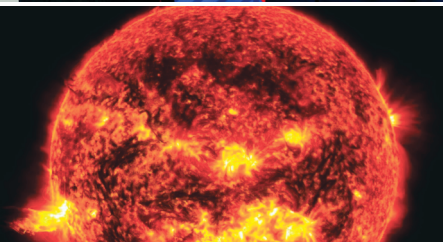


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DEBATE ON JUDICIARY AND CONSTITUTIONAL BALANCE

Why in News: The Vice-President of India recently raised several concerns about the **functioning of the Indian judiciary**. His remarks have triggered a nationwide debate on the **separation of powers, judicial accountability, and the balance between democratic institutions**.

Use of Extraordinary Powers under Article 142

- Article 142 allows the Supreme Court to deliver complete justice in any case.
- The Vice-President argued that excessive use of this power undermines democracy.
- However, courts have used Article 142 in landmark cases such as:
 - Compensation to victims of the Bhopal Gas Tragedy (1989)
 - Vishaka guidelines against sexual harassment (1997)
 - Cancellation of coal block allocations (2014)
 - Granting permanent commission to women officers in the armed forces (2024)
 - Orders to prevent unlawful demolitions (2024)
- These examples show that Article 142 has often been used to protect rights and ensure accountability.

Concerns about Judicial Transparency

- The Vice-President **questioned the lack of transparency in internal judicial inquiries**, especially following serious cases like the recovery of large sums of cash from a Delhi High Court judge's residence.
- He pointed out that there is **no formal law by Parliament** that governs such internal investigations.
- Public confidence in the judiciary depends on **openness and clarity** in such serious cases.
- There is a **need for the Chief Justice of India to frame clear and transparent guidelines** for such inquiries.

Timelines for President and Governors

- The Supreme Court recently issued a judgment mandating that the President and Governors must act **within a reasonable time** on State legislations.
- The Vice-President criticised this, arguing that **courts should not direct high constitutional authorities** through writs like Mandamus.

- However, the Court's order was based on earlier Constitution Bench decisions and aimed at preventing delays in governance.
- **Interestingly, the Home Ministry's Office Memorandum from 2016 had already recommended similar timelines.**

Accountability of the Judiciary

- The Vice-President noted that **unlike the legislature and executive, the judiciary is not directly accountable to the public.**
- He also **raised the issue of judicial review**, where courts strike down laws passed by Parliament, and questioned **whether a minimum of five judges (as per Article 145(3)) is still suitable today when the total strength of the court has risen from 8 (in 1950) to 34.**
- **However, many legal experts believe that the five-judge requirement is adequate and necessary to maintain consistency and avoid delays.**

Need for Reform in Judicial Appointments

- A key issue underlying many problems in the judiciary is **the opaque collegium system of appointments.**
- *Note: The Vice-President hinted at the need for reform by supporting a broader and more inclusive National Judicial Appointments Commission (NJAC).*
- **Such a commission, with the Chief Justice of India having veto power, could bring transparency without affecting judicial independence.**

Balance Between Democracy and Judicial Independence

- In a parliamentary democracy, the **executive is accountable to the legislature**, which is in turn answerable to the people.
- But the **judiciary acts as the guardian of the Constitution**, ensuring laws and government actions are in line with constitutional principles.
- **India follows a hybrid model that combines the British tradition of Parliamentary Sovereignty with the U.S. model of Judicial Supremacy.**
- The Supreme Court has consistently upheld that judicial review is a part of the 'basic structure' of the Constitution.

Conclusion

- All three pillars of democracy — the Legislature, Executive, and Judiciary — must work in harmony and respect each other's roles.

- Constructive criticism can help bring reforms, but confrontations should be avoided.
- Strengthening transparency, accountability, and coordination is the way forward to uphold constitutional values in the world's largest democracy.

EXPECTED QUESTION FOR UPSC CSE

Descriptive Question

Q. While judicial independence is vital to uphold the Constitution, transparency and accountability are equally important to preserve public trust. Critically examine this statement in light of recent debates on judicial functioning and constitutional balance in India. [150 words] [10 marks]

SUPREME COURT TO RE-EXAMINE POCSO LAW

Why in News: The Supreme Court of India has agreed to examine a controversial issue under the Protection of Children from Sexual Offences (POCSO) Act, 2012.

What is the Controversy?

