusted HDI (IHDI)** drops to 0.475, reflecting a 30.66% loss due to disparities in health, education, and income.

Gender Inequality and Development:

- **Gender Development Index (GDI)**: 0.874 (women: 0.631; men: 0.722).
- **Gender Inequality Index (GII)**: India ranks **102nd**, score **0.403**; gaps persist in political participation, workforce presence, and reproductive health.

Comparative Regional Position:

- **India shares HDI rank with Bangladesh (130th)** but lags in life expectancy.
- **Pakistan** ranks **168th** (score: 0.544), **Nepal 145th**, and **Sri Lanka** leads regionally at **89th**.
- **Among BRICS**: India lags behind **China (75th)**, **Brazil (89th)**, **Russia (59th)**, and **South Africa (110th)**.

- **Global Trends:** HDI progress globally has slowed, with widening gaps between high and low HDI countries since 2020. The report warns of potential long-term setbacks to **2030 SDG targets** if the trend persists.

AI and Human Development:

- The report highlights the dual role of **Artificial Intelligence** — as a driver of productivity and risk of inequality.
- India reports the **highest global prevalence of self-reported AI skills** and plans a **national AI computing infrastructure**.
- AI is already being applied in **agriculture**, **insurance**, and **subsidy distribution** in India.

About the Human Development Index (HDI)

- **Published by**: United Nations Development Programme (UNDP) since 1990.
- **Purpose**: The Index measures **average achievements in key dimensions of human development**:
  - **Health** – Life expectancy at birth.
  - **Education** – Expected and mean years of schooling.
  - **Standard of living** – Gross National Income (GNI) per capita (PPP).
- **Index Range**: 0 (lowest) to 1 (highest).
- **Categories**: Very High, High, Medium, and Low Human Development.
- **Complementary Indices**:
  - **IHDI** (adjusts for inequality)
  - **GDI and GII** (gender-based disparities)

INTERNATIONAL MONETARY FUND (IMF)

CONTEXT

India has temporarily appointed **Parameswaran Iyer**, the current **Executive Director at the World Bank,** as its nominee to the **International Monetary Fund (IMF)** following the premature exit of K V Subramanian. This development comes just ahead of a crucial IMF board meeting, where key decisions about loans to Pakistan—including a USD 1.3 billion climate resilience loan and a review of a USD 7 billion bailout package—will be taken.

About International Monetary Fund (IMF)

- Established **in:** 1944 in the aftermath of the Great Depression of the 1930s.
- The **International Monetary Fund (IMF)** is a **Bretton Woods institution**, established in **1944**, and formally came into existence in **1945**.
- **Headquarter: Washington, D.C., USA**.

Main Objectives

- Promote **international monetary cooperation**.
- Ensure **exchange rate stability**.
- Facilitate **balanced growth of international trade**.
- Provide **financial assistance** to member countries in balance of payments crisis.
- Assist in poverty reduction and macroeconomic stability, especially in developing nations.

- **IMF Lending Programs (Important Schemes):** Stand-By Arrangement (SBA)**;** Extended Fund Facility (EFF); Rapid Financing Instrument (RFI)**;** Resilience and Sustainability Trust (RST)

The IMF is governed by and accountable to 191 countries that make up its near-global membership. **India is a founding member** of the IMF.

- **Quota share**: 2.75% (India is among the top 10 largest quota-holding countries).
- India has a permanent seat on IMF's **24-member Executive Board**.

- Each country (or a group of countries) at the IMF is represented by an Executive Director.
- India has a dedicated seat on the IMF Board, which is responsible for:
  - Participating in voting on loan approvals.
  - Influencing decisions on policy frameworks, economic assessments, and emergency assistance.

PLI SCHEME FOR SPECIALITY STEEL UNDER WTO SCRUTINY

CONTEXT:

The United States has raised concerns at the **World Trade Organization (WTO)** about India's **Production Linked Incentive (PLI) scheme for speciality steel**, questioning its compatibility with WTO rules. The US argued that the scheme promotes increased steel production **despite global overcapacity** in the metal, potentially distorting the international market.

US Argument at the WTO

- The US highlighted **global overcapacity in steel**, especially due to countries like China.
- It questioned **India's rationale** behind subsidising more production when the international steel market is already saturated.

- It expressed concern that such subsidies **could distort trade flows and undercut global pricing**.
- **WTO's Agreement on Subsidies and Countervailing Measures (ASCM)** restricts certain subsidies, especially if they are:
  - **Contingent on export performance**, or
  - **Tied to use of domestic over imported goods**
- **India's position:** India, however, has defended its position strongly, stating that:
  - The scheme aims to **reduce import dependence** for high-grade steel.
  - National self-sufficiency in key sectors like speciality steel is critical for strategic autonomy.
  - It is **WTO-compliant** as it does not link incentives to export performance.
  - The PLI scheme is a calibrated and modest support mechanism, especially when compared to China's USD 50 billion subsidies in its steel sector.
  - Even the US, which has raised objections, has used tariffs and domestic support to protect its steel industry for national security reasons.

What is Speciality Steel and Why Is It Crucial for India?

