

CURRENT AFFAIRS

WEEKLY



MAINS ARTICLE

GS-I

- CHALLENGES OF CYCLONE FORECASTING AND CLIMATE CHANGE IN INDIA

GS-II

- INDIA-CHINA BORDER PATROL AGREEMENT
- INDIA-RUSSIA'S 'DEEP-ROOTED' TIES
- BRICS SUMMIT 2024
- THE EVOLVING INDIA-US RELATIONSHIP AMIDST GEOPOLITICAL TENSIONS
- SC'S STANCE ON THE UTTAR PRADESH MADRASA EDUCATION ACT
- SECULARISM IN THE INDIAN CONSTITUTION
- SUPREME COURT JUDGMENT ON SECTION 6A OF THE CITIZENSHIP ACT
- SC UPHOLDS STATES' RIGHT TO REGULATE INDUSTRIAL ALCOHOL

GS-III

- CHINA'S LIQUEFIED NATURAL GAS (LNG) IMPORTS
- "SHADOW FLEET" AND THE DYNAMICS OF SANCTIONS ON RUSSIAN OIL
- RISING DEPENDENCE ON AGRICULTURE IN INDIA
- THE RISE OF NUCLEAR POWER

PRELIMS ARTICLE

GEOGRAPHY

- Atmospheric rivers are shifting poleward
- Dana, Severe Cyclonic Storm

ART & CULTURE

- Kartarpur Sahib Corridor

INTERNATIONAL RELATIONS

- Chabahar Port Deal
- India-Mauritius Bilateral Cooperation

POLITY & GOVERNANCE

- J&K demands 'restoration' of Statehood
- Saudi Arabia's Musaned Platform
- Chief Justice of India (CJI)
- Centre finalises stricter norms for Disability Certificates

ECONOMY

- Fortified Rice

SCIENCE & TECHNOLOGY

- Approval of Cobenfy for Schizophrenia
- E. coli Outbreak
- Gut-brain connection to Parkinson's Disease
- Ancient Meteorite Impact ("Fertilizer Bomb")
- Gram Panchayat-Level Weather Forecasting
- Rising Cyber Fraud in India
- India launches fourth nuclear-powered submarine
- Russia's Nuclear Posture Amidst Global Tensions
- Hybrid Warfare
- Indian Navy's Next Generation Missile Vessels

ENVIRONMENT

- CBD COP16
- New genus of jumping spiders 'Tenkana'

GS SCORE

An Institute for Civil Services

www.iasscore.in

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.

CONTENT

4th WEEK - OCTOBER, 2024

SECTION - A

GEOGRAPHY (GS-I)

- Challenges of Cyclone Forecasting and Climate Change in India 01

INTERNATIONAL RELATIONS (GS-II)

- India-China Border Patrol Agreement 02
- India-Russia's 'Deep-Rooted' Ties 04
- BRICS Summit 2024 04
- The Evolving India-US Relationship Amidst Geopolitical Tensions 06

POLITY & GOVERNANCE (GS-II)

- SC's Stance on the Uttar Pradesh Madrasa Education Act 07
- Secularism in the Indian Constitution 07
- Supreme Court Judgment on Section 6A of the Citizenship Act 08

- SC Upholds States' Right to Regulate Industrial Alcohol 09
- Supreme Court's Directive on Child Betrothals 10

ECONOMY (GS-III)

- China's Liquefied Natural Gas (LNG) Imports 11
- "Shadow Fleet" and the Dynamics of Sanctions on Russian Oil 12
- Rising Dependence on Agriculture in India 12

SCIENCE & TECHNOLOGY (GS-III)

- The Rise of Nuclear Power 13

SECTION - B

GEOGRAPHY

- Atmospheric rivers are shifting poleward 16
- Dana, Severe Cyclonic Storm 17

ART & CULTURE

- Kartarpur Sahib Corridor 17
- Chabahar Port Deal 18
- India-Mauritius Bilateral Cooperation 19
- Polity & Governance
- J&K demands 'restoration' of Statehood 21
- UDAN Scheme 21
- Saudi Arabia's Musaned Platform 22
- Chief Justice of India (CJI) 23
- Centre finalises stricter norms for Disability Certificates 23

ECONOMY

- Fortified Rice 24

SCIENCE & TECHNOLOGY

- Approval of Cobenfy for Schizophrenia 25
- E. coli Outbreak 26
- Gut-brain connection to Parkinson's Disease 26
- Ancient Meteorite Impact ("Fertilizer Bomb") 28
- Gram Panchayat-Level Weather Forecasting 28
- Rising Cyber Fraud in India 29
- India launches fourth nuclear-powered submarine 30
- Russia's Nuclear Posture Amidst Global Tensions 30
- Hybrid Warfare 31
- Indian Navy's Next Generation Missile Vessels 32

ENVIRONMENT

- CBD COP16 32
- New genus of jumping spiders 'Tenkana' 32



**IAS
2025**

GS SCORE
An Institute for Civil Services

**MENTORSHIP
PROGRAMME**
for **MAINS ANSWER WRITING
& PRELIMS SKILLING**
**CSE
Qualifier
2025**

40⁺ MENTORSHIP
SESSIONS

(Pre & Post Test) based on Answer
Writing & Prelims Skill Development

55⁺ MAINS
TESTS

to cover entire Syllabus
of GS Paper 1, 2, 3 & 4

80⁺ PRELIMS
TESTS

for Concept & Essential
Skills Building

16 WEEKLY
Revision Tests

for both Prelims & Mains

16 SUBJECT
Revision Tests

for both Prelims & Mains

20 PRELIMS MOCK TESTS (GS & CSAT)
for All India Ranking & Performance Analysis



Detailed Discussion of the Tests
for better clarity



Daily Preparation Target with
Strict Schedule (No Flexi Format)



Personalised Mentorship for
Marks Improvement & Guidance

SCAN QR CODE
for MORE DETAIL



PROGRAMME FEE
₹ 17,000 +GST

8448496262

www.iasscore.in

SECTION -A

MAINS ISSUES

CHALLENGES OF CYCLONE FORECASTING AND CLIMATE CHANGE IN INDIA

CONTEXT

As meteorologists anticipated a **historically active hurricane season for 2024**, the actual situation has **deviated significantly**, raising questions about the **accuracy of existing climatic models**.

Current Trends in Cyclone Activity

Shift in La Niña Forecasts

- ▶ **Expectations vs. Reality:** A strong La Niña was predicted to emerge this winter, which typically correlates with increased hurricane activity. However, current forecasts suggest a downgrade of La Niña predictions, contributing to the subdued cyclone activity observed this year.
- ▶ **Contrasting 2023 Activity:** The 2023 hurricane season was notable for its high activity, ranking as the fourth-most active despite the presence of a strong El Niño. This year's quiet season contradicts conventional expectations, prompting a re-evaluation of the relationship between hurricane activity and El Niño/La Niña phenomena.

Challenges in Cyclone Forecasting

- **Improvements and Limitations:** While advancements have been made in accurately predicting the trajectory and landfall of hurricanes, forecasting the intensity of cyclones remains problematic. The forecasting community struggles particularly with post-landfall effects, which can cause significant damage and loss of life.

- **Rapid Intensification:** Historical data show no significant increase in the overall number of cyclones globally, yet there has been a rise in the intensity of storms. Rapid intensification—defined as a wind speed increase of 55 km/h or more within 24 hours—remains difficult to predict, posing additional risks.

Vulnerabilities in the Indian Context (Climatic Challenges)

- ▶ **Increasing Cyclone Activity:** The North Indian Ocean, especially the **Arabian Sea**, has seen a rise in cyclonic activity in recent years. However, the last few years have been atypically quiet, complicating predictions about future cyclone occurrences and their intensities.
- ▶ **Chronic vs. Acute Stressors:** India faces both chronic climate stressors, such as rising temperatures and sea levels, and acute stressors like extreme rainfall and cyclones. These stressors compound the effects of one another, exacerbating the risks associated with cyclonic events.

What needs to be done (Suggestive Measures)?

- **Focus on Rapid Intensification and Landfall Predictions:** There is a pressing need for improved forecasting related to rapid intensification and post-landfall impacts of cyclones. Enhanced predictive models could significantly mitigate risks.
- **Hyperlocal Risk Mapping:** It is essential to develop hyperlocal risk maps for targeted cyclone preparedness. Given India's economic constraints, resources must be allocated strategically to areas most at risk.
- **Economic and National Security Implications:** India's vulnerability to climate change is not just an environmental

issue; it intersects with economic development and national security. A resilient subcontinent is vital for sustained growth and stability.

- **Regional Cooperation:** Establishing a cooperative framework for weather and climate data sharing among neighboring countries can enhance regional preparedness. Improved forecasting capabilities will benefit not only India but also its wider neighborhood.



FACT BOX

Cyclone Warning in India

- **Cyclone warning Centres:** In order to cater to the needs of Cyclone Warning Services and Marine weather services, there are seven established Cyclone Warning Centers covering the east & west coasts of our country.
 - ▶ Three are Area Cyclone Warning Centres (ACWCs) located at Chennai, Mumbai and Kolkata
 - ▶ Four are Cyclone Warning Centres (CWCs) located at Ahmadabad, Thiruvananthapuram, Visakhapatnam and Bhubaneswar.
- **Atmospheric & Climate Research – Modeling Observing Systems & Services (ACROSS):** Under this scheme, there is a sub-scheme 'Upgradation of Forecast Services'. The various components of this sub-scheme include;
 - ▶ Development of an advanced operational forecast system
 - ▶ Upgradation and sustenance of communication systems for weather services
 - ▶ Capacity building & outreach etc.
- **Storm Surge Early Warning System (SSEWS):** Indian National Centre for Ocean Information Services (INCOIS) has set up SSEWS for the Indian coasts to save the lives of coastal community by forecasting cyclone induced storm surges and inundation extent.
- **National Cyclone Risk Mitigation Project (NCRMP)** aims to address cyclone risks in the country.
- **GEMINI (GAGAN Enabled Mariner's Instrument for Navigation and Information):** It is a simple handheld device developed by INCOIS that receives the information transmitted through GAGAN and feeds that to the mobile handset through Bluetooth connection.

Vulnerability of India

- About 5,700 km of the India's coastline encompassing 84 Coastal districts (roughly 8% of the geographical area) in 13 Coastal States and Union Territories (UTs) are affected by severe tropical cyclones year after year.
- Approximately 40% of India's population is living within 100 km of the coastline

INDIA-CHINA BORDER PATROL AGREEMENT

CONTEXT

India and China have reached a significant agreement to restore patrolling rights to each in the **Depsang Plains and Demchok region**, these are areas where the problems are called **legacy issues**, predating the **2020 Chinese incursions**.

Background (The Galwan Clash Backdrop)

- In a major escalation along the Line of Control, Indian and Chinese troops clashed in the Galwan Valley on June 15, 2020.
- This incident was the first deadly confrontation in the region since 1975 and resulted in casualties on both sides.
 - ▶ The root cause is an **ill-defined, 3,440km (2,100-mile)-long disputed border**. Rivers, lakes and snowcaps along the frontier mean the line often shifts, bringing soldiers face to face at many points, sparking a confrontation.
- Border infrastructure developments and differing perceptions of the LAC had triggered the clash.
- Following the clash, both sides engaged in de-escalation talks amid heightened tensions in bilateral ties.
- The PLA's 2020 incursions had severely restricted Indian Army patrols at key points in the **Depsang Bulge and CNN Junction**.
- However, the establishment of buffer zones in areas like **Galwan, Khugrang, Gogra-Hot Springs, and Pangong Tso** helped reduce tensions.

Key Points of the Deal



Figure No. 01

- The two sides have agreed that patrolling in the following two areas will be carried out up to the old patrolling points along the LAC.
 - ▶ Depsang Plains in the north of Ladakh
 - ▶ Demchok in the south of Ladakh

- This means that Indian troops can patrol up to **patrolling point (PP) 10 to 13** in the **Depsang Plains**, and in **Charding Nullah of Demchok**.
- **Ongoing Disengagement Process:** The deal is part of a larger disengagement process that has seen successful pullbacks at several flashpoints, including **Pangong Tso, Gogra, and Hot Springs**. The current focus on **Depsang and Demchok** represents a willingness to address the more challenging aspects of the border dispute.

The Other Friction Points

Besides Galwan, there are at least four other friction points along the Line of Actual Control. These are all disputed areas where Indian and Chinese soldiers fought in the 1962 war.

- **Demchok:** Demchok is split by the LAC. India controls the western part. The eastern side is under the control of China, which also claims the western part. The dispute hinges on historical treaties and the precise alignment of the LAC along the Charding Nullah. Recent talks aim at disengagement.

- **Pangong:** About 50 per cent of Pangong Lake area is in Tibet (under Chinese control), 40 per cent in Ladakh and 10 per cent is disputed. Discrepancies in LAC perceptions lead to military standoffs and buffer zones, with ongoing construction and strategic positioning reflecting the tensions and claims by both nations.
- **Hot Springs:** Located near Gogra Post, the Hot Springs area is significant for India due to its strategic location which facilitates surveillance over LAC. India’s control over this region enhances its defence posture, providing vantage points for monitoring movements in Aksai Chin, thus playing a crucial role in border security dynamics.
- **Depsang:** Depsang plains are critical for India due to their strategic access to the Daulat Beg Oldie (DBO) airstrip and the Darbuk-Shyok-DBO road. Control over Depsang prevents Chinese forces from threatening these vital logistics lines, making it essential for India’s northern border defence and military mobility.

(See Figure No. 02 at bottom)



Figure No. 02

INDIA-RUSSIA'S 'DEEP-ROOTED' TIES

CONTEXT

Prime Minister Narendra Modi held a bilateral meeting with Russian President Vladimir Putin on the sidelines of the 16th Brics Summit in Kazan. In their bilateral meeting, the Prime Minister expressed India's willingness to provide all cooperation for a peaceful resolution to the Ukraine conflict.

Key-takeaways of the Bilateral Meeting

- The two leaders reviewed bilateral cooperation in various sectors, including **political, economic, defence, energy, and people-to-people ties**. This was their second meeting this year as the two leaders had earlier met in Moscow for the 22nd **India-Russia Annual Summit** in July 2024.
- PM Modi and Putin exchanged views on India-Russia engagement in multilateral fora, in particular in **BRICS**.
- They also shared views on key regional and global issues of mutual interest, including the **ongoing conflict in Ukraine**.
- PM Modi reiterated that dialogue and diplomacy was the way forward in resolving conflicts.

What is the history of India-Russia Relations?

- **Diplomatic Relations:** India and Russia (then the Soviet Union) established diplomatic relations in April 1947, shortly before India's independence.
- **Cold War Era:** The Soviet Union became a crucial ally for India during the Cold War, particularly during conflicts like the 1971 war with Pakistan. The Indo-Soviet Treaty of Friendship and Cooperation was signed in the same year.
- **Supportive Role:** The USSR mediated during the 1965 India-Pakistan war and consistently used its veto in the UN Security Council to support India on issues like Kashmir.
- **Post-Cold War Relations:** After the Cold War, the relationship continued with annual summits and strategic partnership agreements established in 2000 and upgraded in 2010.
- India and Russia have also been holding so-called 2+2 meetings – joint meetings with foreign and defence ministers – since 2021.

What is the current relationship between India and Russia?