A senior advocate who is assisting the court as **amicus curiae (an independent legal expert)**, raised concerns that **mandatory reporting of all sexual activity involving minors—even if consensual—is doing more harm than good.**

The court called the issue **“serious and relevant”** and scheduled a detailed hearing soon. The discussion could lead to **major changes** in how India handles cases of **teen relationships and adolescent sexuality.**

What’s the Problem with POCSO’s Current Rules?

1. Age of Consent: 16 to 18 (A Legal Grey Zone)
 - Before 2012, the **age of consent** for sex in India was **16 years.**
 - The **POCSO Act raised it to 18**, meaning **any sexual activity below 18 is considered a crime**, even if both partners are willing.
 - This has led to **police cases against teenagers in consensual relationships**, treating them as **sexual offenders.**
2. Mandatory Reporting (Doctors, Parents, Teachers Forced to Report)
 - **Section 19 of POCSO** makes it **compulsory** for anyone (including **parents, teachers, doctors**) who knows about a minor’s sexual activity to **report it to the police.**
 - **Failure to report is a punishable offence**, leading to fear and hesitation in providing guidance or medical help.

3. Fear Stops Teens from Seeking Medical Help
 - **Doctors must inform police** if a minor seeks medical care (e.g., contraception or pregnancy tests).
 - This forces teens to **avoid hospitals** and turn to **unsafe quacks**, risking their **health and lives.**

Why is This a Big Concern?

- **Violates Right to Privacy & Health** – Teens avoid medical care due to fear of police cases.
- **Increases Backstreet Quackery** – No safe medical options lead to **risky abortions and infections.**
- **Wastes Police & Court Time** – Handling **consensual teen cases** diverts resources from **actual child abuse cases.**

Understanding India’s POCSO Act

It is a **special law** in India designed to **protect children below 18 years** from **sexual abuse, exploitation, and harassment.** It was introduced after India signed the **UN Convention on the Rights of the Child (1992)** to ensure **strict legal action** against offenders.

Key Features of the POCSO Act

- **Gender-Neutral Protection** – The law recognizes that **both boys and girls** can be victims of sexual abuse. It does not discriminate based on gender.
- **Strict Punishment for Offenders** – The Act prescribes **harsh penalties**, including **life imprisonment** and even the **death penalty** in extreme cases of aggravated sexual assault.
- **Confidentiality of Victim’s Identity** – **Section 23** ensures that the **child’s identity is kept secret** to protect them from social stigma. **Media, police, and courts cannot disclose** names, addresses, or any details that may reveal who the victim is.
- **Mandatory Reporting of Abuse** – **Sections 19 to 22** make it **compulsory** for anyone (doctors, teachers, parents, or even neighbours) who suspects child sexual abuse to **report it to the police.** **Failure to report is a punishable offence.**
- **Child-Friendly Legal Process** – The law ensures that **trials are conducted in a sensitive manner**, avoiding repeated questioning of the child. **Special courts** are set up to handle cases quickly.

Gaps & Challenges in POCSO Implementation

Despite its strong framework, the **POCSO Act faces serious implementation issues**, leaving many child victims without proper justice.

Lack of Support Persons for Victims

- The law mandates that every child victim should have a **“support person”** (a trained counsellor or child rights activist) to guide them through the legal process.
- **Shockingly, the Supreme Court found that 96% of POCSO cases had no support persons**, leaving children **traumatized and confused** during trials.

Too Few Special POCSO Courts

- For speedy justice, **Fast-Track POCSO Courts** were planned across India.

- But as of 2022, only 408 such courts exist—far fewer than needed. Many districts still rely on regular courts, causing long delays.

Shortage of Special Public Prosecutors

- POCSO cases require specially trained lawyers who understand child psychology and legal procedures.
- However, many states do not have enough prosecutors, leading to weak arguments and low conviction rates.

Conclusion

While POCSO was designed to protect children from abuse, its strict reporting rules are accidentally harming teens in consensual relationships. The Supreme Court’s intervention could bring a much-needed balance—ensuring real predators are punished while not criminalizing young love.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. With reference to the Protection of Children from Sexual Offences (POCSO) Act, 2012, consider the following statements:

1. The Act defines a child as any person below the age of 18 years.
2. It makes reporting of sexual offences against children mandatory for any person, including doctors and teachers.
3. The Act allows consensual sexual relations between adolescents aged 16 to 18.