- **Speciality steel** refers to **high-end, value-added grades of steel** used in critical sectors like:
  - Defence and aerospace
  - Power and energy
  - Automobiles and infrastructure
- Despite being the **world's second-largest steel producer**, India is a **net importer** of such speciality grades. This creates vulnerabilities in terms of:
  - **Strategic security**
  - **Technological backwardness**
  - **Trade deficits**

PLI scheme for Specialty Steel

- Launched in July 2021, the PLI scheme for specialty steel covers **five broad categories and 19 sub-categories.**
- The initiative ensures that only companies registered in India and engaged in end-to-end steel production are eligible for incentives.

GST Collection

CONTEXT

The Goods and Services Tax (GST) revenue reached a record-breaking Rs 2.37 lakh crore in April, showing a 12.6 per cent year-on-year increase, according to official government statistics.

What is GST?

- The Goods and Services Tax (GST) is an **indirect tax** which has replaced **many indirect taxes** in India such as the **excise duty, VAT, services tax, etc.**
- The Goods and Service Tax Act was passed in the Parliament on 29th March 2017 and came into effect on 1st July 2017.
- The **101st Constitution Amendment Act of 2016** introduced the Goods and Services Tax (GST) in India, creating a **unified indirect tax system**.
- GST is levied on the supply of goods and services. It replaced **multiple existing taxes** (service tax, duties of excise, cess and surcharge, VAT, entertainment tax, etc.) with a single, streamlined tax, applying to the supply of goods and services.
- Goods and Services Tax Law in India is a **comprehensive, multi-stage, destination-based tax** that is levied on every **value addition.**
- After subsuming majority indirect taxes, GST is a single domestic indirect tax law for the entire country.

GST Council

- The GST Council is a joint forum of the Centre and the states.
- It was set up by the President as per **Article 279A (1) of the amended Constitution.**
- **Members:**
  - The members of the Council include the Union Finance Minister (chairperson), the Union Minister of State (Finance) from the Centre.
  - Each state can nominate a minister in-charge of finance or taxation or any other minister as a member.
- **Functions:**
  - To "make recommendations to the Union and the states on important issues related to GST, like the goods and services that may be subjected or exempted from GST, model GST Laws".
  - To decide on various rate slabs of GST.

UPSC PYQ

Q: What is/are the most likely advantages of implementing 'Goods and Services Tax (GST)'? (2017)

(1) It will replace multiple taxes collected by multiple authorities and will thus create a single market in India.

(2) It will **drastically reduce** the 'Current Account Deficit' of India and will enable it to increase its foreign exchange reserves.

(3) It will **enormously increase** the growth and size of economy of India and will enable it to overtake China in the near future.

Select the correct answer using the code given below:

(a) 1 only (b) 2 and 3 only

(c) 1 and 3 only (d) 1, 2 and 3

Answer: (a) 1 only

Q: Consider the following items: (2018)

(4) Cereal grains hulled

(5) Chicken eggs cooked

(6) Fish processed and canned

(7) Newspapers containing advertising material

Which of the above items is/are exempted under GST (Goods and Services Tax)?

(a) 1 only (b) 2 and 3 only

(c) 1, 2 and 4 only (d) 1, 2, 3 and 4

Solution: (c)

VIZHINJAM PORT

CONTEXT

Prime Minister **Narendra Modi** inaugurated the **Vizhinjam International Seaport** in Kerala. This marks the commissioning of **India's first deepwater transshipment port**, aimed at transforming India into a **global shipping and logistics hub**, reducing dependence on foreign ports, and enhancing maritime self-reliance.

What is the Vizhinjam Port Project?

- Vizhinjam is a container transshipment terminal. It is India's latest **international deep-water transshipment facility.**
- It is situated in the southern part of Kerala, India, near the state capital**, Thiruvananthapuram.**
- **Type:** Deepwater **container transshipment port**
- **Model:** Public-Private Partnership (PPP)

Operatorship:

- **Adani Ports & SEZ Ltd (28.9%)**
- **Kerala Government (61.5%)**
- **Union Government (9.6%)**

- **Current Capacity:** 1 million TEUs (to expand to 7.4 million in future phases)
- **First vessel handled:** MSC *Türkiye* — one of the world's largest container ships (24,000+ TEUs)
- **Transshipment Port:** A **transshipment port** is where **containers are transferred** from large "mother vessels" to smaller feeder ships for onward delivery to regional destinations.