- Russia remains a key strategic partner for India for both practical and ideological reasons.
- **Economic Cooperation:** India benefits significantly from access to discounted Russian crude oil, which has increased from less than 2 per cent of India's total imports before the Russian invasion of Ukraine to over 40 per cent in June 2024.

- ▶ Indian companies have also benefitted from exporting refined Russian oil products, some of which have found their way onto Western markets.
- ▶ India and Russia aim to increase bilateral trade from \$68 billion to \$100 billion by the end of this decade.
- ▶ Connectivity initiatives include the **Chennai-Vladivostok maritime corridor** and the **International North-South Transport Corridor**.
- **Military Cooperation:** Russia accounts for over 50% of India's military hardware. Key acquisitions include the S400 missile system and joint projects like the BrahMos missile.
- ▶ **Managed Decline:** While Russia remains a key partner, India's dependence on Russian arms has decreased from 76% in 2009-2013 to 36% in 2019-2023, driven by a push for diversification and domestic production.
- **Nuclear Collaboration:** India and Russia have historical ties in nuclear cooperation, including an agreement to build six nuclear power plants in Tamil Nadu.
- **Pragmatic Approach:** India maintains a neutral stance on the Ukraine conflict, abstaining from UN votes condemning Russia, while also expressing concern over the war's humanitarian impacts.

What is India's stand on Russia-Ukraine war?

- Russia and Ukraine have been engaged in a conflict since 2022. Since the start of the war in 2022, India has called for resolving the conflict through dialogue and diplomacy.
- India has neither condoned nor condemned Russia's actions. The Indian government has been vocal in expressing its displeasure of the war and Modi has said that now is 'not an era of war'.
- India is suggesting that alternative approaches be explored to find a peaceful path to end the conflict.

RELATED PYQ

Q: Arms trade, economic ties and congruent geo-political interests are no longer the three pillars of India – Russia relationship in the emerging strategic context. Comment (PSIR Optional, 2023)

BRICS SUMMIT 2024

CONTEXT

The 16th BRICS Summit concluded with the adoption of the '**Kazan Declaration**', a comprehensive document outlining key areas of cooperation and the bloc's unified stance on global issues.

Key Outcomes of the Kazan Declaration

Under the theme "**Strengthening Multilateralism for Just Global Development and Security**", the Kazan Declaration emphasised the importance of BRICS solidarity and strategic

partnerships. The leaders pledged their commitment to fostering peace, ensuring a fairer international order, and promoting sustainable development. The key-outcomes are as follow:

Geopolitical Concerns

- ▶ **Diplomatic Resolutions for International Conflicts:** The summit highlighted the critical need for peaceful resolutions to international conflicts through diplomacy. The declaration underscored the importance of adhering to the United Nations Charter, particularly in relation to the ongoing Ukraine conflict. Leaders expressed appreciation for mediation efforts aimed at facilitating dialogue and resolving the conflict peacefully.
- ▶ **Concerns Over Palestine:** The situation in Palestine was a focal point of concern, with the declaration noting the severe humanitarian crisis in the **Occupied Palestinian Territory**. The BRICS leaders voiced their grave apprehension regarding the escalation of violence in Gaza and the West Bank, calling for immediate measures to alleviate the situation.
- ▶ **Middle East Crisis:** The declaration also addressed the escalating humanitarian crisis in the Middle East, particularly in Southern Lebanon. Leaders condemned the civilian casualties and damage to infrastructure resulting from military actions, urging for a cessation of hostilities.

Global Governance and Multilateralism

- ▶ **Role of the G20:** The importance of the G20 in global decision-making processes was emphasized. The leaders recognized the necessity for the G20 to function effectively, advocating for a consensus-driven approach focused on achieving tangible outcomes.
- ▶ **Reform of Financial Architecture:** The BRICS nations reiterated their commitment to reforming the international financial architecture to enhance global governance. They called for a more agile and representative multilateral system capable of addressing financial challenges, stressing the need

for reforms that promote inclusive growth.

- ▶ **Innovative Financial Practices:** The declaration encouraged the exploration of new financial practices, highlighting the BRICS Interbank Cooperation Mechanism (ICM) as a means to facilitate innovative financial solutions. The leaders reaffirmed their support for a robust International Monetary Fund (IMF), emphasizing the need for a quota-based and adequately resourced financial safety net.

Economic Cooperation and Local Currencies

- ▶ **Strengthening Trade in Local Currencies:** A significant aspect of the summit was the agreement to enhance trade and financial settlements in local currencies. The declaration welcomed initiatives aimed at utilizing local currencies for BRICS financial transactions and establishing independent cross-border settlement infrastructures.

▶ **BRICS Grain Exchange:** The leaders endorsed the initiative to create a BRICS Grain Exchange, which would facilitate commodities trading within the bloc. This move is seen as a step towards greater economic integration among member nations.

▶ **Expansion of BRICS:** Recognizing the growing interest from nations in the Global South, the leaders established a BRICS Partner Country category. New members, including Egypt, Ethiopia, Iran, Saudi Arabia, and the UAE, are welcomed to

join the bloc, indicating a commitment to expanding BRICS influence and partnerships.

Pandemic Preparedness and Environmental Conservation

- ▶ **Health Initiatives:** The summit highlighted the necessity of strengthening health systems through collaborative efforts. Leaders supported initiatives related to vaccine research and development, early warning systems for infectious diseases, and the establishment of a BRICS TB Research Network.
- ▶ **Addressing Antimicrobial Resistance:** The Kazan Declaration acknowledged the threat posed by antimicrobial resistance (AMR), welcoming the outcomes of the UNGA High-Level Meeting on AMR.
- ▶ **Conservation of Big Cats:** India's initiative for an

Highlights of the declaration

ON UKRAINE
'All states should act consistently with the Purposes and Principles of the UN Charter in their entirety and interrelation'

ON WEST ASIA
'We reiterate our grave concern at the deterioration of the situation and humanitarian crisis in the Occupied Palestinian Territory, in particular the unprecedented escalation of violence in the Gaza Strip and in West Bank as a result of the Israeli military offensive'

ON G20
'We recognise the importance of the continued and productive functioning of the G20, based on consensus with a focus on result-oriented outcomes'

Figure No. 03

International Big Cats Alliance received recognition, with BRICS countries pledging to collaborate on the conservation of endangered species. This highlights the bloc's commitment to environmental sustainability.



FACT BOX

What is BRICS?

- BRICS stands for **Brazil, Russia, India, China and South Africa**.
- The group started in 2006, and **Brazil, Russia, India and China** convened for the first BRIC summit in 2009. **South Africa** joined a year later (2010).
- In August 2023, it was expanded to welcome five new members: **Egypt, Ethiopia, Iran, Saudi Arabia, and the UAE**.
- The aim of the alliance is to challenge the economic and political monopoly of the West. The group sets priorities and has discussions once every year during the summit, which members take turns hosting.
- Rising economic influence of BRICS nations:** BRICS member states now represent **45% of the world's population**. The BRICS countries account for **35% of global GDP**. The bloc is responsible for about 25% of the world's exports.

(See Figure No. 04 at bottom)

THE EVOLVING INDIA-US RELATIONSHIP AMIDST GEOPOLITICAL TENSIONS

CONTEXT

Recent geopolitical tensions have seen **Canada extend accusations against India regarding plots against Sikh citizens**, while the **US has filed charges against an Indian government employee linked to a failed assassination attempt on a Sikh separatist advocate in New York**. This situation raises critical questions about the nature of India-US ties—whether they are based on shared values or strategic interests.

Historical Overview

- Crisis-Forged Relationship:** The India-US relationship has historically been shaped by crises. The relationship has evolved significantly since India's independence, with both countries navigating various diplomatic challenges and conflicts, including the **1971 War** and subsequent nuclear tests.
- Shifting Dynamics:** Despite being on opposing sides during the **Cold War**, cooperation existed between the US and India in the 1950s and 60s, particularly in military and intelligence capabilities aimed at countering China. This cooperative spirit resurfaced in the 1990s, leading to a more robust and bipartisan relationship.
- Trade and Strategic Partnership:** As of 2022, the US emerged as **India's largest trading partner**, with bilateral

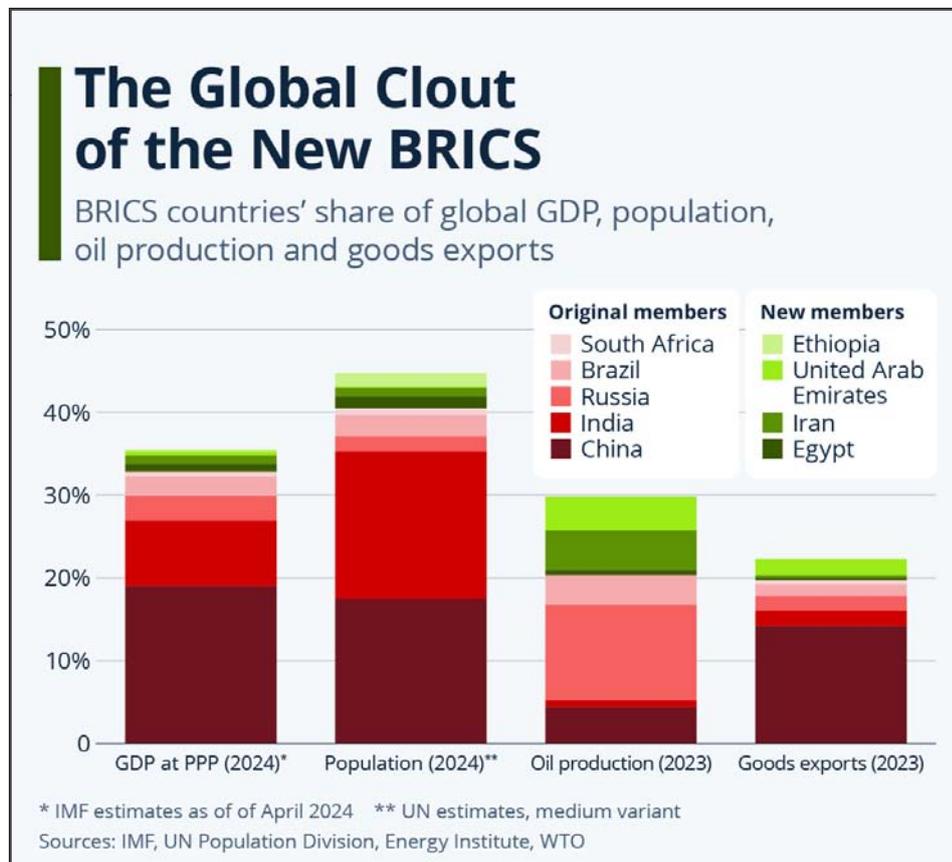


Figure No. 04

trade exceeding USD 191 billion. The two countries have aligned their interests in confronting challenges, particularly in the Indo-Pacific region, enhancing the strategic partnership.

Key Areas of Cooperation

- **Security and Military Collaboration:** India has entered agreements to acquire US military drones and established foundational defense cooperation frameworks, facilitating shared access to military facilities and supplies.
 - Annual military exercises and dialogues, such as the 2 + 2 ministerial meetings and Malabar naval drills, underscore the strong defense ties, including intelligence-sharing on counter-terrorism.
- **International Development Initiatives:** The Quad partnership exemplifies India-US collaboration in providing developmental assistance to third countries. This cooperation was evident during the COVID-19 pandemic when both nations coordinated vaccine and therapeutic distribution.
- **Diplomatic Engagement:** The US has supported India’s bid for a permanent seat on the UN Security Council, reflecting their commitment to enhanced diplomatic collaboration. Joint efforts in international forums continue to solidify this partnership.

**SC’S STANCE ON THE
UTTAR PRADESH MADRASA
EDUCATION ACT**

CONTEXT

The Supreme Court of India addressed the constitutional validity of the **Uttar Pradesh Board of Madrasa Education Act, 2004**, which regulates madrasas in the state. The Allahabad High Court had previously declared this Act unconstitutional, asserting that it **violated the principles of secularism**, affecting approximately 17 lakh students enrolled in around 16,000 madrasas.

Background of the Case

- The Uttar Pradesh Madrasa Education Act, 2004 was designed to regulate the functioning of madrasas, ensuring quality education and governance within these institutions.
- **Controversy:** The Allahabad High Court’s decision to strike down the Act stemmed from the assertion that it infringed upon the secular fabric of the state by imposing regulations on minority-run educational institutions.
- **High Court’s Judgment:** The Allahabad High Court ruled that the law violated:
 - **Secularism:** As enshrined in the Constitution.
 - **Article 28:** Prohibiting religious instruction in state-funded educational institutions.
- The court ordered the transfer of madrasa students to regular schools, raising concerns about the educational rights of minority communities.

Supreme Court Observations

- The laws regulating institutions run by religious or linguistic minorities cannot inherently be deemed as **violations of secularism**. The mere fact of regulation does not breach the secular principle.
- Such regulations are commonplace and necessary for the better administration of educational entities.
- **State’s Role in Education:** It is within a **state’s interests to legislate for the improvement of minority-run institutions**.

Article 30 of the Constitution does provide for a community to promote its religious education; only if the institution receives state funds such religious instructions or education cannot be done under Article 28.

- However, **Article 28(2)** also carves an exception to that by providing that such a prohibition does not apply to an educational institution which is administered by the State but has been established under any endowment or trust which requires that religious instruction shall be imparted in such institution.

**SECULARISM IN THE INDIAN
CONSTITUTION**

CONTEXT

The Supreme Court of India recently reaffirmed that secularism is a fundamental aspect of the Constitution’s basic structure. This affirmation comes amid ongoing debates surrounding the inclusion of the terms “socialist” and “secular” in the Preamble, particularly as a result of the 42nd Amendment enacted during the Emergency in 1976.

What is Secularism?

- Secularism in the Indian CONTEXT refers to the principle that the state treats all religions with equal respect and does not favor or discriminate against any religion.
- It ensures that the government remains neutral in religious matters, allowing individuals the freedom to practice their religion while maintaining a clear separation between religion and state affairs.

Constitutional Framework

- **Basic Structure Doctrine:** The doctrine established in the landmark Kesavananda Bharati case (1973) asserts that certain fundamental features of the Constitution, including secularism, cannot be altered or destroyed by any amendment by Parliament.
- **Preamble to the Constitution:** Originally, the Preamble described India as a “sovereign, democratic republic.”
 - ◆ The 42nd Amendment in December 1976 added “socialist” and “secular,” thus changing the description to a “sovereign, socialist, secular, democratic republic.”

The 42nd Amendment and Its Controversy

- The controversy centres around the 42nd Constitutional Amendment, passed in 1976 during the tenure of Prime Minister Indira Gandhi.

- This amendment added the terms “socialist” and “secular” to the Preamble, altering the description of India from a “sovereign, democratic republic” to a “sovereign, socialist, secular, democratic republic.”
- Petitions arguments: Several petitions have been filed challenging the validity of the 42nd Amendment:
 - ▶ Inclusion of “socialist” was unnecessary and contradicted the original vision of the Constitution’s framers.
 - ▶ Dr. B.R. Ambedkar’s apprehensions regarding the term “socialism,” suggesting that it could infringe on personal liberties.
 - ▶ The original Preamble, adopted on November 26, 1949, should remain unchanged and cannot be retroactively amended.