Which of the statements given above is/are correct?

- (a) 1 and 2 only (b) 2 and 3 only
(c) 1 and 3 only (d) 1, 2 and 3

Answer: (a)

JUDICIAL MISCONDUCT AND THE IN-HOUSE PROCEDURE

Why in News: Recently, a three-member in-house committee has been formed to examine allegations of cash recovery at the official residence of Delhi High Court judge. This incident has reignited public interest in the in-house procedure used to address complaints of misconduct against judges in India.

Origin of the In-House Procedure

- The in-house procedure was created in 1995 after allegations of financial impropriety emerged against then Chief Justice of Bombay High Court A.M. Bhattacharjee.
- At that time, there was no formal process to deal with judicial misconduct that did not meet the high threshold required for impeachment.

- To fill this gap, the Supreme Court initiated the development of a mechanism. A committee was formed including Supreme Court Justices and senior High Court Chief Justices. Their recommendations, submitted in 1997, were adopted in a full court meeting of the Supreme Court in December 1999.

Steps in the In-House Procedure

1. **Initiation of Complaint:** Any individual can file a complaint against a judge. The complaint is sent to the Chief Justice of India (CJI) or the Chief Justice of the concerned High Court.
2. **Preliminary Scrutiny:** The CJI assesses the complaint. If it is found to be frivolous or baseless, it is dismissed. Otherwise, the CJI may seek a preliminary report from the concerned High Court Chief Justice.
3. **Constitution of Inquiry Committee:** If the report suggests further investigation, the CJI forms a three-member committee of two Chief Justices of High Courts and one High Court judge.
4. **Inquiry Process:** The committee conducts a detailed fact-finding inquiry. The concerned judge is given a fair opportunity to defend themselves, ensuring natural justice.
5. **Submission of Report:** The committee submits its findings to the CJI, stating whether the allegations are serious enough to recommend further action.
6. **Post-Inquiry Actions:**
 - If the misconduct is minor, the judge may be advised or warned.
 - If serious misconduct is found, the CJI may suggest voluntary resignation or retirement.
 - If the judge refuses, the CJI can order that no judicial work be assigned to them.

Significance of the In-House Procedure

- It addresses judicial misconduct that doesn’t meet the extreme standard required for impeachment under Article 124(4) of the Constitution.
- It helps maintain ethical standards and public trust in the judiciary.
- The process protects judicial independence while ensuring accountability.

Constitutional Process for Removal of Judges

Under Article 124(4) of the Indian Constitution, a Supreme Court or High Court judge can be removed for “proved misbehaviour” or “incapacity”. The Judges (Inquiry) Act, 1968 lays down the detailed process:

1. **Initiation:**
 - A motion can be introduced in Lok Sabha or Rajya Sabha.
 - Needs signatures of 100 Lok Sabha members or 50 Rajya Sabha members.

2. Preliminary Inquiry:

- The **Speaker or Chairman** decides whether to admit the motion.
- If admitted, a **three-member inquiry committee** is formed (a Supreme Court judge, a High Court judge, and a legal expert).

3. Report & Debate:

- The committee submits its report.
- If the judge is found guilty, the report is debated in both Houses.

4. Parliamentary Vote:

- Requires **special majority** in both Houses:
 - ◆ A majority of the total House membership, and
 - ◆ Two-thirds of members present and voting.

5. Final Step:

- If both Houses approve, the **President of India** issues the removal order.

Notable Judicial Misconduct Cases in India

- **Justice V. Ramaswami (1993)**: Faced financial misconduct allegations; impeachment motion failed in Lok Sabha.
- **Justice Soumitra Sen (2011)**: Found guilty of misappropriation; resigned after Rajya Sabha passed impeachment motion.
- **Justice P.D. Dinakaran (2011)**: Accused of land grabbing; resigned before impeachment process began.
- **Justice Narayan Shukla (2018)**: Accused in a medical college admission scam; recommended for removal by in-house panel but retired before action.

Asset Declaration by Judges

- In **May 1997**, the Supreme Court adopted the **Restatement of Values of Judicial Life**, requiring judges to **declare their assets** to the Chief Justice (CJI or High Court CJ).
- In **2009**, after public pressure, the SC allowed **voluntary public disclosure** of these declarations on its website.
- In **2019**, the **Supreme Court ruled** that the CJI's office comes under the **Right to Information (RTI) Act**, allowing citizens to seek info on whether judges have declared their assets (actual asset details are still confidential unless public interest justifies disclosure).
- Recently, **all 33 Supreme Court judges** disclosed their assets on the SC website.
- However, **High Court judges' disclosures remain inconsistent**, with only 13% making asset details public, concentrated in a few courts.