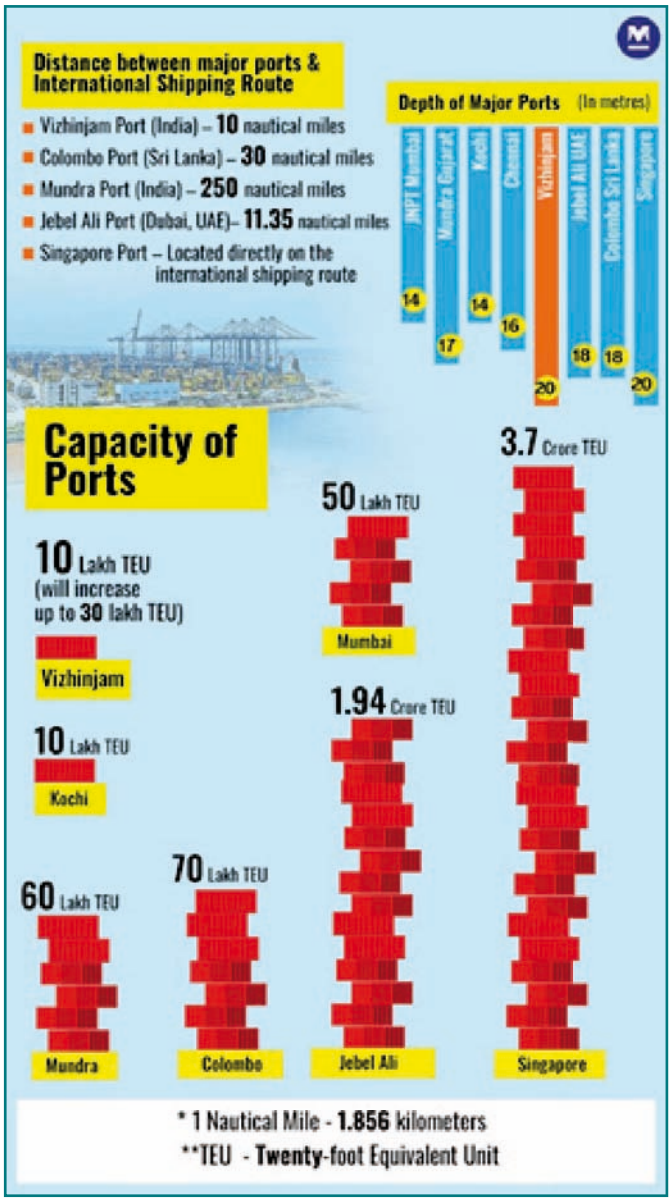

Figure No. 02

- These ports are **crucial for global shipping efficiency**, especially for countries with significant import/export volumes but no large-vessel handling capacity.
- Until now, **75% of India's transshipment cargo** was handled through foreign ports like (It made movement of goods slower and more expensive):
  - **Colombo (Sri Lanka)**
  - **Singapore**
  - **Jebel Ali (UAE)**

Why Vizhinjam is a Game Changer?

- **Strategic Location:** It is just 10 nautical miles from the busy **East-West global shipping route.** Vizhinjam's location connects key global ports like **Shanghai, Busan, and Rotterdam** with major Indian ports, giving Kerala an edge in global logistics.
- **Natural Deep Draft**: It is deep enough (20 meters) to accommodate Ultra Large Container Vessels (ULCVs) — without artificial dredging. It saves huge costs and avoids environmental damage

- **Low Maintenance:** Minimal littoral drift (sand movement) makes it cheaper to maintain than most Indian ports
- **Reducing Logistics Costs**: India currently loses USD 200–220 million annually by outsourcing transhipment. Domestic exporters pay USD 80–100 extra per container due to foreign port usage

FACT BOX

Ports in India

- India, with a coastline stretching **11,098 kilometres** and surrounded by the sea on three sides, relies heavily on maritime trade.
- Approximately **95% of the country's international trade** is conducted via the sea. In the financial year of 2023, Indian ports collectively handled 795 million tonnes of cargo.
- India currently has **13 major ports and 217 smaller or private ports**.
  - The largest container ports in India are **Jawaharlal Nehru Port** in Navi Mumbai and the **Mundra port**, both handling more than 7 million containers every year

IMPACT OF ETHANOL PRODUCTION ON MAIZE

CONTEXT

The rise in ethanol production in India, primarily from maize, is creating significant changes in agriculture, especially affecting the supply and pricing of maize. The push for cleaner fuels has led to the diversion of maize from traditional uses like livestock feed to biofuel production.

About Maize (Corn)

- Maize is used for multiple purposes: as a food crop, livestock feed, and for industrial purposes like ethanol production.

Production and Demand:

- **India's Maize Production**: India produces approximately **32-33 million tonnes (mt)** of maize annually.
- **Domestic Demand**: The domestic demand for maize is around **28 million tonnes**.
- **Surplus**: Before ethanol production surged, there was usually a surplus, with exports reaching **3.7 mt** in 2021-22.

- **Key States**: Uttar Pradesh, Punjab, Madhya Pradesh, Haryana, and Bihar.
- **Shift in Use**: The demand for maize has surged due to its use in **ethanol production**. Ethanol, a biofuel, is made by fermenting maize grains, which contain starch, a primary source of energy. This shift has significantly altered the demand-supply balance for maize in India.

Impact of Ethanol Diversion:

- In 2023-24, **7.5 mt** of maize was diverted for ethanol production, significantly reducing the amount available for other uses, particularly livestock feed.
- The government's **ethanol-blended petrol program** has led to maize prices increasing from **Rs 14,000-15,000 per tonne** to **Rs 24,000-25,000 per tonne**.

- **Byproducts and Impact on Livestock Feed**: The process of producing ethanol from maize also generates a byproduct known as **DDGS (Distiller's Dried Grains with Solubles)**, which is a **protein-rich feed** for livestock, further affecting the demand for traditional protein sources like soybean.
  - **DDGS from maize** contains 28-30% protein, making it a cost-effective alternative to **soybean de-oiled cake (DOC)**, which is more expensive.

EUROPEAN RED ADMIRAL (*VANESSA ATALANTA*)

CONTEXT

For the first time ever in India, the European Red Admiral butterfly (Vanessa atalanta) has been recorded in Himachal Pradesh, specifically in the Dhauladhar mountain range near Dharamshala.