Key Points from the Supreme Court

- During the hearings, the Supreme Court highlighted several important aspects:
 - ▶ **Secularism as Core Principle:** The Court noted that the concepts of equality and fraternity, along with fundamental rights outlined in Part III of the Constitution, inherently signify that secularism is a core feature.
 - ▶ **Preamble’s Integrity:** The Supreme Court maintained that while the Preamble is amendable, any changes must not disrupt the Constitution’s basic structure, which includes the principle of secularism.

SUPREME COURT JUDGMENT ON SECTION 6A OF THE CITIZENSHIP ACT

CONTEXT

The Supreme Court of India upheld the **constitutional validity of Section 6A of the Citizenship Act, 1955**, through a **4:1 majority ruling**. This decision has significant implications for the **citizenship status of migrants in Assam** and raises critical questions about the **intersection of law, culture, and electoral rights**.

What is Section 6A?

- Section 6A was introduced following the **Assam Accord of 1985**, a political agreement aimed at addressing the concerns of illegal migration from Bangladesh into Assam. The provision allows for:
 - ▶ **Deemed Citizenship:** Immigrants who entered Assam before January 1, 1966, are recognized as Indian citizens.
 - ▶ **Eligibility for Citizenship:** Immigrants who entered between January 1, 1966, and March 25, 1971, can apply for Indian citizenship if they meet certain criteria.
 - ▶ **Illegal Immigrants:** Those who entered Assam after March 25, 1971, are deemed illegal immigrants and are subject to deportation.
- Section 6A is **central to the contentious issue of**

citizenship in Assam. The **Assam National Register of Citizens (NRC)**, created to identify illegal immigrants, was first introduced following the 1951 national census.

- ▶ The NRC aims to distinguish between legitimate citizens and those who migrated from Bangladesh after March 25, 1971.
- **Cut-off date:** The cut-off date of March 25, 1971, aligns with the onset of the Bangladesh Liberation War, marking a crucial point in Assam’s demographic changes. This provision aimed to balance humanitarian considerations with the need to protect the interests of the local population.

Key-takeaways from SC Judgment

- **Majority Opinion:** The Constitution Bench ruled in favor of **Section 6A**. Key points from the majority opinion include:
 - ▶ **Legislative Competence:** The Court affirmed that **Parliament had the authority to enact Section 6A**, which was deemed a legislative solution to the challenges posed by illegal immigration in Assam.
 - ▶ **Rationality of Assam’s Special Status:** The majority found that singling out Assam was justified due to the **higher percentage of migrants** in its population compared to other border states like West Bengal.
 - ▶ **Cut-off Date Justification:** The cut-off date of March 25, 1971, was deemed rational as it **coincided with significant historical events surrounding the Bangladesh war**. The Court concluded that Section 6A is **neither over-inclusive nor under-inclusive**, serving its intended purpose.
 - ◆ The **Bangladesh Liberation War**, which led to the independence of Bangladesh from Pakistan, witnessed a **massive influx of migrants to India**. Even prior to when Bangladesh gained independence from East Pakistan in 1971, migration had started to India.
 - ◆ On March 19, 1972, Bangladesh and India entered into a **treaty for friendship, cooperation and peace**.
 - ▶ **Cultural Rights and Fraternity:** The presence of various ethnic groups does not inherently infringe upon the cultural rights protected under **Article 29(1)**.
 - ▶ **Principle of fraternity:** The majority also rejected the argument that **Section 6A violated the principle of fraternity** outlined in the **Preamble of the Constitution**. The judgment held that fraternity should not be interpreted narrowly to restrict the inclusion of diverse populations.
- **Dissenting Opinion:** Justice JB Pardiwala presented a **dissenting view, declaring Section 6A unconstitutional with prospective effect**. His key arguments included:
 - ▶ **Temporal Unreasonableness:** While the law may have been valid at the time of enactment, it has become unreasonable over time. The lack of adequate mechanisms for detecting illegal immigrants, results in many remaining on electoral rolls without scrutiny.
 - ▶ **Arbitrariness in Detection:** **Section 6A(3)** imposed

a burdensome requirement for migrants to be detected by the State, which undermined the original intent of timely identification and deportation.

- **Incentives for Undocumented Immigration:** The provision inadvertently encourages undocumented immigrants to remain in Assam indefinitely, as there are no strict time limits for detection.



FACT BOX

Assam Accord

- The **Assam Accord**, signed in 1985 between the Indian government and the representatives of the Assam Movement, was a response to the **1971 Bangladesh Liberation War**, which resulted in a large influx of migrants into Assam.
- Section 6A was enacted as a humanitarian measure and allows individuals who migrated between January 1, 1966, and March 25, 1971, to obtain Indian citizenship under certain conditions.
- The **Assam Accord and Section 6A** were formulated in response to the massive migration caused by the **Bangladesh Liberation War**.

SC UPHOLDS STATES' RIGHT TO REGULATE INDUSTRIAL ALCOHOL

CONTEXT:

In a big victory for states, the Supreme Court (SC), in an 8:1 majority, upheld the **states' right to regulate taxes on industrial alcohol**, overruling a **1990 judgment**.

Background of the Case (Issue Before the Court)

- The core of the dispute arises from two "overlapping" entries in the Seventh Schedule of the Constitution, which lays down the division of lawmaking powers between the Centre and the states.
- The case revolves around the interpretation of **Entry 8 of List II (State List)** and **Entry 52 of the Union List in the Constitution**.
 - **Entry 8 of List II (State List)** gives states the power to regulate "the production, manufacture, possession, transport, purchase and sale of intoxicating liquors"
 - **Entry 52 of List I (Union List)** allows the Centre to regulate industries as a whole to the extent "declared by Parliament by law to be expedient in public interest".

Centre VS States Arguments

- **Centre:** As alcohol and other products of fermentation industries that deal with non-potable (non-drinkable) alcohol are included in the **Industries (Development**

and Regulation) Act, 1961. The Centre argued that it "occupied the field" when it comes to industrial alcohol, and that states could not regulate the subject.

- **States:** States, on the other hand, argued that industrial alcohol can be misused to produce consumable alcohol illegally, which required them to enact legislation.
- The Supreme Court needed to address whether "**industrial alcohol**" or denatured spirits could be classified under the term "**intoxicating liquor**," thus allowing states to regulate and tax it.
- The controversy traces back to a **1990 Supreme Court judgment in Synthetics & Chemicals vs. State of Uttar Pradesh**, which limited the definition of "intoxicating liquor" to potable alcohol, ruling that states could not tax industrial alcohol.
- The current case revisited this ruling, with the Supreme Court considering its implications on state powers and public health concerns.

Key-takeaways from Supreme Court's Ruling

- **Definition of Intoxicating Liquor:** The Supreme Court ruled that "industrial alcohol" falls within the meaning of "intoxicating liquor" under **Entry 8 of List II of the Constitution**. This broader interpretation allows states to regulate and tax industrial alcohol.
 - The definition of "**intoxicating liquor**" extends beyond just alcoholic beverages suitable for human consumption. It includes all types of alcohol that could pose risks to public health.
- The court stated, "**Alcoholic liquor is defined by its ingredients, and 'intoxicating' is defined by its effects.**" This emphasis on public health reinforces states' obligations to prevent misuse of industrial alcohol.
- **Overruling of Previous Judgment:** The court overruled the earlier decision in **Synthetics & Chemicals**, asserting that the Entry 8 of List II cannot exclude raw materials used in producing intoxicating liquors. The Bench highlighted the necessity for states to enact regulations to prevent industrial alcohol from being misused as a consumable liquor.
- **Legislative Powers:** The ruling confirms that the subject of intoxicating liquors falls exclusively within state jurisdiction, allowing state legislatures to enact laws addressing the production, transport, and sale of industrial alcohol. This grants states greater autonomy to combat illegal consumption and regulate alcohol-related activities.
- The judgment **empowers state governments to introduce more stringent regulations on industrial alcohol, potentially leading to changes in how it is produced, transported, and consumed.**



FACT BOX

Key-Provisions

- **Entry 8 of List II (State List):** It grants states the power to regulate intoxicating liquors.
- **Entry 52 of the Union List:** It empowers the central government to regulate industries of public interest.
- **Article 47 of the Constitution:** It states the duty of the state to raise the level of nutrition and standard of living and to improve public health.

Industrial alcohol

- Industrial alcohol is essentially **impure alcohol** that is used as an industrial solvent. Mixing chemicals such as **benzene, pyridine, gasoline**, etc. in **ethanol**, which is produced by fermenting grains, fruit, molasses, etc., — a process that is called 'denaturation' — turns it into **industrial alcohol**. This makes the alcohol unfit for human consumption, and significantly lowers its price.
- Industries use this impure alcohol to manufacture a range of products including pharmaceuticals, perfumes, cosmetics, and cleaning liquids.
- However, this same industrial or denatured alcohol is sometimes used to make illicit liquor, cheap and dangerous intoxicants whose consumption poses severe risks, including blindness and death.

SUPREME COURT'S DIRECTIVE ON CHILD BETROTHALS

CONTEXT:

The Supreme Court of India has recently urged Parliament to consider amending the **Prevention of Child Marriage Act (PCMA) of 2006** to explicitly outlaw child betrothals. The Court highlighted that existing laws can be evaded through the practice of child betrothals, which deny children their autonomy and free choice regarding marriage. This directive comes as part of a broader judgment addressing the significant issues surrounding child marriages in India, aiming to enhance the protection and rights of minors.

Key Takeaways from the Supreme Court's Judgment

- **Outlawing Child Betrothals:** The Court emphasized the need for legal reforms to prohibit child betrothals, as they allow evasion of penalties under the PCMA.
- **International Treaties:** The judgment referenced international agreements, such as the **Convention on the Elimination of All Forms of Discrimination against Women (CEDAW)**, which advocate against child marriages.
- **Community-Driven Approach:** The Court underscored the importance of awareness campaigns over mere

prosecution, advocating for community involvement in preventing child marriages.

- **Impact on Both Genders:** The judgment recognized that child marriages adversely affect both girls and boys, imposing premature responsibilities and denying their childhood.
- **Comprehensive Measures Needed:** The Court noted that existing government schemes are insufficient, advocating for a multi-faceted approach involving training, financial incentives, and awareness programs.

Which Rights Are Affected? Child marriages infringe upon multiple fundamental rights:

- **Right to Childhood (Article 21):** Children are deprived of their childhood and the right to make autonomous choices regarding their lives.
- **Right to Education (Article 21-A):** Early marriage often ends educational opportunities for girls, restricting their development and independence.
- **Right to Health (Article 21):** Child brides face significant health risks associated with early pregnancy and childbirth, undermining their physical and mental well-being.
- **Right to Reproductive Choice:** The ability to make decisions regarding reproduction is often removed from young brides, violating their bodily autonomy.

The Matter: Child Marriages in India

Despite legal frameworks, child marriage remains prevalent in India. According to the National Family Health Survey 2019-2021:

- **Prevalence Rates:** 23.3% of girls under 18 and 17.7% of boys under 21 are affected by child marriage.
- **Historical Context:** The prevalence of child marriages halved since the PCMA was enacted, from 47% in 2006 to 23.3% in 2021. However, significant gaps in enforcement and societal attitudes persist.

Reasons responsible for child marriage	Effects of Child Marriage
<ul style="list-style-type: none"> ◦ Poverty ◦ Insecurity ◦ Political and financial reasons ◦ Lack of education ◦ Patriarchy and gender inequalities ◦ Inadequate implementation of the law ◦ Socio-cultural factor <ul style="list-style-type: none"> ➤ Ensuring the bride's loyalty 	<ul style="list-style-type: none"> ◦ Early Pregnancy-Health complications ◦ Fall in High Fertility Age Group ◦ Higher risks of mortality among the children of younger mothers ◦ Inconsistent association of maternal marriage age with childhood stunting and underweight.

<ul style="list-style-type: none"> ▶ Easy molding of character ○ Patriarchal societies ○ Religious affairs (Kanya Dan) and the social importance and familial pride and prestige attributed to it 	<ul style="list-style-type: none"> ○ Impact on overall childhood ○ Lower empowerment ○ Low Social Status
--	---

Government Interventions and Policies

The Indian government has introduced several measures to combat child marriage:

- **Prevention of Child Marriage Act (2006):** This law prohibits child marriages and provides penalties for violations.
- **Betting on Education:** Programs such as the **Beti Bachao Beti Padhao scheme** aim to promote girls' education and discourage child marriage.
- **National Action Plan:** Initiatives focused on awareness and community involvement to change societal norms around child marriage.
- **Financial Incentives:** Some states provide financial assistance to families for keeping girls in school, aimed at delaying marriage.

Government Policies to End Child Marriage in India

- Prohibition of Child Marriage Act, 2006 (PCMA)
 - ▶ **Legal Framework:** The PCMA serves as the cornerstone of India's legal approach to preventing child marriages. It defines child marriage and establishes penalties for those involved in facilitating such marriages.
 - ▶ **Child Marriage Prohibition Officers (CMPOs):** Section 16 of the Act empowers state governments to appoint CMPOs tasked with preventing child marriages, collecting evidence for prosecutions, and raising awareness about the harmful effects of child marriages.
- **State Responsibility:** Since 'Police' and 'Public Order' are state subjects, state governments are responsible for enforcing laws against child marriage and maintaining public order. They handle investigations and prosecutions under the PCMA.
- Local Initiatives: States have the authority to implement local programs and strategies tailored to their specific contexts and challenges related to child marriage.
- **Beti Bachao Beti Padhao (BBBP) Scheme:** This initiative focuses on gender equality and includes measures to raise awareness about the importance of preventing child marriage.

- **CHILDLINE (1098):** It is a 24/7 emergency outreach service for children in crisis, which provides immediate assistance and intervention in cases of child marriage and other child rights violations.
- **National Commission for Protection of Child Rights (NCPCR):** The NCPCR undertakes various programs to engage stakeholders, create awareness, and advocate for children's rights, focusing on the prevention of child marriage.
- **National Crime Records Bureau (NCRB):** The NCRB compiles data on cases registered under the PCMA, helping to track the incidence of child marriages and informing policy decisions.

CHINA'S LIQUEFIED NATURAL GAS (LNG) IMPORTS

CONTEXT

In 2024, China has significantly increased its imports of **liquefied natural gas (LNG)**, reaching the **highest levels since 2021**. This uptick coincides with a record increase in **natural gas-fired electricity generation**. While these trends suggest a growing reliance on gas for power generation, a deeper analysis reveals that natural gas remains a minor player in **China's overall energy mix**.

Rising LNG Imports

- China's hunger for **liquefied natural gas (LNG)** is surging to its highest levels since 2021, outpacing the growth rates of South Korea and Japan. Yet, its push for cleaner energy sources is redefining LNG's role in the national power strategy.
- Current Statistics
 - ▶ **LNG Imports Increase:** China's LNG imports have risen by nearly 15% in 2024 compared to the previous year, reaching almost 80 billion cubic meters.
 - ▶ **Comparative Growth:** This growth outpaces other major importers: South Korea (5%) and Japan (2.5%).
 - ▶ **Electricity Generation:** Natural gas-fired electricity generation hit a record 188 terawatt hours (TWh) in the first eight months of 2024, a 1.5% increase from the same period in 2023.
- **Economic Factors:** Despite increased imports, the price of LNG remains high. Power generated from LNG is estimated to be \$30-\$40 more expensive per megawatt hour than that produced from coal. This price disparity discourages many industrial firms from switching to gas, particularly amidst China's ongoing property crisis and economic slowdown.
- China's pledge to achieve **carbon neutrality by 2060** necessitates further increases in clean energy generation, limiting the scope for substantial growth in natural gas consumption.