Conclusion

The *in-house procedure* and related mechanisms are critical to ensure that judges uphold *high ethical and professional standards*. While the *removal of judges through impeachment is rare and difficult*, the *in-house system provides an*

internal check to deal with misconduct. At the same time, *asset disclosure, transparency, and public accountability* must be strengthened, especially at the High Court level. Ensuring such integrity is essential to protect the *credibility, impartiality, and independence of the Indian judiciary*.

EXPECTED QUESTION FOR UPSC CSE

Descriptive Question

- Q. The in-house procedure for judicial accountability and asset declaration by judges aims to preserve the integrity of the judiciary without undermining its independence. Critically examine its effectiveness in the context of recent judicial misconduct cases. [250 Marks] [15 Marks]

CUSTODIAL DEATH

Why in News: In a significant judgment that underlines the need for **accountability in law enforcement**, a **Thoothukudi court** has sentenced **nine police personnel to life imprisonment** in connection with a **custodial death that occurred over 25 years ago**.

More about the issue

The case pertains to the death of **C. Vincent**, a **salt pan worker** from **Mela Alangarathattu**, who was taken into custody for questioning on **September 17, 1999**. The very next day, Vincent was found **dead under suspicious circumstances** inside the police lock-up.

Understanding Custodial Torture

Custodial torture refers to the **physical, mental, or sexual abuse** inflicted by police or law enforcement personnel on individuals who are detained or under arrest. It is often used to **extract confessions, intimidate, or punish** detainees—frequently outside the bounds of legality and human decency.

Why Does Custodial Torture Persist in India?

Several deep-rooted issues contribute to this ongoing problem:

- **Torture as an Investigation Tool:** Many law enforcement officers still rely on **beatings, third-degree methods, and threats** to obtain information, rather than using scientific investigation techniques.
- **Lack of Accountability:** **Police officers are rarely punished** for custodial violence. Delays in investigation, institutional bias, and weak internal disciplinary systems create a **culture of impunity**.
- **Poor Custodial Conditions:** **Overcrowded lock-ups, lack of hygiene, and non-availability of timely medical care** increase vulnerability and suffering in custody. Such conditions often lead to serious health issues and even death.

- **Violation of Legal Safeguards:** Police often **fail to follow legal procedures**, such as producing the accused before a magistrate within 24 hours, informing the accused of their rights, or allowing access to a lawyer.
- **Targeting of Marginalised Communities:** People from **Dalit, Adivasi, and minority backgrounds** are disproportionately affected by custodial violence. **Systemic discrimination** often makes them easy targets.
- **Medical Negligence:** Even when detainees show signs of illness or injury, **timely medical treatment is often denied**. This neglect can sometimes prove fatal.
- **Suspicious ‘Suicides’ in Custody:** In several cases, **custodial deaths are labelled as suicides**, raising serious questions about the actual causes and the possibility of **torture or abetment**.

Types of Custody in India

- **Police Custody:** The accused is held in a police station for interrogation. This is where **most cases of custodial torture occur**, as police have direct access to the detainee.
- **Judicial Custody:** The accused is sent to jail by the order of a magistrate. Here, the person is under the supervision of prison authorities and is relatively safer.

Legal and Constitutional Safeguards

India’s Constitution and legal framework provide **multiple protections** to prevent torture:

Constitutional Provisions:

- **Article 20:** Protects against **double punishment** and **self-incrimination**.
- **Article 21:** Guarantees the **right to life and personal liberty**. Custodial torture is a **direct violation** of this right.
- **Article 22:** Provides safeguards during **arrest and detention**, such as being informed of the reason for arrest, access to a lawyer, and production before a magistrate within 24 hours.

New Criminal Laws (2023 Reforms):

- **Bharatiya Nyaya Sanhita (BNS), 2023:**
 - **Sections 126–136:** Punish wrongful restraint and illegal confinement.
 - **Sections 198–205:** Hold public servants accountable for abuse of power.
- **Bharatiya Nagarik Suraksha Sanhita (BNSS), 2023:**
 - Ensures the **right to be informed of arrest** and mandates **medical examinations** of arrested individuals.
- **Bharatiya Sakshya Adhiniyam (BSA), 2023:**
 - **Bans confessions made under coercion.**
 - Declares that **confessions made to police are inadmissible in court**, reducing the incentive for forced confessions.