About the European Red Admiral (*Vanessa atalanta*):

- **Scientific Name:** *Vanessa atalanta*
- **Family:** Nymphalidae (Brush-footed butterflies)
- **Type:** Migratory butterfly species
- **Native Range:** Widely found across **Europe and North America**
- **Recent Range Expansion:** Also seen in **South and Central Asia**, with the last confirmed South Asian record in **Pakistan (Lower Chitral, 2022)** after a 93-year gap.

Figure No. 03

Key Characteristics:

- **Appearance:** It is similar to the Indian Red Admiral (*Vanessa indica*)
- **Key Differences:**
  - **Narrower and deeper crimson discal band**
  - **Prominent white spot** in the upper forewing (absent in Indian cousin)

Habitat & Diet:

- **Larval Host Plant:** It feeds primarily on **stinging nettle (Urtica dioica)**
  - This plant is common in the **Western Himalayas**, possibly supporting the butterfly's presence.
- **Altitude Noted in India:** It is found at **2,500 meters** elevation in **Thatharna Hill**.

GENOME MAPPING OF SAOLA

CONTEXT

A new study published in the journal *Cell* reports the successful genome sequencing of the **saola (Pseudoryx nghetinhensis)**, a critically endangered species native to the Annamite Mountains of Vietnam and Laos. Often dubbed the **"Asian unicorn"** due to its extreme rarity and elusive nature, the saola remains one of the least understood large mammals on Earth.

Key Highlights (Genome Sequencing and Findings)

- Scientists generated **complete genomes for 26 saola specimens**, using DNA fragments from remains collected in hunter households.
- Genetic analysis revealed that the saola population **split into two genetically distinct groups** approximately **5,000–20,000 years ago**.
  - This coincides with **climatic and ecological changes** during and after the **Last Glacial Maximum**.
  - Additionally, **human transitions to agriculture (~4,000 years ago)** in the region likely contributed to the species' isolation through **habitat destruction, hunting, and forest fragmentation**.
- Both saola populations have lost genetic diversity **but in different ways**, meaning:
  - **Their remaining gene pools are complementary**.
  - A **genetic rescue strategy** could involve **interbreeding individuals from both groups** to restore overall diversity.

About Saola *(Pseudoryx nghetinhensis)*

- The **Saola** (Pseudoryx nghetinhensis), is one of the rarest and most elusive large mammals in the world.
- It belongs to the family **Bovidae**, the same family that includes cattle, goats, and antelopes.
- The species is the only member of its genus, making it **monotypic**. Due to its rarity and mysterious nature, it is often referred to as the **"Asian Unicorn."**
- Saolas are endemic to the **Annamite Mountain range**, which spans the border between **Vietnam and Laos**.

Taxonomy and Description:

- **Family:** Bovidae (same family as cattle and antelopes)
- **Genus:** *Pseudoryx* (monotypic – only one species)

Physical Characteristics:

- Medium-sized, with **long, straight, parallel horns** in both sexes.
- White markings on the face, with dark brown body coloration.
- Distinctive for its elusive behavior and limited sightings.

Behaviour and Ecology:

- **It is extremely shy and elusive**; rarely seen by humans.
- It is thought to be solitary or live in small groups.
- Diet likely includes **herbs, shrubs, and leaves**, though details remain uncertain.

Conservation Status:

- **IUCN Red List:** *Critically Endangered*
- **Population Estimate:** 50–300 individuals (as of 2015)

Figure No. 04

KAMALA AND PUSA DST RICE 1

CONTEXT

India unveils the world's first genome-edited rice varieties—**Kamala and Pusa DST Rice 1**—promising 25–30% higher yields without foreign DNA.

About

- Kamala and Pusa DST Rice 1 are two **new genome-edited rice varieties** developed in India to help increase crop yield and deal with climate challenges like drought and salinity.
  - Kamala was developed by the **Indian Institute of Rice Research (IIRR) in Hyderabad**.
  - Pusa DST Rice 1 was developed by the **Indian Agricultural Research Institute (IARI) in Delhi.**

Significance:

- These varieties are expected to **increase rice yield by 25–30%.**
- They are not genetically modified (non-GMO) — meaning no foreign genes were added. Instead, scientists made small, precise changes in the rice plant's own genes using a technology called **genome editing.**
- They are **safe, environmentally friendly**, and could be ready for commercial farming in 4–5 years.
- They also perform well under **stress conditions like drought**, making them suitable for changing climate conditions.

- These rice types are likely to replace popular varieties like **Sambha Mahsuri and Cottondora Sannalu**, which are widely grown across India.
- **Policy and Legal Framework**: In 2022, India exempted certain genome-edited crops (Site Directed Nuclease 1 and 2 types) from the strict biosafety rules applied to GM crops.
  - This legal change opened the door for quicker deployment of genome-edited crops like Kamala and Pusa DST Rice 1.

FACT BOX

Genome Editing in Agriculture

- Genome editing is a **biotechnology technique** that allows scientists to make targeted, precise changes to an organism's DNA.
- In this case, scientists used it to tweak the rice plant's native genes to improve characteristics like drought tolerance, disease resistance, and grain yield — without inserting genes from other species (as is done in GM crops).