Limited Role of Natural Gas in Electricity Generation

- Share of Generation Mix
 - ▶ **Gas Generation Decline:** Natural gas's share of total electricity generation in China has decreased to 2.8%, the lowest level in seven years, down from 3% in 2023.
 - ▶ **Renewable Energy Dominance:** Solar, wind, and hydro power collectively contribute significantly more to the energy mix, with renewables accounting for 38% of total electricity generation so far in 2024.
- **Long-Term Trends:** Since 2018, the growth in electricity generation from different sources has been:
 - ▶ **Solar:** +378%
 - ▶ **Wind:** +163%
 - ▶ **Gas:** +36%

What does it mean?

- China is walking a line between keeping energy security with traditional methods and pushing for a low-carbon future.
- By adding new coal capacity to replace older plants while expanding renewables, China is ensuring grid stability amid growing power needs. These moves highlight a significant global shift towards diversified energy dependence.

“SHADOW FLEET” AND THE DYNAMICS OF SANCTIONS ON RUSSIAN OIL

CONTEXT

The term “**shadow fleet**” has gained traction in discussions surrounding the **Russia-Ukraine conflict**, particularly regarding the transportation of Russian crude oil. Western media outlets depict this fleet as a network of tanker ships allegedly “laundering” Russian crude, with implications that countries like India are complicit in circumventing international sanctions.

What Are Sanctions?

- Sanctions are **punitive measures** imposed by one or more countries against another country, entity, or individual to influence behavior, often in response to geopolitical conflicts.
- In the context of Russia's invasion of Ukraine, the U.S. has implemented several sanctions aimed at limiting Russia's ability to finance its military operations through oil sales.
- Mechanisms of Sanction Enforcement
 - ▶ **Asset Seizure and Freezing:** U.S. sanctions target entities and individuals that violate these measures by seizing assets within the U.S. and freezing bank accounts linked to the Western banking system.

- ▶ **Price Cap on Oil Sales:** The sanctions dictate that Russia can only sell its crude oil at a maximum price of USD 60 per barrel, a strategy intended to curtail its profits and reduce funding for military actions.

Structure of Global Shipping

The global shipping industry is multifaceted, comprising various stakeholders, ship owners, and regulatory frameworks.

- **Ownership and Flags:** The industry is dominated by Greek ownership (20% of the global fleet), with significant contributions from China and Japan. Ships are registered under flag states, which ideally indicate their country of origin.
- **Flags of Convenience (FoCs):** Nations like Panama and Liberia allow ship owners to register vessels under their flags to benefit from lower regulatory scrutiny and tax advantages, obscuring ownership.
- **Classification Societies:** These organizations certify ships for safety and environmental compliance, facilitating insurance coverage, including Protection and Indemnity (P&I) insurance for liabilities.

Challenges in Enforcing Sanctions

- **Complex Ownership Structures:** Many vessels operate under intricate ownership models, often involving shell companies that disguise the true ownership and origin of the ships.
- **Flag Switching:** Ships may change their flag to evade scrutiny, utilizing FoCs that do not comply with rigorous international maritime regulations.
- **Insurance Loopholes:** Ship owners can navigate around P&I insurance risks by contracting with European managers or registering under non-compliant jurisdictions.

India's Role and Accusations

- **Increased Registration:** Following the sanctions, many Russian vessels sought connections with Indian shipping firms, resulting in a rise in registrations with the Indian Register of Shipping (IRS). Critics argue this links India to the shadow fleet narrative.
- **Dubai as a Hub:** Many Russian vessels shifted operations to Dubai, where Indian entities have a significant presence, raising concerns about the laundering of Russian crude.
- **IRS Defense:** The IRS has stated that its primary responsibility is ensuring vessel safety and that it provides classification services to ships under flags like Liberia and Cyprus, which do not raise immediate red flags.

RISING DEPENDENCE ON AGRICULTURE IN INDIA

CONTEXT

Recent data from the All India Rural Financial Inclusion Survey (AIRFIS) for 2021-22 indicates a significant rise in dependence on agriculture for livelihoods in India, reversing a trend of declining reliance on the sector. This phenomenon

raises important questions about the economic landscape and labor dynamics in rural India, especially in the CONTEXT of post-COVID recovery.

Key Findings from the AIRFIS 2021-22

- **Increase in Agricultural Households:** The survey found that 57% of rural households are classified as “agricultural,” up from 48% in the 2016-17 survey. This includes households engaged in activities such as **cultivation, livestock rearing, and aquaculture.**
- **Definition of Agricultural Households:** An “agricultural household” is defined as one that reports a total agricultural produce value exceeding Rs 6,500, with at least one member self-employed in agricultural activities during the reference year (July 2021 to June 2022).
- **Income Trends:** The average monthly income of agricultural households rose to Rs 13,661, surpassing the Rs 11,438 average for non-agricultural households. This reflects an increase from Rs 8,931 in 2016-17 for agricultural households.
- **Income Contribution from Agriculture:** In 2021-22, over 45% of the total income for agricultural households came from farming, up from 43.1% in 2016-17. This trend was consistent across all land size categories, indicating a growing reliance on agriculture.

Reversal of Employment Trends

Data from the **National Sample Survey Office’s Periodic Labour Force Surveys (PLFS)** indicate a reversal in the trend of declining agricultural employment:

- **Labor Force Participation:** The share of the workforce engaged in agriculture dropped from 64.6% in 1993-94 to a low of 42.5% in 2018-19. However, this trend reversed post-pandemic, with the agricultural share rising to 46.5% in 2020-21.
- **Rural Employment Statistics:** The proportion of rural workers in agriculture increased from 57.8% in 2018-19 to 61.5% in 2019-20. Although this figure dropped slightly in subsequent years, it rebounded to 59.8% in 2023-24.

The Paradox of Growth and Agriculture

Despite India’s economic expansion—growing from USD 1.82 trillion in 2011 to USD 3.55 trillion in 2023—the dependency on agriculture for employment has increased. This paradox can be attributed to several factors:

- **Limited Job Opportunities in Manufacturing:** Manufacturing employed only 11.4% of the workforce in 2023-24, down from 12.6% in 2011-12. This limited growth in manufacturing jobs has failed to absorb surplus labor from agriculture.
- **Informal and Low-Productivity Sectors:** Many workers transitioning out of agriculture are moving into sectors that exhibit similar characteristics, such as low marginal productivity and informal employment, rather than into higher-paying manufacturing jobs.

- **State-Specific Employment:** States like Chhattisgarh (63.8%), Madhya Pradesh (61.6%), and Uttar Pradesh (55.9%) have high shares of their labor force engaged in agriculture, indicating regional disparities in employment dynamics.

THE RISE OF NUCLEAR POWER

CONTEXT

Artificial Intelligence (AI) is transforming industries and everyday life, but this technological revolution comes with a significant hidden cost: **a massive demand for electricity.** This surge in energy demand is largely driven by **hyperscale data centers** operated by major tech companies like **Microsoft, Google, and Amazon**, which require substantial power for their operations.

What is happening?

- Technology giants are turning to nuclear energy to power the energy-intensive data centers needed to train and run the massive artificial intelligence models behind today’s generative AI applications.
- Microsoft and Google are among the firms agreeing deals to purchase nuclear power from certain suppliers in the U.S. to bring additional energy capacity online for its data centers.

The Role of Data Centers

- ▶ Data centers are facilities that house computer systems and related components. They are essential for storing, processing, and managing vast amounts of data, particularly for AI applications.
- ▶ These centers operate around the clock, generating heat that necessitates extensive cooling systems—akin to running a room full of ovens that need constant airflow and temperature control.
- ▶ Energy Consumption
 - ◆ Currently, data centers account for 60-70% of the total energy used by the tech industry.
 - ◆ With the anticipated tripling of energy demand for these facilities by 2030, tech companies are facing a dual challenge: **meeting energy needs while committing to sustainability and reducing emissions.**

Why there is a shift to Nuclear Energy?

Tech companies are under pressure to find energy sources to power data centers — a key piece of infrastructure behind modern-day cloud computing and AI applications. To address their growing energy demands and environmental responsibilities, tech giants are increasingly turning to nuclear power:

- **Reliability:** Nuclear power provides a consistent energy supply. Unlike renewable sources like solar and wind, which depend on weather conditions, nuclear reactors can operate continuously with high efficiency.
- **Cost-Effectiveness:** Over time, nuclear power can be more economical than relying solely on renewable

energy, especially when factoring in the costs of energy storage systems like batteries.

Industry Examples

- ▶ **Microsoft** is collaborating with partners to revitalize existing nuclear facilities to ensure a stable power supply for its data centers.
- ▶ **Google** is exploring partnerships to develop small modular reactors (SMRs), which are smaller and easier to build than traditional reactors.
- ▶ **Amazon** has committed \$500 million to establish nuclear-powered data centers.

Global Trends:

The interest in nuclear power is not confined to the U.S.

- ▶ **India, for example**, is planning to triple its nuclear capacity to 22,480 MW by 2032, aiming for 25% of its electricity from nuclear sources by 2050. Major investments are being made in nuclear projects, and collaborations are forming to develop new technologies.
- ▶ Global electricity consumption from data centers, artificial intelligence and the cryptocurrency sector is expected to double from an estimated 460 terawatt-hours (TWh) in 2022 to more than 1,000 TWh in 2026 (International Energy Agency).

Challenges Ahead

- **Regulatory Hurdles:** Given the complex legal and safety regulations, there is need to navigate regulations before new projects can commence.

- **Public Perception:** Nuclear energy still faces skepticism from the public, stemming from past accidents and fears of safety risks.

- **Environmental Risk:** Nuclear energy isn't without its controversy. Many climate activists oppose such supplies, citing their hazardous environmental and safety risk

- **Investment Allocation:** There's a concern that focusing on nuclear might divert funds from developing renewable energy sources like solar and wind.

Small modular reactors (SMRs)

- **Small modular reactors (SMRs)** are **advanced nuclear reactors** that have a power capacity of up to 300 MW(e) per unit, which is about one-third of the generating capacity of traditional nuclear power reactors.
- SMRs represent a new wave of nuclear technology that aims to address safety and construction challenges. These reactors are designed to be built in factories and transported to sites, offering several advantages:
 - ▶ **Safety:** Smaller size reduces complexity and potential risks.
 - ▶ **Scalability:** They can be constructed incrementally, aligning with demand.



IMP

INTENSIVE MAINS PROGRAMME

**COMPLETE
GS MAINS READINESS
(GS PAPER
1, 2, 3, 4 & ESSAY)
in**

4 MONTHS

₹
**COURSE FEE
₹ 38,000 +GST**

Scan
QR Code
for
Batch
Details



IAS MAINS 2025

- 1** Intensive & in-depth classes covering GS Paper 1,2,3,4 & Essay
- 2** Daily Answer Writing for effective Retention & Articulation
- 3** Critical Thinking & Analytical Skill Development to excel in Mains
- 4** Classes on Ethics, Case Studies and Essay Writing
- 5** Comprehensive Mains Test Series of 21 Tests: (12 Sectional + 5 Essay + 4 Mock)
- 6** Personalised Mentorship to track individual progress
- 7** Mains Previous Year Questions Practice Module with detailed Discussion
- 8** 120+Hr Mains Updation Classes after Prelims
- 9** Advance Study Material

SECTION - B

QUICK BYTES

ATMOSPHERIC RIVERS ARE SHIFTING POLEWARD

CONTEXT

Atmospheric rivers are shifting toward higher latitudes, and that's changing weather patterns around the world.

What are Atmospheric Rivers?

- **Atmospheric rivers** are large, narrow sections of the Earth's atmosphere that carry moisture from the Earth's tropics near the equator to the poles.
- Similar to terrestrial rivers, atmospheric rivers can vary in strength and size. They carry massive amounts of moisture.
- On average, the Earth has four to five active atmospheric rivers at any time.
- **Occurrence:** They can occur both in the:
 - ▶ **Northern hemisphere** – typically between December and February
 - ▶ **Southern hemisphere** – typically between June and August, when extratropical cyclones are prevalent
- Each moves the equivalent of the liquid water that flows through the mouth of the Amazon River. When they

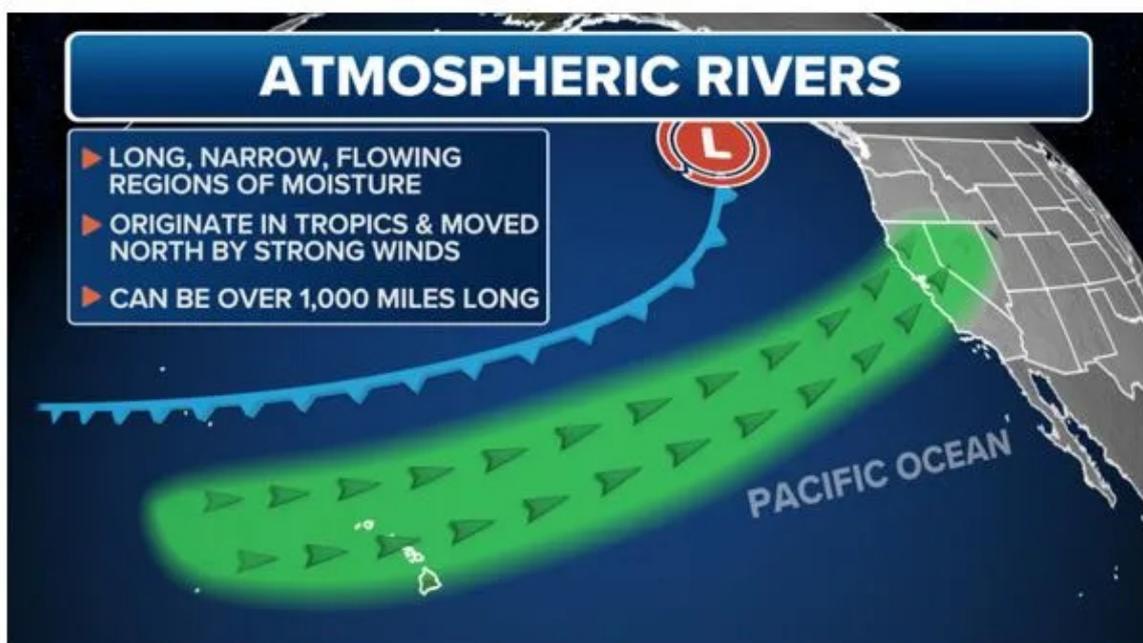


Figure No. 05

reach land, atmospheric rivers release this moisture, producing heavy snow and rain.

- **Role of atmospheric rivers:**
 - ▶ Atmospheric rivers are responsible for 90 percent of the movement of moisture from the tropics toward the poles.

They are a major factor in the formation of clouds and therefore have a significant influence on air temperatures, sea ice, and other components of the climate.

DANA, SEVERE CYCLONIC STORM

CONTEXT

The **India Meteorological Department (IMD)** has announced the development of a **low-pressure system** over the **East-central Bay of Bengal**, which is expected to intensify into a **severe cyclonic storm**, named **"Dana"**.