Landmark Supreme Court Judgments

Indian courts have played a key role in addressing custodial torture:

- **Sheela Barse v. State of Maharashtra (1983):** Advocated for **legal aid and rights of detainees**.
- **Joginder Kumar v. State of Uttar Pradesh (1994):** Asserted that **arrests must not be made routinely**; valid reasons must exist.
- **D.K. Basu v. State of West Bengal (1997):** Laid down **detailed guidelines** for arrest and detention to prevent torture and deaths.
- **Selvi v. State of Karnataka (2010):** Declared that **forcible narco-analysis or polygraph tests violate fundamental rights**.

International Standards on Torture

India is also bound by **international human rights instruments**:

- **Universal Declaration of Human Rights (1948):** Article 5 prohibits **torture or cruel, inhuman treatment**.
- **United Nations Convention Against Torture (UNCAT), 1984:**
 - **India signed in 1997** but has **not ratified** it yet.
 - Prohibits torture in all circumstances.
 - Obligates states to **criminalize torture and prosecute offenders**.
- **International Covenant on Civil and Political Rights (ICCPR), 1966:**
 - **Ratified by India.** Article 7 prohibits torture and inhumane treatment.
- **Geneva Conventions (1949):** Protects non-combatants and prisoners from torture during war.
- **Rome Statute of the International Criminal Court (1998):** Declares **torture as a crime against humanity** when part of a systematic attack against civilians.

Conclusion

The recent Thoothukudi verdict serves as a *painful yet powerful reminder* that custodial torture continues to stain India’s justice system. While India has taken *important legal and constitutional steps*, *implementation remains weak*. There is a pressing need to:

- Ratify UNCAT
- Strengthen internal accountability mechanisms
- Modernize investigation methods
- Ensure swift and transparent prosecution of guilty officers
- Protect the rights of detainees, especially the marginalized

In a true democracy, no person should fear death or torture at the hands of those meant to protect them.

EXPECTED QUESTION FOR UPSC CSE

Descriptive Question

Q. Custodial torture remains a blot on India's commitment to rule of law and human rights. Critically examine the reasons for custodial deaths in India despite constitutional, legal, and judicial safeguards. Also, discuss the role of international conventions and suggest reforms to address the issue effectively. [250 words] [15 marks]

LANDMARK SUPREME COURT JUDGMENT ON GOVERNOR'S ROLE

Why in News: Recently, the *Supreme Court of India* delivered a historic judgment in the case titled *The State of Tamil Nadu vs The Governor of Tamil Nadu and Another*. This decision has brought much-needed clarity to the role of a Governor in giving assent to Bills passed by a State Legislature, especially under *Article 200* of the Indian Constitution.

Note: This Problem is Not Limited to Tamil Nadu

The issue of Governors not acting on State Bills is not limited to Tamil Nadu. Similar issues have been reported in *Kerala*, *Telangana*, and *Punjab*. In fact, the *Kerala government has also approached the Supreme Court*, and that case is still pending.

Background: The Tamil Nadu Governor's Delay

- This case arose due to an unusual situation in **Tamil Nadu**, where Governor **R.N. Ravi** had kept **10 Bills** pending for several years without taking any decision on them. These Bills had already been passed by the Tamil Nadu Legislative Assembly.
- Later, when the Assembly passed these Bills once again and sent them to the Governor, instead of giving his assent (as required by **Article 200**), the Governor sent the Bills to the **President of India** for consideration. **Importantly, he did this only after the State government approached the Supreme Court for intervention.**

Supreme Court's Verdict: Key Highlights

A two-judge Bench of the Supreme Court, consisting of **Justice J.B. Pardiwala** and **Justice R. Mahadevan**, made several strong and clear observations:

1. **Governor's Action Was Unconstitutional:** The Court ruled that the Governor's act of sending the Bills to the President **at that late stage was against the Constitution**. Therefore, it **struck down** the Governor's action and also **invalidated the President's decision** to withhold assent to those Bills.