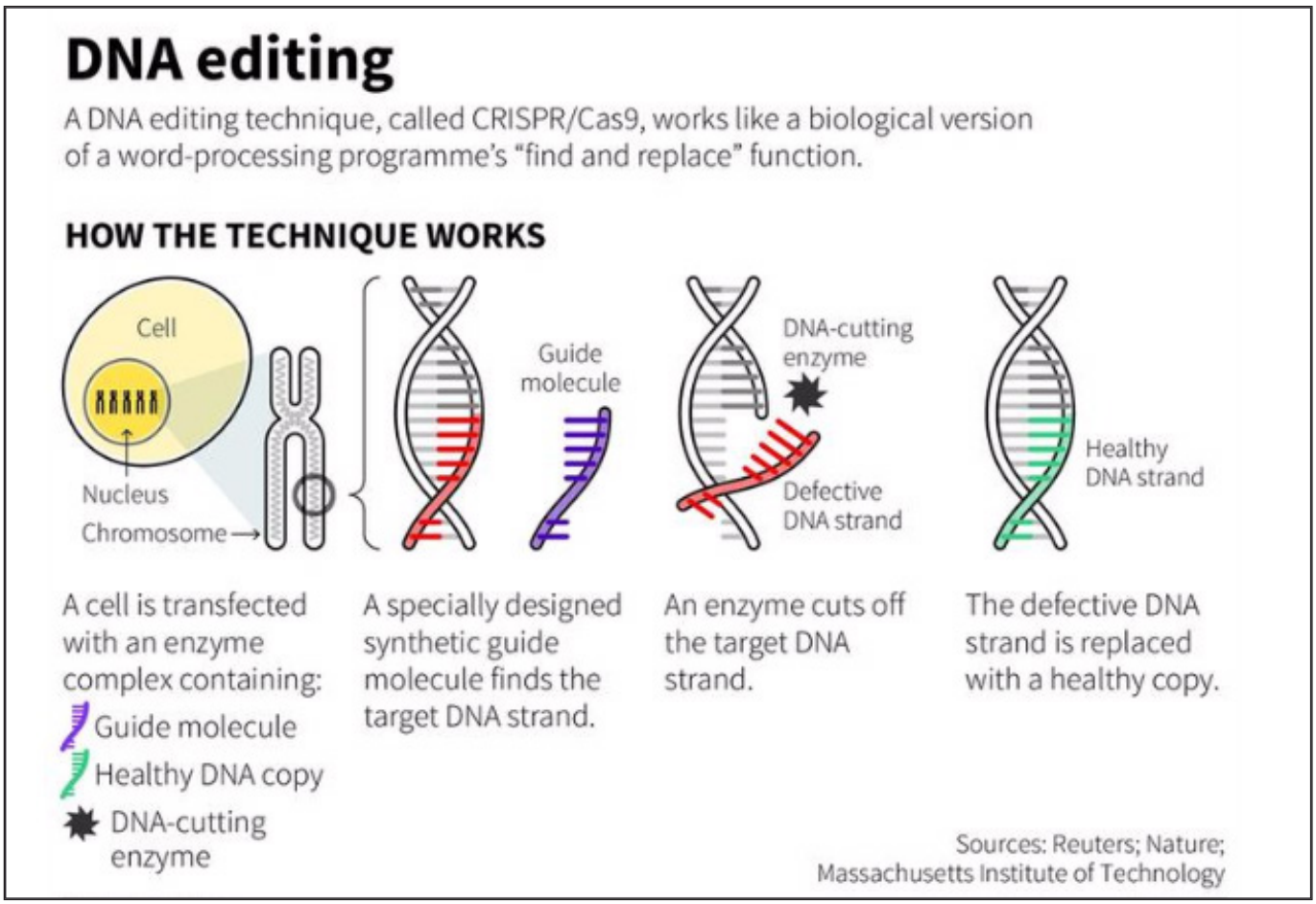

Figure No. 05

- A well-known tool used for this is **CRISPR-Cas9.**
- **Example:** Kamala and Pusa DST Rice 1: New Indian rice varieties created by editing their own native genes to improve yield and drought resistance — no foreign DNA added.
- **How it works**: Scientists use tools like CRISPR to make small, targeted changes in the plant or animal's existing genome — such as turning off a gene, fixing a mutation, or enhancing a trait.

(Figure No. 05 on previous page)

Genetically Modified Organism (GMO)

- A GMO is an organism — usually a crop or animal — whose DNA has been altered by inserting foreign genetic material (genes from another species) to achieve specific traits like pest resistance, herbicide tolerance, or nutritional enhancement.