The Naming of Cyclones

- The process of naming cyclones in the **North Indian Ocean** follows a structured convention initiated by the **WMO/ESCAP Panel on Tropical Cyclones**.
- **Countries Involved**
 - ▶ **Original Group:** In 2000, a group comprising **Bangladesh, India, the Maldives, Myanmar, Oman, Pakistan, Sri Lanka, and Thailand** began naming cyclones.
 - ▶ **Expansion:** In 2018, the panel expanded to include **Iran, Qatar, Saudi Arabia, the UAE, and Yemen**.
 - ▶ **Total Names:** The IMD has a list of 169 cyclone names, with 13 suggestions from each of the 13 member countries.
- **Naming Conventions:** Countries must adhere to specific guidelines when proposing names:
 - ▶ **Neutrality:** Names should not reference political figures, religions, or cultures.
 - ▶ **Sensitivity:** Names must not offend any global population group.
 - ▶ **Length:** Names should be short, easy to pronounce, and contain no more than eight letters.
 - ▶ **Originality:** A name cannot be repeated until all others on the list have been used.
 - ▶ **Pronunciation:** Each proposed name must include its pronunciation.
- **Naming cyclones serves several important purposes:**
 - ▶ **Memorability:** Names are easier to remember than numbers or technical terms.
 - ▶ **Awareness:** Named storms facilitate public awareness and media reporting.
 - ▶ **Preparedness:** They enhance community preparedness by enabling rapid dissemination of warnings, especially during multiple cyclonic events.



FACT BOX

What are Cyclones?

- A cyclone is a **large-scale system of air** that rotates around the centre of a **low-pressure area**.
- The cyclone forms around the low-pressure area, called a **depression**, along a zone of cold and warm air exchange called the **'eye wall'**. The eye is the central and calmest part of the cyclone.
- From this eye wall, long, arching cloud and rain systems called **rainbands spiral outwards**, which bring alternating periods of intense rain and calm spells during a cyclone.
- The air circulates inward in an:
 - ▶ **anticlockwise direction in the Northern hemisphere**
 - ▶ **clockwise in the Southern hemisphere**
- **Cyclones are classified as:**
 - ▶ **Extra tropical cyclones** (also called temperate cyclones): They occur outside of the tropic. They have "cold air at their core, and derive their energy from the release of potential energy when cold and warm air masses interact"
 - ▶ **Tropical cyclones:** Tropical cyclones are those which develop in the regions between the Tropics of Capricorn and Cancer
- India is exposed to nearly **10 per cent of the world's tropical cyclones**. More cyclones occur in the **Bay of Bengal** than the **Arabian Sea** and the ratio is approximately 4:1.
- **Worldwide terminology:** Cyclones are given many names in different regions of the world – They are known as:
 - ▶ **Typhoons** in the China Sea and Pacific Ocean
 - ▶ **Hurricanes** in the West Indian islands in the Caribbean Sea and Atlantic Ocean
 - ▶ **Tornados** in the Guinea lands of West Africa and southern USA
 - ▶ **Willy-willies** in north-western Australia
 - ▶ **Tropical cyclones** in the Indian Ocean

KARTARPUR SAHIB CORRIDOR

CONTEXT

In a rare move of cooperation, India and Pakistan have agreed to extend the **visa-free Kartarpur Corridor** for another five years.

About Gurdwara Darbar Sahib Kartarpur

- Gurdwara Darbar Sahib Kartarpur, often called just Kartarpur Sahib, is one of the holiest shrines for Sikhs.

- That is because Sikh Guru, Guru Nanak Dev (the founder of Sikhism) preached there during the last eighteen years of his life.
- In Kartarpur Sahib, Guru Nanak passed away in 1539.
- After **Partition of India in 1947**, Kartarpur Sahib fell on the Pakistan side of the International Border. It is located in Shakargarh Tehsil, Narowal District, in Pakistan's Punjab Province.
- With India being the home for more than 95 per cent of all Sikhs globally, pilgrims from all over India always demanded access to go to Kartarpur Sahib.
- The Kartarpur Corridor was opened in 2019.
- The Corridor facilitates Indian Sikhs' access to the **Gurdwara Darbar Sahib** in Pakistan.
- The corridor allows pilgrims to make the journey without a visa, crossing from India to Pakistan in a symbolic act of religious freedom and cooperation.



FACT BOX

Guru Nanak (1469–1539 CE)

- Guru Nanak** was born in a village called Talwandi ((modern times Nankana Sahib in Pakistan).
- He was the **founder of Sikhism** and the **first of the ten Sikh Gurus**.
- When he was 30 years old, Guru Nanak disappeared for three days during a river bath and many people thought that he had drowned.
- Upon returning, Guru Nanak declared that "There is no Hindu, there is no Muslim" and that humankind should be unified, not divided, by religious labels.
- This, in fact, marked the beginning of his life as a spiritual leader, solemnly affirming the unity of God and, equally so, the brotherhood of man.
- Large-scale travels (Udasis):** He traveled across India, Sri Lanka, Tibet, Afghanistan, and the Arabian Peninsula.
- He wrote many hymns, which **Guru Arjan Dev** compiled in the **Adi Granth**.
- Ten Sikh Gurus:** Guru Nanak, Guru Angad, Guru Amar, Guru Ram Das, Guru Arjan, Guru Hargobind, Guru Har Rai, Guru Har Krishan, Guru Teg Bahadur, and Guru Gobind Singh.
 - Sikh scripture, called the **Guru Granth Sahib**, is referred to as the **Final Guru**.
- The concept of Sikhism includes:**
 - Universal acceptance of all humanity
 - Belief in one God
 - The name of God is Truth, "Sat Nam"
 - Equality of all persons irrespective of their caste, colour, gender, nationality and religion
 - Equality of the sexes is emphasised

CHABAHAH PORT DEAL

CONTEXT

Prime Minister Narendra Modi's recent visit to Russia has drawn attention due to significant discussions on regional connectivity, particularly in his meeting with Iran's newly elected President, Dr. Masoud Pezeshkian. The leaders emphasized the strategic importance of the **Chabahar Port** and the **International North-South Transport Corridor (INSTC)**.

About Chabahar Port

- Chabahar, the deep water port is located on the **Makran Coast of Iran's Sistan-Baluchistan province**.
- It is next to the **Gulf of Oman** and at the mouth of the **Strait of Hormuz**, which is a vital shipping route linking the Middle East to markets in Asia, Europe, and North America.
- Moreover, Chabahar is the **only Iranian port** with direct access to the Indian Ocean.
- In India's context, the port is closer to Gujarat on the west coast. Even from Mumbai, it is just 768 nautical miles away.

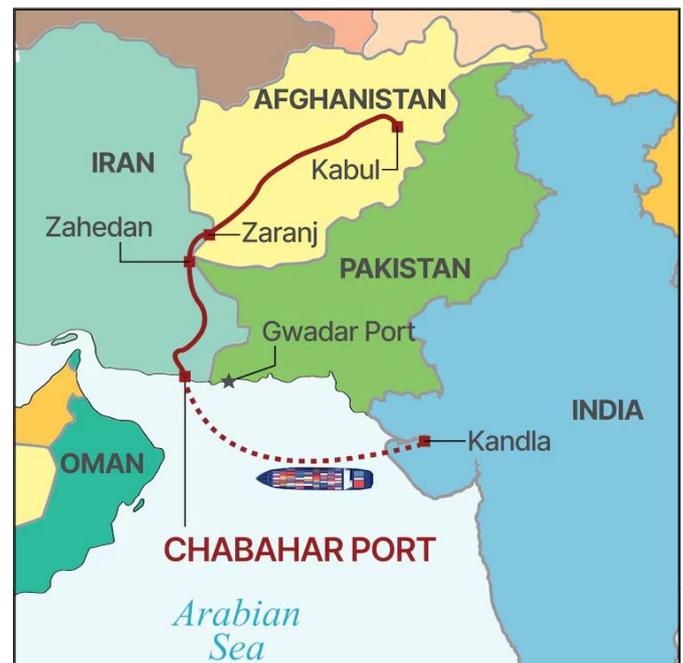


Figure No. 06

- Moreover, **Pakistan's Gwadar port**, in which China has invested heavily, is just 170 km east of Chabahar.
 - The **China-Pakistan Economic Corridor** originates from the Gwadar port.
- From Chabahar port, a road network goes up to **Zaranj in Afghanistan**. From there, the **218-km Zaranj-Delaram road**, constructed with India's assistance, will give access to four major cities - **Herat, Kandahar, Kabul and Mazar-e-Sharif**.
- Significance:**
 - The port, once fully operational, will also give India direct access to resource-rich Central Asian countries like **Turkmenistan and Kazakhstan**.

- ▶ The Chabahar port allows India to cut the time to send goods to Central Asian nations by a third.
- ▶ Besides, it will also connect the **International North-South Transport Corridor (INSTC)** that joins India and Russia via Iran.



FACT BOX

International North-South Transport Corridor (INSTC)

- The INSTC project was initiated by Russia, Iran and India in September 2000.
- At present, there are 13 Members of INSTC, namely- **India, Iran, Russia, Azerbaijan, Armenia, Kazakhstan, Kyrgyzstan, Tajikistan, Turkey, Ukraine, Belarus, Oman and Syria.**
 - ▶ Bulgaria has joined as an Observer State.
- The INSTC is a **multi-modal, cost and time effective** from India to Northern and Western Europe.
- The route links the Indian Ocean and Persian Gulf to the Caspian Sea via Iran and onwards to northern Europe.

- It envisages the movement of goods from **Mumbai, India** to **Bandar Abbas, Iran** by sea, and from **Bandar Abbas** to **Bandar-e Anzali**, an Iranian port on the Caspian Sea, by road.
- From **Bandar-e-Anzali**, the route proceeds to the Russian port city of **Astrakhan** by ship across the **Caspian Sea**, and thereafter from **Astrakhan** to the other regions of the Russian Federation and further into Europe via Russian Railways.

(See Figure No. 7 at bottom)

INDIA-MAURITIUS BILATERAL COOPERATION

CONTEXT:

In a notable step towards enhancing bilateral relations, India has extended a **Line of Credit (LoC)** worth Rs 487.60 crore to the Government of Mauritius. This financial assistance aims to replace approximately 100 kilometers of outdated water pipelines in the island nation. This marks the first-ever rupee-denominated Line of Credit extended by India to any country for project financing under the **Indian Development and Economic Assistance Scheme (IDEAS)**.

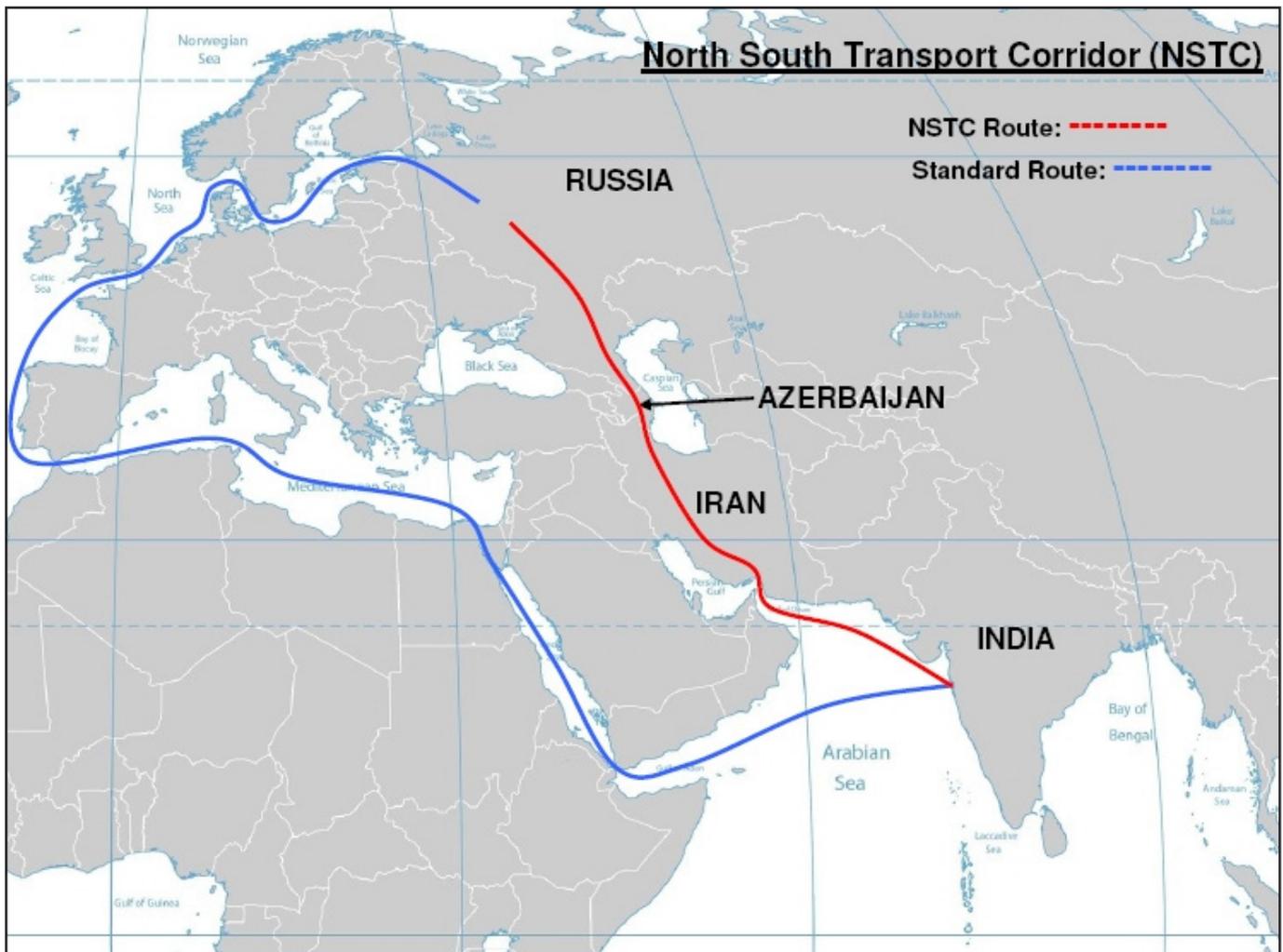


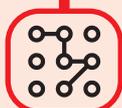
Figure No. 07

**IAS
2025**

PRELIMS TEST SERIES 2025

**4600+
QUESTIONS**

**PRELIMS
PRACTICE
PROGRAMME
(PPP)**



Tests as per **Changing
Pattern** of the **UPSC
Prelims**



**Concept & Essential Skills
Building** through Tests
and their Discussion



Level-wise Questions for
gradual improvement &
exam readiness



One-on-one mentorship
for Personalised Guidance



**Emphasis on both Static &
Current Events** as per the
evolving format



PROGRAMME FEE
₹ 8,500 (+GST)

TOTAL 68 TESTS

33

**SUB SECTIONAL
TESTS**
50 QUESTIONS

12

**SECTIONAL TESTS
(GS & CSAT)**
100 & 50 QUESTIONS

07

**CURRENT AFFAIRS
TESTS**
100 QUESTIONS

16

**MOCK TESTS TESTS
(GS & CSAT)**
100 & 80 QUESTIONS



8448496262



iascore.in

Key Details of the Line of Credit

- **First Rupee-Denominated Line of Credit:** This LoC is the first-ever rupee-denominated Line of Credit extended by India for project financing under the **Indian Development and Economic Assistance Scheme (IDEAS)**.
- Traditionally, India has extended its Lines of Credit in US dollars, but the introduction of a rupee-denominated LOC marks a strategic shift.
- This scheme aims to provide concessional loans to support developmental projects in partner countries.
- **Financing Agency:** The project will be financed by the **State Bank of India (SBI)** on concessional terms, ensuring affordable repayment conditions for Mauritius.
- **Project Objectives:** The primary objective of this financial assistance is to facilitate the replacement of around 100 kilometers of obsolete water pipelines in Mauritius. The existing pipeline infrastructure has been deemed outdated and in need of urgent replacement to ensure efficient water supply and management.