2. **Invoking Special Powers (Article 142):** In a rare and bold move, the Court used its special power under **Article 142** of the Constitution to **declare that all 10 Bills shall be treated as if they have received assent**. *This is the first time in Indian judicial history that the Supreme Court has given such a ruling on Bills that were actually rejected by the President.*
3. **Extraordinary Remedy for Extraordinary Situation:** The Court said this was an **extraordinary remedy** in response to an **extraordinary situation**, where a **constitutional authority (the Governor)** had failed to act in the manner expected under the Constitution.

Article 200 and the Governor's Role

- **Article 200** of the Constitution describes the Governor's choices when a Bill passed by the State Legislature is presented to him:
 - He can give assent.
 - He can withhold assent.
 - He can reserve the Bill for the President's consideration.
 - Or, he can return the Bill (if it is not a Money Bill) to the legislature for reconsideration.
- Earlier, it was believed that if the Governor **withholds assent**, the Bill **dies**. But this interpretation has been **clearly rejected by the Court** in both the **2023 Punjab case** and now in the **Tamil Nadu case**.
- The Court has clarified that if the Governor withholds assent, he **must return the Bill** to the State Legislature for reconsideration. After reconsideration, when the Bill is sent back to the Governor, **he must give assent**. The Governor has **no power to block** the Bill permanently.
- *"The Court said: If the Governor could simply withhold assent and take no further action, he would be able to veto the decisions of an elected government, which would be undemocratic and against the spirit of the Constitution".*

Time Limits: 1 to 3 Months

- One of the most important parts of the judgment is that the **Supreme Court introduced a time limit** for Governors and the President to act on Bills:
 - **Minimum time:** 1 month
 - **Maximum time:** 3 months
- If they fail to take any action within this period, the State government can **approach the court**. This is a major step to prevent situations where Bills are kept pending indefinitely, like what happened in Tamil Nadu.
- Some people have questioned the legality of setting a time limit because the Constitution doesn't specify any. However, the Court explained that **when no time limit is given**, constitutional authorities must act **within a reasonable period**. Sitting on Bills for years, as happened in Tamil Nadu, is **not acceptable** and is a **threat to federalism**.

Governor Must Act on Advice of the Council of Ministers

The Court also clarified that when the Governor decides to:

- Withhold assent, or
- Send the Bill to the President —

He must do so only **on the advice of the State's Council of Ministers**. This makes it clear that the Governor, being a **nominal head**, cannot act independently. **However, some questions remain:**

- What if the Government has a majority and still advises the Governor to withhold assent and send the Bill for reconsideration?
- What if the Legislature simply rejects the Governor's suggested amendments?

The Court has not fully answered these practical challenges, and past judgments have shown **inconsistencies** on this point.

Judicial Review of Governor and President's Actions

- Another major ruling in this case is that the **decisions of the Governor and the President under Articles 200 and 201 can be reviewed by the Courts**. Earlier, some people believed that such decisions were **outside judicial scrutiny**.
- But the Court stated firmly:
 - "No action under the Constitution is beyond judicial review."
- This means even high constitutional authorities like the **Governor and the President** must act within the framework of law, and their actions can be **challenged in Court** if found arbitrary or unconstitutional.

Criticism and Clarifications

- The **Kerala Governor** criticized the judgment, calling it an example of **judicial overreach**, saying only **Parliament** can amend the Constitution. While this is technically true, the role of the judiciary is to **interpret the Constitution**, especially when its provisions are being misused or ignored.
- Some lawyers also argued that only a **Constitution Bench** (minimum 5 judges) can decide such important constitutional questions under **Article 145(3)**. However, the Court clarified that this case did not raise **new questions of law**, but simply **interpreted and explained** existing constitutional provisions to **protect democratic functioning**.

Restoring the Spirit of the Constitution

- This judgment is a **strong reminder** that Governors and Presidents must act in **good faith**, respect the **will of elected governments**, and not misuse their powers to delay or block legislation unnecessarily.

- Years ago, India saw a similar issue when a **President sat on a postal Bill for years**, with the Central government unable to do anything. This shows that there is a genuine need to **reform the constitutional process** related to giving assent to Bills — whether in the States or at the Centre. This judgment gives us a **clear direction** on what such reforms should look like.

Conclusion

This Supreme Court ruling is more than just a legal decision — it is a *defence of democracy, federal values*, and the *constitutional balance of power*. It sends a strong message to all constitutional authorities: *they are not above the Constitution*, and *deliberate inaction will not be tolerated*.