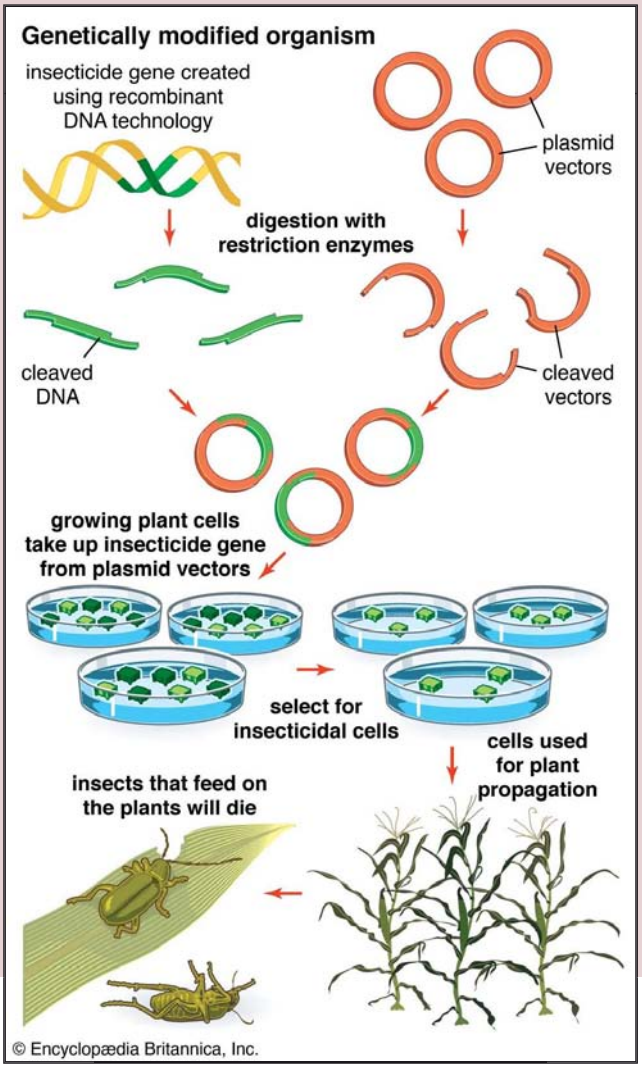

Figure No. 06

Example:

- **Bt Cotton:** It contains a gene from a **soil bacterium (*Bacillus thuringiensis*)** that protects it from pests like bollworms.
- **Golden Rice:** It has genes from daffodil and a soil microbe added to help the rice produce **vitamin A.**

- **How it works:** Scientists take a gene from one organism and insert it into another using genetic engineering techniques.
  - This creates new gene combinations not found in nature.

Feature	GMO	Genome Editing (Non-GMO)
Genetic material used	Adds genes from other species	Edits the organism's own genes
Is foreign DNA added?	Yes	No
Example crops	Bt Cotton, Golden Rice	Kamala Rice, Pusa DST Rice 1
Regulatory path	Strict, lengthy, costly	Simpler, faster (especially SDN-1/2)
Common tool used	Recombinant DNA technology	CRISPR/Cas9
Acceptance	Often controversial	Gaining more acceptance globally

MICROGRAVITY

CONTEXT

Researchers at the **Indian Institute of Space Science and Technology (IIST)** have developed a 3D computational model that simulates how microgravity affects human thermoregulation, with implications for long-duration space missions and astronaut health.

Key Findings:

- Microgravity increases **core body temperature**, with fluid shifts playing a crucial role in **thermal balance.**
- **Blood redistribution** in microgravity significantly affects **temperature distribution**, making the core and head warmer while the feet and hands cool down.
- The model predicts a **37.8°C increase in core body temperature over 2.5 months in microgravity**, with higher temperatures during exercise.
- The model validated predictions by comparing them to real-world astronaut data from the Mir and ISS space stations.

FACT BOX

Microgravity

- Gravity is a **fundamental force** that is measured as the attraction between any two objects with mass.

- It pulls more strongly between objects with larger masses. It also weakens the farther apart objects are.
- Microgravity refers to **very small gravity**. It exists wherever gravity's pull is much smaller than we're used to feeling on Earth's surface.
- Earth's **gravitational pull** exists even out in space.
- It does get weaker for astronauts in orbit, but only by a little bit.
  - Astronauts orbit about 400 to 480 kilometers (250 to 300 miles) above Earth's surface.
  - At that distance, a 45-kilogram object, which weighs 100 pounds on the ground, would weigh about 90 pounds.
- Simply put, microgravity refers to the condition in which objects appear to be weightless and experience very small gravitational forces, typically encountered in space environments like the **International Space Station (ISS)**, where gravity is nearly absent.

SOLAR SUB-SURFACE ACTIVITY

CONTEXT

A team of international scientists, including researchers from India, has discovered **giant plasma tides** beneath the surface of the Sun.

Key Findings:

- **Discovery of Plasma Tides:** Massive waves of hot plasma, like ocean tides, have been found in a turbulent region beneath the Sun's surface called the **Near-Surface Shear Layer (NSSL)**.
- These plasma flows occur about **35,000 km below the Sun's surface**.
- The tides are closely linked to the Sun's **11-year magnetic cycle**, which controls sunspots and solar flares.
- The finding challenges older beliefs that **solar magnetic fields** come from deep within the Sun. They may instead **form closer to the surface**.
- **Better Space Weather Forecasting:** Understanding these internal flows could help scientists **predict solar storms** more accurately and protect Earth's tech infrastructure.

About Sun

- The Sun is a **giant ball of gas** (mostly hydrogen and helium) with layers where energy is produced and transported.
- It is by far the largest object in the solar system.
- It contains more than **99.8% of the total mass of the Solar System** with only Jupiter having the remaining 1.2%.
- About 73% of the Sun's mass is hydrogen, and another 25% is helium (i.e. Sun is composed of roughly 98% hydrogen and helium).
- **Core:** The hottest part of the Sun is its core, where temperatures top 27 million °F (15 million °C).
- **Photosphere:** The part of the Sun we call its surface – the photosphere – is a relatively cool 10,000 °F (5,500 °C).