Impact on Mauritius

- ▶ **Infrastructure Improvement:** The project is expected to enhance the reliability and quality of water supply for the residents of Mauritius.
- ▶ **Sustainable Development:** By improving water infrastructure, India aims to contribute to the sustainable development goals of Mauritius, promoting better health and hygiene standards.



FACT BOX

India-Mauritius Relationship

- India and Mauritius formally established diplomatic relations in 1948.
- Their shared history and connections go as far back as **1730** through successive **Dutch, French and British occupation**.
- With over 70% of Mauritius' 1.2 million population being of Indian origin, the two nations enjoy a deep connection that extends beyond formal diplomatic relations.
- The LOC comes at a time when both countries are celebrating the **75th anniversary of the establishment of diplomatic ties**.
- It also aligns with the broader framework of **India's "Act East" policy**, under which India has sought to deepen its engagement with countries across Asia and the Indian Ocean region.

What is IDEAS initiative?

- The IDEAS initiative, under which this LOC has been extended, is India's flagship development assistance programme.

- It aims to support infrastructure, capacity-building, and social welfare projects across **Asia, Africa, and the Caribbean**.
- By providing concessional loans, India enables recipient nations to tackle pressing developmental challenges while avoiding crippling debt burdens.

J&K DEMANDS 'RESTORATION' OF STATEHOOD

CONTEXT

The Jammu & Kashmir Cabinet headed by Chief Minister has passed the resolution for the restoration of statehood.

Constitutional Provisions

- **Article 3 of the Constitution of India** specifies the power of Parliament to **form a new State out of an existing State or by uniting two or more States/territories or by joining any territory to a State**.
- Constitutionally, it is the **President** who has the **power to initiate** the process for creation of new state or states.
- He can do it on his own or he can do it in consultation with the state from which new state has to be carved out. Such state or states can request the President about its willingness to carve a new state out of its/their existing size.
- The concerned state or states do so by passing a resolution in the state legislature to this effect.
- In the light of the resolution, the President may ask the Union government to present a bill for passage in the both houses of Parliament.
- If passed by the both houses, it is sent to President for getting his/her consent, after President gives consent, the (bill/decision) is notified and the process of creation of the new state begins.

UDAN SCHEME

CONTEXT

The Indian government plans to extend the '**UDAN**' (**Ude Desh ka Aam Nagrik**) regional air connectivity scheme for 10 more years.

About UDAN Scheme

- **Launched in:** 2016
- The **Regional Connectivity Scheme (RCS)-UDAN (Ude Desh Ka Aam Naagrik)** is a regional connectivity scheme.
- It is a vital component of India's **National Civil Aviation Policy (NCAP) 2016**, launched by the **Ministry of Civil Aviation (MoCA)** in 2016, with a 10-year vision.
- The **Centre's UDAN (Ude Desh ka Aam Nagrik) scheme** aimed at enhancing regional air connectivity and making flying more affordable was introduced in 2016 for 10 years.

- The UDAN scheme aims to establish air connectivity in underserved regional areas.
- The Scheme offers financial incentives to selected airlines, comprising concessions from central and state governments and airport operators.
- The government, under the scheme, provides financial assistance to selected airline operators through **Viability Gap Funding (VGF)**.
- Notably, the scheme was initially launched for the period of 10 years, and now the government intends to extend this for 10 more years.
- **Implementing Agency:** Airport Authority of India (AAI)
- **Progress so far:**
 - ▶ Under UDAN, 601 routes and 86 airports have been made operational, serving over 14.4 million passengers thus far.
 - ▶ Notably, the first flight under 'UDAN' scheme was inaugurated by Prime Minister Narendra Modi on April 27, 2017. This was from Shimla to Delhi.
 - ▶ The scheme aims to provide opportunities to small regional airlines to scale up their businesses.

SAUDI ARABIA'S MUSANED PLATFORM

CONTEXT

As part of its Vision 2030 initiative, Saudi Arabia is implementing a series of digitally enforceable measures aimed at improving the **working conditions of foreign workers**, including a significant population from India. The new regulations are intended to **safeguard workers' rights, enhance transparency, and reduce illegal immigration.**

About Musaned Platform

- Musaned is a digital platform to ensure wage protection, human rights of expat workers
- ▢ **Key Features**
 - ▶ **Digital Contract Management:** The Musaned platform enables foreign workers in the domestic sector to access their employment contracts and stay updated through a dedicated app. This system aims to streamline communication and reduce disputes.
 - ▶ **View Access for Embassies:** Foreign embassies will have access to the Musaned system, allowing them to view all pertinent details about their citizens' employment in Saudi Arabia. This initiative is designed to facilitate quicker resolution of labor disputes.
 - ▶ **Wage Protection System:** One of the platform's most crucial features is its wage protection system, which ensures that employers fulfill their contractual obligations to pay monthly wages. The digital tracking of financial transactions aims to prevent wage theft and other abuses.
- **Targeted Countries:** The Musaned platform will benefit a diverse group of countries, including:

- ▶ **African Countries:** Sudan, Ethiopia, Uganda, Egypt, Kenya
- ▶ **Asian Countries:** India, Bangladesh, Pakistan, Vietnam, Philippines, Sri Lanka

Workforce Composition

- ▶ **Indian Workers:** India is home to approximately 1.4 million workers in Saudi Arabia, primarily in the domestic sector, making it the second-largest contributor after Bangladesh, which provides around 2.7 million workers.
- ▶ **Pakistani Workers:** Pakistan contributes approximately 2.1 million workers in similar roles.



FACT BOX

Current Labor Laws in India

- In India, labour matters fall under the **Concurrent List**, both Parliament and state legislature hold the authority to enact relevant laws.
- Prior to the introduction of the **New Labor Code**, the central government identified over 40 central laws and more than 100 state laws that addressed various labor matters.
- The **Second National Commission on Labour (2002)** identified the need for reforms to streamline and consolidate existing labor laws. This led to the recommendation of **four main labor codes**, which are aimed at simplifying and modernizing the labor regulatory framework. These codes are:
 - ▢ **Code on Wages (2019)**
 - ▶ Consolidates existing wage-related laws.
 - ▶ Establishes minimum wages and ensures timely payment.
 - ▶ Aims to promote fair wages across various sectors.
 - ▢ **Code on Social Security (2020)**
 - ▶ Provides a framework for social security benefits for workers.
 - ▶ Extends benefits to unorganized sector workers and gig workers.
 - ▶ Includes provisions for maternity benefits, health insurance, and pensions.
 - ▢ **Industrial Relations Code (2020)**
 - ▶ Aims to promote harmonious industrial relations.
 - ▶ Simplifies the process for forming trade unions and negotiating collective agreements.
 - ▶ Introduces provisions for dispute resolution and strikes.

Occupational Safety, Health, and Working Conditions Code (2020)

- ▶ Establishes comprehensive health and safety standards for workplaces.
- ▶ Mandates regular safety audits and health checks.
- ▶ Aims to ensure safe working conditions for all employees.
- Important portals for labor rights in India:
 - ▶ Shram Suvidha Portal
 - ▶ SAMADHAN Portal
 - ▶ National Portal of India

- The Chief Justice of India holds office until the age of 65 years or until retirement, whichever is earlier.
- If a Chief Justice demits office, the President appoints the next senior-most judge of the Supreme Court as the new Chief Justice.
- The process is designed to ensure the independence of the judiciary and the continuity of leadership within the Supreme Court.

CHIEF JUSTICE OF INDIA (CJI)

CONTEXT

Chief Justice of India (CJI) Dhananjaya Y Chandrachud set in motion the process for appointing his successor by recommending justice Sanjiv Khanna, the Supreme Court's senior-most judge, to the Union government.

Who is a CJI?

- The Chief Justice of India (CJI) is appointed by the President of India.
- The process of appointment involves consultation between the President and the current Chief Justice of India, as well as other key officials.
- The procedure is outlined in **Article 124 of the Indian Constitution**.
- **Appointment Consultation:** The President of India, while appointing the Chief Justice of India, is required to consult with the following individuals:
 - ▶ The Chief Justice of India
 - ▶ The Judges of the Supreme Court and High Courts as the President deems necessary.
- **Recommendation by the Outgoing CJI:** Typically, the outgoing Chief Justice of India recommends the name of the most senior judge of the Supreme Court as the next Chief Justice. The seniority is determined based on the length of service as a judge.
- **President's Decision:** After consultations and considering the recommendations, the President makes the final decision on the appointment of the Chief Justice of India.
- **Oath of Office:** Once appointed, the new Chief Justice of India takes the oath of office before the President. It's important to note that the appointment of the Chief Justice of India is based on the principle of seniority, and the most senior judge of the Supreme Court is typically appointed to the position.
- However, the President is not bound by the principle of seniority and has the discretion to appoint any judge of the Supreme Court as the Chief Justice.

CENTRE FINALISES STRICTER NORMS FOR DISABILITY CERTIFICATES

CONTEXT

Union Government notified amendments to the **Rights of Persons with Disabilities (RPwD) Rules, 2024**, tightening the norms for getting a disability certificate. However, the **National Platform for the Rights of the Disabled (NPRD)** denounced them and called for their withdrawal.

Key Changes in the Amendments

The amendments were introduced in the wake of the controversy surrounding **Puja Khedkar**, a dismissed IAS probationer accused of falsifying her disability certificate.

- Broadly, the new norms have brought changes in the process of applications made to obtain Unique Disability Identity (UDID) cards and the process of issuance of these cards.
 - ▶ The new norms also introduced **colour-coded white, yellow and blue UDID cards** signifying ascending levels of disability, with blue being the highest, for persons having disability at 80 per cent and above.
 - ▶ The **UDID project** initiated by **Department of Empowerment of Persons with Disabilities** aims at building a holistic end-to-end integrated system for **Issuance of Universal ID & Disability Certificates for Person with Disabilities** with their identification and disability details.
- **Proof of Identity Requirements:** Individuals applying for a disability certificate must now submit proof of identity, including a photo taken within the last six months and an Aadhaar card.
- **Medical Authority Involvement:** Only medical authorities are deemed competent to process applications for disability certificates. This restricts the involvement of other relevant bodies, potentially complicating the certification process.
- **Extended Processing Time:** The time required to process applications has been increased from one month to three months, potentially delaying access to necessary support and services for individuals with disabilities.
- **Lapsed Applications:** A new clause in **Rule 18** allows applications to become inactive if not decided upon within two years, requiring applicants to reapply or reactivate their application, adding further bureaucratic hurdles.



FACT BOX

Types of Disabilities

As per the **Persons with Disabilities (Equal Opportunities, Protection of Rights & Full Participation) Act, 1995** - A person with disability can be defined as one with one or more of disabilities falling under any of the below mentioned categories:

- **Blindness:-** "Blindness" refers to a condition where a person suffers from any of the following conditions namely:-
- **Total absence of sight;** or Visual acuity not exceeding 6/60 or 20/200 (Snellen) in the better eye with correcting lenses; or **Limitation of the field of vision** subtending an angle of 20 degree or worse;
- **Cerebral Palsy:-** "Cerebral Palsy" means a group of non-progressive conditions of a person characterized by abnormal motor control posture resulting from brain insult or injuries occurring in the pre-natal, perinatal or infant period of development;
- **Low vision:-** "Low vision" means a person with impairment of visual functioning even after treatment of standard refractive correction but who uses or is potentially capable of using vision for the planning or execution of a task with appropriate assistive device;
- **Locomotor disability:-** "Locomotor disability" means disability of the bones, joints or muscles leading to substantial restriction of the movement of the limbs or any form of cerebral palsy;
- **Leprosy-cured:-** "Leprosy-cured person" means person who has been cured of leprosy but is suffering from-
 - ▶ **Loss of sensation** in hands or feet as well as loss of sensation and paresis in the eye and eye-lid but with no manifest deformity;
 - ▶ **Manifest deformity and paresis** but having sufficient mobility in their hands and feet to enable them to engage in normal economic activity;
 - ▶ **Extreme physical deformity** as well as advanced age which prevents him from undertaking and gainful occupation and the expression "Leprosy Cured" shall be construed accordingly;
- **Mental retardation:-** "Mental retardation" means a conditions of arrested or incomplete development of mind of a person which is specially characterized by sub normality of intelligence;
- **Mental illness:-** "Mental illness" means any mental disorder other than Mental retardation
- **Hearing Impairment:-** "Hearing Impairment" means loss of sixty decibels or more in the better ear in the conversational range of frequencies

FORTIFIED RICE

CONTEXT

Recently, the Indian government's initiative to implement the **universal supply of fortified rice** has come under scrutiny. Concerns have been raised regarding the safety of fortified rice and allegations that the approval was influenced by multinational companies. In response, the **Union Food Ministry** has asserted that fortified rice is a critical measure aimed at combating micronutrient deficiencies in the country.

What is Fortified Rice?

- Fortified rice refers to rice that has been enhanced with essential vitamins and minerals to address nutrient deficiencies in the population.
- This process involves adding micronutrients, such as **iron, folic acid, and other vitamins**, to improve the nutritional quality of rice, which is a staple food for many in India.
 - ▶ **Purpose:** The primary goal of rice fortification is to combat micronutrient deficiencies prevalent in India, particularly among vulnerable populations such as children and pregnant women.
 - ▶ **Safety Considerations:** Scientific evaluations conducted by various committees have indicated that **fortified rice is safe for consumption**, even for individuals with conditions like **Thalassemia and Sickle Cell Anemia**. The Ministry emphasizes that the **iron content in fortified rice is minimal and poses no significant health risks**.
 - ▶ **Implementation:** The rice fortification program began in 2019 and has expanded significantly. Currently, a large network of manufacturers and rice mills across India is equipped to produce and distribute fortified rice efficiently.
- **Fortified Staple food:** India is giving a massive push to fortify daily staples like cereals and milk with minerals and vitamins as a solution to micronutrient deficiency.
 - ▶ So far, India has developed fortification standards for **rice, wheat, edible oils, salt and milk**.
- **Science behind rice fortification:**
 - ▶ Under the fortification scheme, **milled broken rice** is ground to dust and a premix of vitamins and minerals is added to it.
 - ▶ Thereafter, an extruder machine is used to produce **fortified rice kernels (FRK)** resembling rice grains.
- The kernels are then mixed in a **1:100 ratio** with regular rice to produce fortified rice. The cost to the consumer is estimated to be less than 50 paisa per kg.
- Rice kernels can be fortified with several micronutrients, such as **iron, folic acid and other B-complex vitamins, vitamin A and zinc**.

(See Figure No. 08 on next page)

WHAT IS FORTIFIED RICE?