It also encourages future reforms and sets a solid precedent for other States facing similar issues. In short, this judgment is a *milestone in India's constitutional journey*.

EXPECTED QUESTION FOR UPSC CSE

Descriptive Question

- Q. How do constitutional and judicial interventions aim to balance the Governor's formal authority with the democratic functioning of the elected state government? [250 words] [15 marks]

PARDONING POWERS OF THE PRESIDENT AND GOVERNOR

Why in News: The Maharashtra government has recently set up a **special unit under the Additional Secretary (Home)** to ensure timely handling of **mercy petitions for death row convicts**.

Key Details

This move follows the **Supreme Court's directive in the Pradeep Kokdade vs State of Maharashtra (December 2024)**, which urged all states and union territories to create such **dedicated cells** to avoid inhumane delays in executing death sentences.

This special unit is designed to:

- **Receive and process mercy petitions** efficiently.
- Be staffed by a **legal officer** to handle legal complexities.
- Ensure all **prisons** are informed about the **officer-in-charge** responsible for mercy petitions.

Constitutional Basis for Pardoning Powers

The **Indian Constitution** gives the **President (Article 72)** and the **Governors (Article 161)** the power to grant **clemency**, which includes **pardoning, commuting, remitting, respite**, or **repeiving** a sentence.

These powers offer a **humanitarian tool** in the hands of the executive to correct errors, address harsh punishments, or respond to changing social values.

Types of Pardoning Powers

Term	Meaning	Example
Pardon	Completely cancels the conviction and punishment	Convict is set free and considered innocent
Commutation	Changes the punishment to a lighter one	Death sentence – life imprisonment
Remission	Reduces the sentence time , but type of punishment remains	10 years jail – 5 years jail
Respite	Lesser sentence due to special conditions	Pregnant woman gets reduced jail term
Reprieve	Temporary delay in punishment	Delay in hanging to allow time for mercy petition

Why Are These Powers Important?

1. Correcting Judicial Errors

Sometimes, courts may make **mistakes** or impose **excessively harsh punishments**. The **executive's clemency powers** provide a **safety valve** to **correct such errors** and uphold **fairness**.

2. Humanitarian Justice

In situations involving **old age**, **mental illness**, or **sincere remorse**, these powers allow the system to act with **compassion**, beyond the strict bounds of law.

3. Changing Social Norms

Society's view of certain crimes or punishments can change

over time. Clemency powers allow the government to respond to such **evolving standards of justice**.

4. Political and Social Harmony

Pardons may also be used to **heal wounds** in times of **political conflict**, such as during **mass agitations**, by releasing prisoners to **restore peace**.

Challenges and Criticisms

1. Possibility of Misuse

There is a **fear that clemency powers may be misused** for **political gains**, like helping those close to the ruling party.

2. Undermining Judicial Authority

Difference Between the President's and Governor's Pardoning Powers

Aspect	President (Article 72)	Governor (Article 161)
Law Scope	Can act on central laws	Can act on state laws
Death Sentence	Can pardon a death sentence	Cannot pardon a death sentence, but can commute or remit it
Court Martial	Can pardon or commute punishments given by a court martial	No such power
Sentence Types	Can pardon, reprieve, respite, remit, suspend, or commute any sentence	Same powers, but only within the jurisdiction of state law

Some argue that **overruling court verdicts** through pardons may **weaken the judiciary** and create an impression of **executive dominance**.

3. Lack of Transparency

Most clemency decisions are made **behind closed doors**, with **no public explanation**, which can lead to **distrust and confusion**.

4. Delays and Bureaucratic Apathy

Many mercy petitions remain **pending for years**, especially in **death penalty cases**, causing **severe mental agony** to the convicts.

Steps for Improvement

- **Time-bound Processing:** As directed by the **Supreme Court**, states must ensure that mercy petitions are handled **promptly** to avoid unnecessary suffering.
- **Special Mercy Cells:** States like Maharashtra are showing the way by creating **dedicated legal units** for clemency petitions.
- **Legal Oversight:** **Attaching legal experts** to these units ensures that all procedures are **lawfully and fairly** followed.
- **Public Disclosure:** Publishing the **reasons behind clemency decisions** can enhance **transparency and public trust**.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements regarding the pardoning power of the governor:

1. Article 72 of the Constitution gives the governor the power to pardon.
2. The governor can pardon sentences awarded by a court martial.
3. The governor can pardon death sentence.