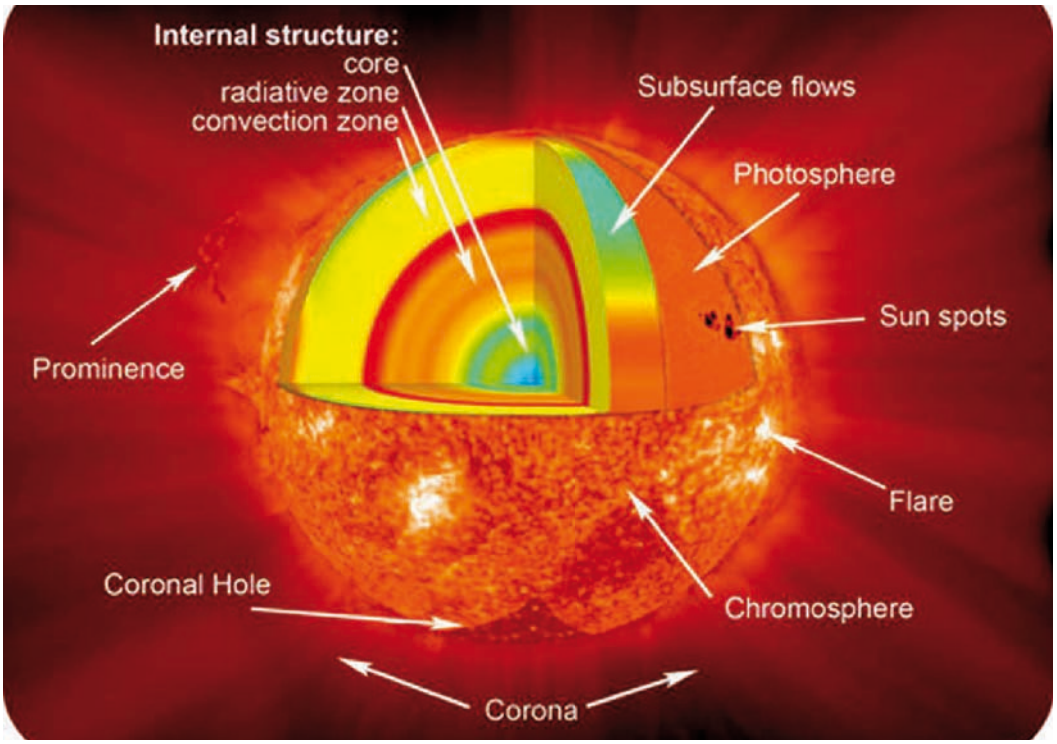

Figure No. 07

- **Corona:** In one of the Sun's biggest mysteries, the Sun's outer atmosphere, the corona, gets hotter the farther it stretches from the surface. The corona reaches up to 3.5 million °F (2 million °C) – much, much hotter than the photosphere.
- Sun is rotating in **counter-clockwise direction** (when viewed from a long way above Earth's North Pole).
- **Solar magnetic field:** Magnetic fields are produced in the Sun by the flow of electrically charged ions and electrons.
- The Sun's interior isn't solid like the interior of Earth. It is a ball of swirling, hot plasma.

OZEMPIC

CONTEXT

A drug originally developed to treat diabetes, and now prescribed for weight loss, may have yet another significant application: stopping, perhaps even reversing, liver disease.

About Ozempic

- Ozempic is the brand name for the **drug semaglutide**, a **GLP-1 receptor agonist**.
- It was originally developed to treat **type 2 diabetes**, but has since gained widespread use for weight loss.
- It belongs to the class of **GLP-1 (Glucagon-like peptide-1) drugs**, which mimic a natural hormone in the body.

How Does Ozempic Work?

- It stimulates **insulin secretion**.
- It slows down **gastric emptying**, which prolongs feelings of **fullness**.
- It suppresses **appetite**, leading to lower food intake.
- It reduces **"food noise"** (constant preoccupation with food), which can be helpful in **binge eating disorders**.

RABIES

CONTEXT

Kerala has witnessed the tragic deaths of three children due to rabies in the past month, despite them being vaccinated. This has sparked concern about **vaccine efficacy**, wound care awareness, and public health response.

What is Rabies?

- Rabies is a **viral disease** causing **fatal inflammation** of the brain and spinal cord.
- It is transmitted via **bites or saliva** from infected animals, **primarily dogs.**

Prevention:

- **Post-Exposure Prophylaxis (PEP):** Immediate wound washing, followed by vaccination and sometimes rabies immunoglobulin.
- **Pre-Exposure Prophylaxis (PrEP**): Preventive vaccination for high-risk populations.

- **Fatality:** Once symptoms appear, rabies is almost always fatal.
- Rabies is **100% preventable** but still causes around 20,000 deaths annually in India **(as per WHO).**