Fortification is the practice of deliberately increasing the content of an essential micronutrient, i.e. vitamins and minerals (including trace elements) in food to improve its nutritional quality and provide a public health benefit with minimal risk to health



➤ The fortification factor does not last for more than **45 days**, so it isn't advisable to store fortified rice for long

➤ According to National Family Health Survey, **78.7%** children and **75%** in the district are anaemic and suffer from malnutrition

➤ In the first phase, fortified rice will be distributed in Badangi, Bobbili, Ramabhadrapuram and Terlam mandals

Figure No. 08

APPROVAL OF COBENFY FOR SCHIZOPHRENIA

CONTEXT

In 2023, the **U.S. Food and Drug Administration (FDA)** approved a new medication called **Cobenfy** for the treatment of **schizophrenia**. This approval is significant as it introduces a novel approach to managing this serious mental health disorder, which affects about 1 in 100 people globally.

What is Cobenfy?

- Cobenfy is a combination of two drugs: **xanomeline and trospium chloride**.
- It works differently from **traditional antipsychotic medications**, which primarily target **dopamine receptors in the brain**.
- Instead, Cobenfy targets **cholinergic receptors**, which are part of the **parasympathetic nervous system**.
- This unique mechanism may help alleviate symptoms without the severe side effects often associated with older antipsychotic drugs.

■ The Role of Neurotransmitters

- Traditionally, the dopamine hypothesis has been used to explain schizophrenia, suggesting that overactivity of dopamine in the brain leads to symptoms. However, newer research points to a more complex

interplay involving other neurotransmitters, such as glutamate.

➤ Xanomeline and Trospium

- ◆ **Xanomeline:** This compound stimulates cholinergic receptors and has shown potential in improving various symptoms of schizophrenia. However, it previously faced setbacks due to side effects.

- ◆ **Trospium Chloride:** This medication acts as an **antimuscarinic agent**, potentially reducing the side effects associated with xanomeline.

- **Side Effects and Cost:** Cobenfy has its own side effects, which may include: **Nausea, Indigestion, Hypertension, Increased heart rate, Dizziness**

- The monthly cost of Cobenfy is approximately USD 1,850, making it an expensive option for many patients.



FACT BOX

Schizophrenia

- Schizophrenia is a complex psychiatric disorder characterized by symptoms such as:
 - **Positive Symptoms:** Delusions and hallucinations.

- ▶ **Negative Symptoms:** A lack of motivation, reduced emotional expression, and social withdrawal.
- ▶ **Disorganized Symptoms:** Confused speech and behavior.
- The impact of schizophrenia is profound, leading to **social isolation, stigma**, and a significantly reduced life expectancy—often 13 to 15 years shorter than average. Individuals with schizophrenia also face a higher risk of suicide, with about 5% of patients taking their own lives.
- **Symptoms and Diagnosis:** Schizophrenia typically manifests in late adolescence or early adulthood, with men generally experiencing symptoms in their early 20s and women in their mid- to late 40s. Early symptoms may include:
 - ▶ Irritability
 - ▶ Anxiety
 - ▶ Social withdrawal
- For diagnosis, symptoms are categorized into three groups:
 - ▶ **Positive Symptoms:** Such as hallucinations and delusions.
 - ▶ **Negative Symptoms:** Including a lack of emotional expression and reduced motivation.
 - ▶ **Disorganized Symptoms:** Difficulties in speech and behavior.
- **Causes of Schizophrenia:** Schizophrenia is considered a multifactorial disorder influenced by both genetic and environmental factors. Key insights include:
 - ▶ **Genetics:** Numerous genes have been linked to schizophrenia risk. Unlike single-gene disorders, schizophrenia arises from the interplay of many genes, each contributing a small effect.
 - ▶ **Environmental Factors:** Complications during pregnancy and birth can increase the risk of developing schizophrenia, especially when combined with genetic predispositions.

E. COLI OUTBREAK

CONTEXT

A deadly outbreak of E. coli (E. coli O157:H7 strain) in the US, linked to McDonald's Quarter Pounder hamburgers has swept across 10 states, leaving one person dead and dozens hospitalised.

About E.coli:

- E. coli is a bacterium found in the intestines of animals and in the environment, including water and food.
- People can get sick from **E. coli poisoning** when they consume contaminated foods or through contact with animals, the environment or other people who are infected.

- While many strains are harmless, some can lead to serious illness.
- E. coli O157:H7 strain produces a toxin that can result in severe diarrhoea, kidney failure, and other serious health issues.
 - ▶ Severe cases can lead to **hemolytic uremic syndrome (HUS)**, a life-threatening complication affecting the kidneys.
- **Symptoms:** Fever, stomach cramps, and bloody diarrhoea, and the incubation period for E. coli is relatively short, with symptoms appearing within a few days of infection.
- **E. coli** can be contagious. It can spread from person to person, especially through improper hand hygiene after using the bathroom or changing diapers.

GUT-BRAIN CONNECTION TO PARKINSON'S DISEASE

CONTEXT

Recent research has highlighted a potential "**gut-brain connection**" in **Parkinson's Disease (PD)**, shifting the traditional understanding of this **neurodegenerative disorder**. As scientists investigate how gastrointestinal health may influence PD, findings suggest that gut-related symptoms could **precede classic motor symptoms** by many years.

What the Research Has Found?

A notable study published in JAMA Network Open revealed that patients with a history of **upper gastrointestinal mucosal damage (MD)** had a **76% increased risk of developing PD**. This finding underscores the importance of gastrointestinal health in understanding and potentially diagnosing **Parkinson's Disease**.

- **Gastrointestinal Dysfunction:** Numerous studies have indicated that gastrointestinal symptoms, particularly constipation, can manifest years before the diagnosis of PD. Many patients report these symptoms up to 20 years prior to the onset of motor symptoms, suggesting that PD may begin in the gut rather than solely in the brain.
- **Gut Microbiome Influence:** The gut microbiome—comprising trillions of microorganisms—plays a significant role in various bodily functions, including immune response and metabolism. **Dysbiosis**, or an imbalance in gut bacteria, has been linked to various neurological conditions, including PD.
- **Alpha-Synuclein Aggregation:** A major breakthrough in understanding the gut's involvement in PD is the discovery of **alpha-synuclein protein** aggregates, which form Lewy bodies found in both the brain and the gut of PD patients. These aggregates appear in the enteric nervous system before they are detected in the brain, indicating a possible pathway for the disease's progression.
- **Dietary Factors:** The composition of gut microbiota is influenced by dietary habits, such as the consumption of

IAS
2025

PRELIMS TEST SERIES 2025

COMPLETE REVISION
through TEST
(CRT)

TOTAL 46 TESTS

14

FUNDAMENTAL
TESTS

06

SUBJECT
REVISION
TESTS

04

CURRENT
AFFAIRS
REVISION
TESTS

06

CSAT TESTS

16

MOCK TESTS
(GS & CSAT)



Tests as per **Changing Pattern** of the **UPSC Prelims**



Concept & Essential Skills Building through Tests and their Discussion



Level-wise Questions for gradual improvement & exam readiness



One-on-one mentorship for Personalised Guidance



Emphasis on both Static & Current Events as per the evolving format



PROGRAMME FEE
₹ 6,500 (+GST)



8448496262



iascore.in

ultra-processed foods and antibiotic misuse. Maintaining good gut hygiene through a balanced diet and healthy habits may help mitigate risks associated with PD.

- **Potential for Early Diagnosis and Treatment:** The recognition of gastrointestinal symptoms and their connection to alpha-synuclein in the gut opens new avenues for early diagnosis and treatment of PD. Targeting gut health may lead to innovative approaches to slow or potentially prevent disease progression.



FACT BOX

Parkinson's Disease

- Parkinson's disease is a condition where a part of brain deteriorates, causing more severe symptoms over time.
- It is an **age-related degenerative brain condition**
- It **causes parts of your brain to deteriorate**. It's best known for **causing slowed movements, tremors, balance problems** and more.
- **Cause:** Most cases happen for unknown reasons, but some are inherited.
- **Cure:** The condition isn't curable, but there are many different treatment options.

ANCIENT METEORITE IMPACT ("FERTILIZER BOMB")

CONTEXT

Around **3.26 billion years ago**, a **massive meteorite** struck Earth, causing **catastrophic destruction**. This meteorite was estimated to be 23 to 36 miles wide (37 to 58 km), making it 50 to 200 times the size of the asteroid that caused the **dinosaurs' extinction**. Despite the devastation, this event may have actually helped early life on our planet.

About

- The meteorite (named S2) was a type called a **carbonaceous chondrite** that is rich in **carbon** and also contains **phosphorus**.
- Its diameter was approximately 23-36 miles (37-58 km), making it about 50-200 times the mass of the asteroid that wiped out the dinosaurs, aside from their bird descendants.
- It was the size of four Mount Everests.
- Before the S2 meteorite struck Earth, the planet was still young and looked different compared to today.
- It was mostly a water world with only a few landmasses sticking out of the sea, and life consisted of simple, **single-celled microorganisms**.
- **The Impact:** The meteorite was a carbonaceous chondrite, rich in carbon and phosphorus.
 - **Immediate Effects:** The impact was incredibly powerful, vaporizing the rock it hit and creating a

cloud of dust that darkened the sky. This would have led to a tsunami and caused severe heating, with upper ocean layers starting to boil.

- **Destruction of Life:** The initial aftermath would have wiped out many microorganisms that relied on sunlight, particularly those in shallow waters.
- The colossal impact wiped **T-Rex and Stegosaurus** from the face of Earth and reshaped the course of evolution.
- **Benefits:** Despite the destruction, the impact delivered essential nutrients to the environment:
 - **Nutrients Delivered:** The meteorite brought phosphorus, a crucial nutrient for life, especially for the molecules that store and transmit genetic information.
 - **Mixing of Waters:** The tsunami mixed iron-rich deep waters with shallow waters, creating conditions favorable for microbial life, as iron provides energy for many microorganisms.



FACT BOX

Meteorites

- Meteorites are space rocks that fall to Earth's surface.
- **Meteorites** are the last stage in the existence of these type of space rocks. Before they were meteorites, the rocks were meteors. Before they were meteors, they were **meteoroids**.
- **Meteoroids** are lumps of rock or metal that orbit the sun.
- Meteoroids become **meteors** when they crash into Earth's atmosphere and the gases surrounding them briefly light up as "shooting stars."
- While most meteors burn up and disintegrate in the atmosphere, many of these space rocks reach Earth's surface in the form of meteorites.

GRAM PANCHAYAT-LEVEL WEATHER FORECASTING

CONTEXT

The **Ministry of Panchayati Raj (MoPR)**, in collaboration with the **India Meteorological Department (IMD)**, **Ministry of Earth Sciences (MoES)**, is set to launch a landmark and a transformative initiative to provide Gram Panchayats with **5 days daily weather forecasting** and provision to check hourly weather forecast – **Gram Panchayat-Level Weather Forecasting**.

About the initiative

- This initiative is aimed at **empowering rural communities** and **enhancing disaster preparedness** at the grassroots.

- It will directly benefit farmers and villagers across the country.
- As part of the **Government's 100 Days Agenda**, this initiative strengthens grassroots governance and promotes sustainable agricultural practices, making rural populations more climate-resilient and better equipped to tackle environmental challenges.
- **This is the first time that localized weather forecasts will be available at the Gram Panchayat level, supported by IMD's expanded sensor coverage.**
- The forecasts will be disseminated through the **Ministry's digital platforms**:
 - **e-GramSwaraj**, which enables efficient governance, project tracking, and resource management
 - **Meri Panchayat app**, which fosters community engagement by allowing citizens to interact with local representatives and report issues
 - **Gram Manchitra**, a spatial planning tool that provides geospatial insights for development projects

RISING CYBER FRAUD IN INDIA

CONTEXT

India is facing a staggering increase in cyber fraud, with projections from the Indian Cyber Crime Coordination Centre (I4C) estimating potential losses of over Rs 1.2 lakh crore in the next year. This alarming figure highlights the escalating threat of cybercrime, particularly involving illicit transactions through mule bank accounts.

Key Findings

▣ Sources of Cyber Fraud

- **International Origins:** A significant proportion of scams are traced back to China and Chinese-linked entities. Other origins include Cambodia and Myanmar, where scam operations often resemble call centers.
- **Domestic Scams:** There are also scams run within India, where money is siphoned off after being transferred through multiple accounts.
- **Mule Bank Accounts:** Mule bank accounts are financial accounts used to facilitate illegal transactions and money laundering. They play a critical role in enabling cybercriminals to execute scams while obscuring their identity.
 - ◆ **Prevalence:** Investigating agencies identify approximately 4,000 mule bank accounts daily, indicating the widespread nature of this issue.

▣ Economic Impact

- **Projected Losses:** The financial impact of these scams could reach 0.7% of India's GDP, threatening to cripple the economy.
- **Recent Data:** From January to June 2023, reported losses from financial fraud amounted to Rs 11,269 crore, as documented through the **Ministry of Home Affairs (MHA) cybercrime portal and helpline.**

Government Measure to tackle Cyber Crimes in India

- **Cybercrime Prevention against Women and Children (CCPWC) Scheme:** It supports financially to States/UTs for developing capabilities of Law Enforcement Agencies in investigating cyber-crimes.
- **Joint Cyber Coordination Teams:** Constituted to enhance coordination among Law Enforcement Agencies of States/UTs, particularly in areas with multi-jurisdictional issues related to cyber-crimes.
- **CyTrain Portal:** A Massive Open Online Courses (MOOC) Platform to empower police officers, judicial officers, and prosecutors through online courses on critical aspects of cyber-crime investigation, forensics, and prosecution through capacity building.
- **Indian Cyber Crime Coordination Centre (I4C):** It coordinates all activities to tackle all types of cyber-crimes across the country.
- **National Cyber Forensic Laboratory:** It provides early-stage cyber forensic assistance to Investigating Officers of all State/UT Police through both online and offline modes.
- **National Cyber Crime Reporting Portal:** A reporting Platform for victims to report incidents of cyber-crimes, with a special focus on crimes against women and children.
- **Citizen Financial Cyber Fraud Reporting and Management System:** It is a dynamic system for immediate reporting of financial frauds and assistance in lodging online cyber complaints through a toll-free helpline.
- **Cyber Surakshit Bharat Initiative:** It was launched in 2018 with an aim to spread awareness about cybercrime and build capacity for safety measures for Chief Information Security Officers (CISOs) and frontline IT staff across all government departments.
- **National Cybersecurity Coordination Centre (NCCC):** Its mandate is to scan internet traffic and communication metadata (which are little snippets of information hidden inside each communication) coming into the country to detect real-time cyber threats.
- **Cyber Swachhta Kendra:** In 2017, this platform was introduced for internet users to clean their computers and devices by wiping out viruses and malware.
- **National Computer Emergency Response Team (CERT-In)** functions as the nodal agency for the coordination of all cyber security efforts, emergency responses, and crisis management.
- **Information Technology Act, 2000:** The Act regulates the use of computers, computer systems, computer networks and also data and information in electronic format.

INDIA LAUNCHES FOURTH NUCLEAR-POWERED SUBMARINE

CONTEXT

India launched its fourth **nuclear-powered ballistic missile submarine (SSBN)** at the Ship Building Center (SBC) in Visakhapatnam, enhancing its nuclear deterrence capabilities. This launch follows the commissioning of the second SSBN, INS Arighat in August 2024. The third SSBN, INS Aridhaman, is slated for commissioning next year.

About

- S4* (codename) is the fourth nuclear-powered ballistic missile submarine (SSBN)
 - ▶ **Naming:** India's first leased nuclear attack submarine **INS Chakra** was named as S1, **INS Arihant** was named S2, **INS Arighaat** S3, **INS Aridhaman** S4 and hence the newly launched one is the last of its class, S4* with the formal name yet to be given.
- The newly launched S4* submarine boasts nearly **75 per cent indigenous content** and is equipped with **K-4 ballistic missiles**, which have a range of 3,500 km and are fired through vertical launching systems.
- While the first SSBN, **INS Arihant**, carries K-15 nuclear missiles with a range of 750 km, the successors, including S4*, are equipped exclusively with K-4 missiles.
- These submarines have virtually unlimited range and endurance, with operational limits being defined only by food supplies, crew fatigue, and maintenance needs.



FACT BOX

Nuclear Submarine

- India's nuclear submarines are advanced naval vessels powered by nuclear reactors, enabling them to operate underwater for extended periods without the need to surface frequently.
- Nuclear-powered submarines are of three kinds.
 - ▶ **SSN:** The one that carries conventional weapons is called an SSN.
 - ▶ **SSGN:** The second type is capable of carrying guided missiles with conventional warheads.
 - ▶ **SSBN:** The third, and typically the largest and most complex, is the one that is capable of carrying ballistic missiles that may be nuclear armed — an SSBN.
- The SSBN can remain under water for months, and their range limitation is only due to logistics, supplies and crew changes.
- **India's SSBN:**
 - ▶ **INS Chakra (S1):** It was India's first leased nuclear attack submarine.

- ▶ **INS Arihant (S2):** India launched its first indigenous SSBN in 2009 and commissioned it in 2016.
- ▶ **INS Arighaat (S3):** This year, the Indian Navy inducted its second SSBN, INS Arighaat in August 2024.
- ▶ **INS Aridhaman (S4):** The third submarine, INS Aridhaman, is expected to be commissioned in 2025.
- **INS Arihant and INS Arighat** are already on deep-sea patrols, and India is set to receive a Russian Akula-class nuclear-powered attack submarine on lease by 2028.
- In parallel, the **sixth diesel-electric Kalvari-class submarine, INS Vagsheer**, is expected to be commissioned in December this year.
- India's SSBNs are critical to its strategy against adversaries like China, as aircraft carriers are increasingly vulnerable to Chinese long-range missiles such as the **Dong Feng-21 and Dong Feng-26**.
- **India's nuclear policy:**
 - ▶ India's policy is to have '**Credible Minimum Deterrence**' (CMD) that underpins its '**No First Use**' commitment.
 - ▶ In 1998, India conducted nuclear tests under **Phokran-II**, and in 2003, India declared its nuclear doctrine based on CMD and a NFU policy while reserving the right of massive retaliation if struck with nuclear weapons first.

RUSSIA'S NUCLEAR POSTURE AMIDST GLOBAL TENSIONS

CONTEXT:

In 2023, **President Vladimir Putin** has intensified his rhetoric surrounding **Russnuclear capabilities** as a strategic counter to Western support for Ukraine. This year alone, he has ordered military drills involving battlefield nuclear weapons with Belarus, announced plans to produce ground-based intermediate-range missiles, and revised Russia's nuclear doctrine to lower the threshold for nuclear engagement.

Overview of Russia's Nuclear Arsenal

- **Strategic Nuclear Weapons:** Russia possesses approximately 5,580 nuclear warheads, both deployed and non-deployed. This figure positions Russia as the owner of the largest nuclear arsenal in the world, followed closely by the United States with 5,044 warheads. Together, these two countries control around 88% of global nuclear weapons.
- **Nuclear Triad:** Russia's nuclear capabilities include a triad of delivery systems:
 - ▶ **Ground-Based Intercontinental Ballistic Missiles (ICBMs):** Russia has enhanced its land-based missile capabilities with new systems, including the **mobile**

Yars ICBMs and the heavy, silo-based **Sarmat ICBMs**, nicknamed “**Satan II**” in the West. The **Sarmat** is set to replace older **Soviet-built R-36M missiles**, though it has faced operational challenges, including a failed test last month.

- ▶ **Long-Range Bombers:** The **Soviet-era Tu-95 and Tu-160 bombers** remain operational, carrying nuclear-armed cruise missiles. Production of upgraded **Tu-160s** has resumed, aiming for several dozen units equipped with modern engines and avionics.
- ▶ **Submarine-Launched Ballistic Missiles (SLBMs):** Russia has added seven **Borei-class submarines** to its fleet, each capable of carrying **16 Bulava nuclear missiles**, thus strengthening its naval nuclear deterrent. Plans are in place to build five additional Borei-class submarines.
- **Non-Strategic Nuclear Weapons:** Russia is estimated to have between **1,000 and 2,000 non-strategic or tactical nuclear weapons** designed for battlefield use. These weapons are typically less powerful than strategic warheads but are capable of causing significant destruction in localized scenarios.

□ Key Tactical Systems

- ▶ **Iskander Missiles:** These high-precision ground-launched missiles have a range of up to 310 miles and can be fitted with either conventional or nuclear warheads.
- ▶ **Kinzhal Hypersonic Missile:** Carried by **MiG-31 fighter jets**, this missile can also carry nuclear or conventional warheads, enhancing Russia’s tactical capabilities.

□ Nuclear Doctrine and Deterrence Strategy

- ▶ Moscow has historically relied on the **doctrine of Mutually Assured Destruction (MAD)**, which posits that a nuclear attack would result in overwhelming retaliation, deterring initial strikes.
- ▶ The revised nuclear doctrine, adopted in 2020, stipulates conditions under which Russia might use nuclear weapons, including in response to conventional attacks that threaten the existence of the Russian state.
- **Future of Arms Control:** The last remaining arms control agreement between the U.S. and Russia, the **New START treaty**, limits each country to **1,550 deployed nuclear warheads** and **700 deployed missiles** and bombers. However, Putin suspended Russia’s participation in this treaty in February 2023 while asserting that Russia would still adhere to its limits. Moreover, the announcement of plans to produce ground-based intermediate-range missiles signals a shift away from previous arms control commitments.

HYBRID WARFARE

CONTEXT

The **Indian Parliamentary Standing Committee on Defence** has prioritized discussions on **the Indian Armed Forces’ preparedness for “hybrid warfare.”** The focus will include both kinetic and non-kinetic warfare, alongside advancements in anti-drone technologies.

What is Hybrid Warfare?

- Hybrid warfare refers to a strategy that **blends conventional military force with non-traditional tactics**, such as **cyber operations, misinformation campaigns, and economic pressures**. It encompasses a wide range of tactics that can be employed simultaneously to achieve strategic objectives.

□ Key Features of Hybrid Warfare:

- ▶ **Combination of Tactics:** Hybrid warfare employs both kinetic (physical military actions) and non-kinetic (psychological, informational, and economic tactics) methods to achieve strategic goals.
- ▶ **Multi-Domain Approach:** It operates across various domains, including land, air, sea, cyberspace, and information, making it difficult to counter using traditional military strategies.
- ▶ **Non-State Actors:** Hybrid warfare often involves non-state actors, such as terrorist groups or organized crime syndicates, in addition to state-sponsored initiatives.
- ▶ **Psychological and Information Warfare:** This strategy frequently utilizes misinformation and propaganda to influence public perception and destabilize opponents.
- ▶ **Technological Integration:** Advances in technology enable more effective execution of hybrid tactics, including cyberattacks and the use of drones.

What is Non-Kinetic Warfare?

- Non-kinetic warfare is a **subset of hybrid warfare** that emphasizes tactics not involving **direct military confrontation or kinetic force**. It includes a wide array of strategies aimed at achieving objectives without physical combat.

□ Key Components of Non-Kinetic Warfare:

- ▶ **Cyber Warfare:** This involves attacks on a nation’s critical infrastructure through hacking, malware, and other cyber methods. For instance, disabling power grids or healthcare systems can have devastating effects without a single shot being fired.
- ▶ **Electronic Warfare:** This includes jamming communications or using electromagnetic weapons to disrupt enemy operations.
- ▶ **Psychological Operations:** These operations are designed to influence the perceptions and behaviors of enemy forces or civilian populations, often using propaganda and disinformation.

- ▶ **Information Warfare:** This aspect focuses on controlling information flow and utilizing media to sway public opinion and political outcomes.
- ▶ **Economic Warfare:** Tactics may include sanctions, trade restrictions, and efforts to destabilize an opponent's economy, thus weakening their ability to respond militarily.

Examples in Recent Conflicts:

- The **Russia-Ukraine conflict** has showcased hybrid tactics, where cyber operations and misinformation campaigns played crucial roles alongside conventional military engagements.
- In the **Israel-Palestine conflict**, similar tactics have been observed, indicating the evolving landscape of warfare that extends beyond traditional military confrontations.

INDIAN NAVY'S NEXT GENERATION MISSILE VESSELS

CONTEXT:

The **Indian Ministry of Defence** has announced that **GE Aerospace** will supply **LM2500 marine gas turbine engine kits** to power six **Next Generation Missile Vessels (NGMVs)** for the Indian Navy. These vessels will be built by **Cochin Shipyard Limited** in Kochi.

Key Features of the LM2500 Marine Gas Turbine Engine

- **Engine Specifications:** The LM2500 marine gas turbine is engineered for high performance, capable of propelling modern naval vessels effectively. It provides a power output that allows ships to achieve high speeds and enhanced operational efficiency.
- **Auxiliary Systems:** In addition to the engines, GE Aerospace will supply a full range of gas turbine auxiliary systems, essential for optimal engine performance and reliability.
- **Existing Applications:** The LM2500 engines are already in service in various Indian naval platforms, including:
 - ▶ Six Shivalik-class frigates
 - ▶ INS Vikrant, India's first indigenous aircraft carrier, which is powered by four LM2500 gas turbines.
- **Global Reliability:** Over 714 vessels worldwide utilize GE Aerospace's marine gas turbines, underscoring their reliability and availability in naval operations.

Importance of the Next Generation Missile Vessels (NGMVs)

- **Design and Capability:** The NGMVs will be equipped to launch **BrahMos missiles**, making them formidable assets for the Indian Navy. They will be capable of reaching speeds up to 35 knots (65 kilometers per hour) and will carry advanced anti-surface weaponry.
- **Stealth Requirements:** The propulsion system, centered around the LM2500 engine, is designed to meet the stealth requirements necessary for modern naval warfare.

- **Historical Significance:** The Indian Navy has a strong tradition of conducting successful ship-to-shore missile attacks, notably during the **1971 war against Pakistan**. The development of NGMVs aims to strengthen this legacy and enhance the navy's operational capabilities.

CBD COP16

CONTEXT

Representatives from governments around the world have been gathering in Cali, Colombia, for the 16th Conference of the Parties (COP16) to the Convention on Biological Diversity (CBD).

What is CBD COP16?

- **COP** stands for "Conference of the Parties," referring to regular meetings of countries that have ratified a specific UN convention.
 - ▶ In this instance, COP16 marks the sixteenth meeting of the Parties to the CBD, a treaty designed to promote sustainable development through biodiversity conservation.
- The last biodiversity conference, COP15, took place in Montreal in December 2022, where the Kunming-Montreal Global Biodiversity Framework (GBF) was established. This framework outlines:
 - ▶ **Long-term Goal:** Achieving a world in harmony with nature by 2050.
 - ▶ **Short-term Targets:** Twenty-three specific goals aimed at halting and reversing biodiversity loss by 2030.

Convention on Biological Diversity (CBD)

- ▶ The CBD, launched during the 1992 Earth Summit in Rio de Janeiro, is one of the most widely ratified UN conventions.
- ▶ It aims to conserve biological diversity, ensure sustainable use of its components, and promote fair sharing of genetic resource benefits.
- ▶ Parties to the CBD convene every two years to review progress and set new priorities.

NEW GENUS OF JUMPING SPIDERS 'TENKANA'

CONTEXT

In 2023, two enthusiasts discovered a **previously undescribed species of jumping spider** in the forests of **Devarayanadurga, Tumakuru district, Karnataka**. Their find is confirmed as a new genus named **Tenkana Jayamangali**.

Key Facts about *Tenkana Jayamangali*

- The species is found in the forests of Devarayanadurga,

Karnataka, specifically at the origin of the Jayamangali River.

- **Genus:** *Tenkana*, named to honor species found in the southern part of the Indian subcontinent, with "Tenkana" meaning "south" in Kannada.

▣ **Species Characteristics:**

- ▶ **Male Appearance:** Resembles the face of a panda with a brownish abdomen.
- ▶ **Female Appearance:** Grey with distinct patterns.

▣ **Habitat:**

- ▶ Ground-dwelling, often found in complex microhabitats with shaded short grasses and dry leaf litter.

- ▶ Also located in simpler habitats with sparse short grasses near rocky outcrops.

- **Endemism:** Currently believed to be endemic to India, with sightings reported in areas like Bannerghatta (Bengaluru) and Yercaudu (Tamil Nadu).

- **Related Species:** Three documented species under the genus *Tenkana*:

- ▶ *Tenkana jayamangali* (the newly described species)
- ▶ *Tenkana arkavathi* (discovered in 2022, Nandi Hills)
- ▶ *Tenkana manu* (present in Tamil Nadu, Kerala, and Sri Lanka).



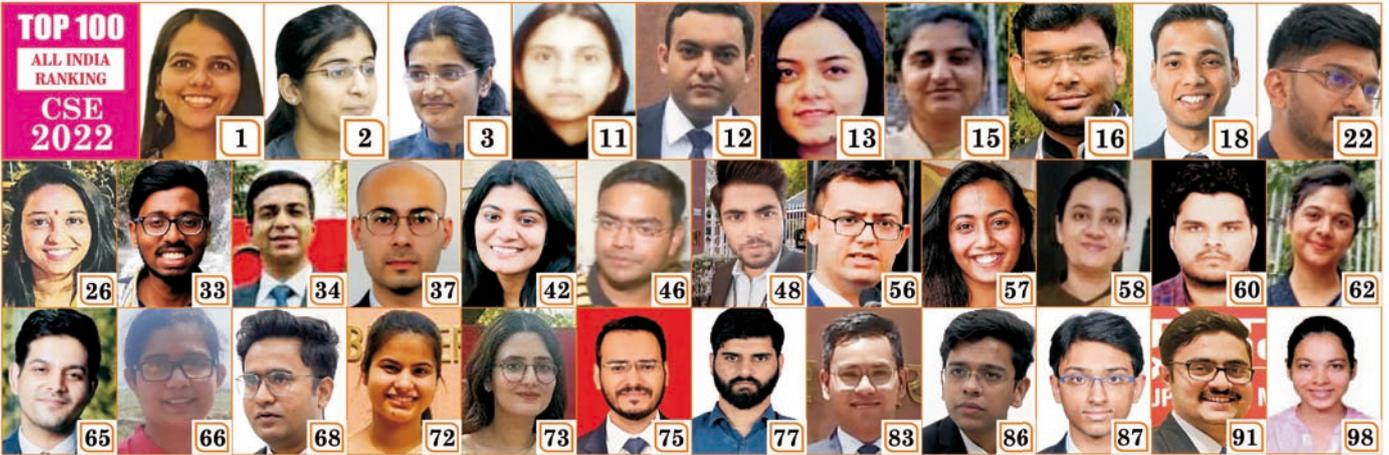


Scan QR Code for detailed RESULT

TOP 100 ALL INDIA RANKING CSE 2023



TOP 100 ALL INDIA RANKING CSE 2022



TOP 100 ALL INDIA RANKING CSE 2021