CSE RESULT

TOP 100 ALL INDIA RANKING UPSC-CSE 2024

GS SCORE
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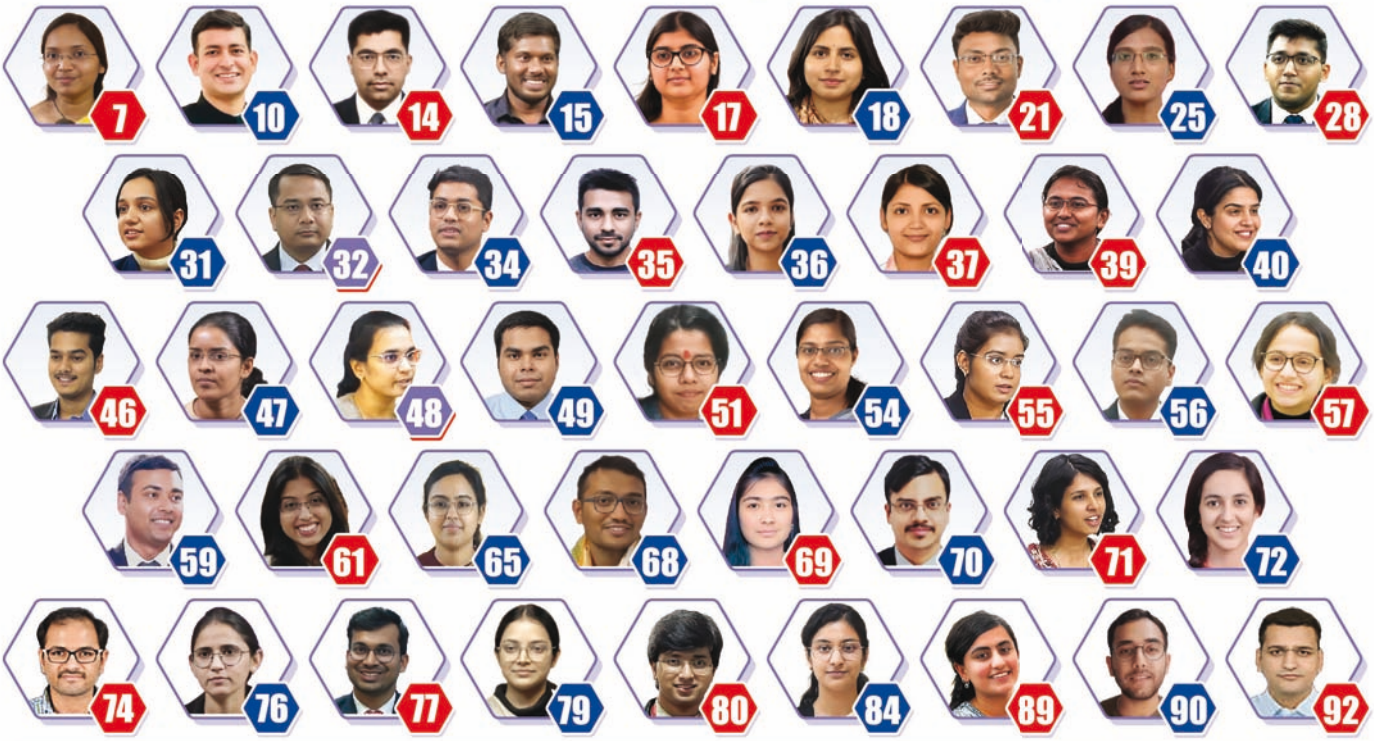
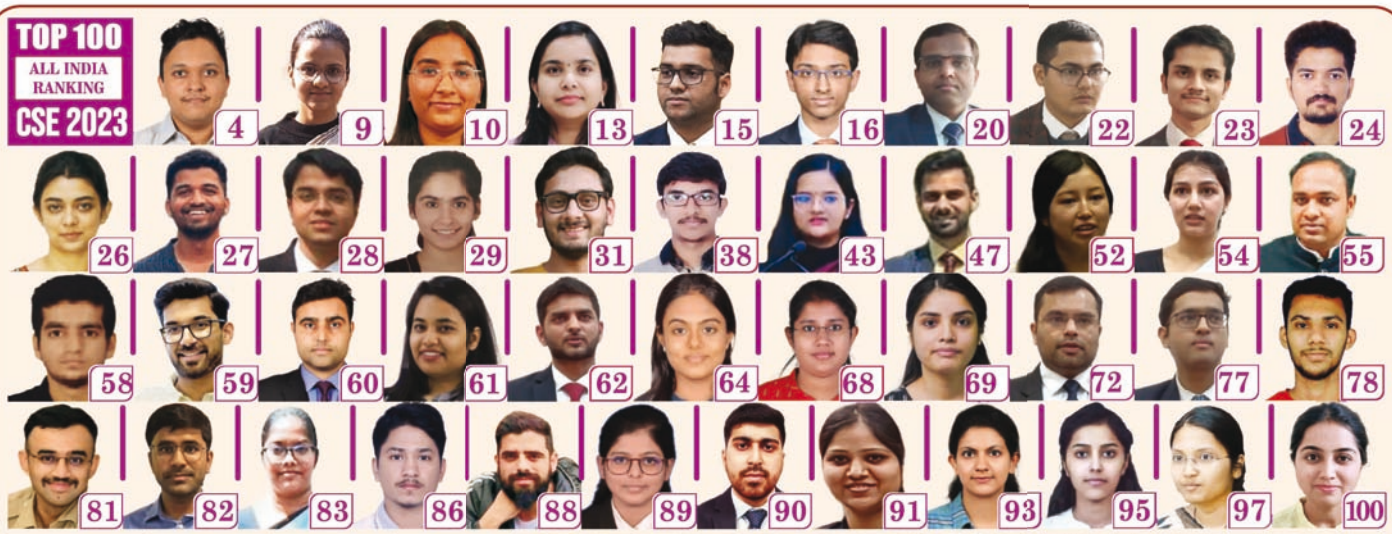


TOP 100 ALL INDIA RANKING CSE 2023



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