How many of the above statements are correct?

- (a) Only one (b) Only two
(c) All three (d) None

Answer: (d)

Descriptive Question

Q. Explain the different types of clemency powers (pardon, commutation, remission, respite, reprieve) available to the President and Governor. How do these powers contribute to the concept of humanitarian justice in India? [250 words] [15 marks]

INACTION BY SPEAKERS IN DECIDING DISQUALIFICATION PETITIONS

Why in News: The **Supreme Court of India** has recently expressed strong displeasure over the **repeated delays by Speakers** of legislative assemblies in deciding **disqualification petitions** under the **anti-defection law**. These delays are seen as undermining **democratic principles**, and questions are being raised about the impartiality and accountability of the presiding officers.

Understanding the Anti-Defection Law

The **Anti-Defection Law** was introduced through the **52nd Constitutional Amendment Act, 1985**, to combat the widespread problem of legislators frequently switching parties—commonly known as the **'Aaya Ram, Gaya Ram' phenomenon**. This law added the **10th Schedule** to the Constitution.

To further strengthen the law, the **91st Amendment Act, 2003** was enacted, which restricted the size of the Council of Ministers and barred defectors from holding ministerial office.

Key Provisions of the 10th Schedule

Under the **10th Schedule**, a Member of Parliament (MP) or Member of Legislative Assembly (MLA) can be **disqualified** if:

- They **voluntarily give up membership** of their political party.
- They **vote or abstain** from voting against the **party whip** without prior permission and the act is not condoned by the party within 15 days.
- **Independent legislators** are disqualified if they **join a political party** after getting elected.
- **Nominated members** are disqualified if they **join a political party six months** after being nominated.

Exceptions under the Law

- **Merger Clause:** If at least **two-thirds of the legislators** of a political party agree to **merge with another party**, the members are **not disqualified**.
- **Presiding officers (like the Speaker)** are allowed to **resign from their party** for impartial functioning and rejoin after their term ends.

Who Decides on Disqualification?

The **Speaker or the Chairman** of the House is the **final authority** to decide on matters of disqualification **under the 10th Schedule**.

Issues with the Role of the Speaker

Despite their expected neutrality, several **problems** arise when Speakers handle defection cases:

- **Bias and Partisanship:** Since Speakers usually belong to a political party, their decisions often **favour the ruling**

government, especially when the disqualified members could affect government stability.

- **Delay in Decisions:** The law does not specify any time limit for the Speaker to act on disqualification petitions. This **loophole** allows Speakers to **indefinitely delay decisions**, creating political uncertainty.
- **Lack of Transparency:** The process is often **closed-door** with no clear timelines, public hearings, or explanation for the decisions, which reduces **accountability**.

Supreme Court's Stand

The Supreme Court has repeatedly held that **Speakers must act as neutral adjudicators**. In the **Keisham Meghachandra Singh case (2020)**, the Court suggested that **disqualification petitions must be decided within three months**, unless there are exceptional circumstances.

Reforms Suggested to Improve the System

1. **Time-Bound Decisions:** There should be a **clear deadline** (e.g., 90 days) for the Speaker to decide on defection cases to prevent political manipulation.
2. **Independent Tribunal:** Set up a **neutral Anti-Defection Tribunal** consisting of retired judges or independent legal experts to handle disqualification matters instead of the Speaker.
3. **Stronger Judicial Review:** Allow courts to not only review the **procedure** followed by the Speaker but also examine the **merits** of the decision.
4. **Defined Procedures:** Lay down **standardised processes** for handling defection petitions including evidence submission, witness examination, and transparent reasoning.
5. **Transparent Proceedings:** Decisions and justifications should be **made public**, and all documents should be available online to improve **public trust**.
6. **Right to Appeal:** Ensure **quick disposal** of appeals in the High Courts and Supreme Court against the Speaker's decisions.
7. **Code of Conduct for Speaker:** Enforce a **strict code of conduct** to ensure impartiality, especially in politically sensitive cases.

Conclusion

The Anti-Defection Law was designed to promote **stability and integrity** in Indian politics. However, the **misuse and inaction** by Speakers in disqualification cases has diluted its impact. Reforms are urgently needed to ensure that the law remains a **strong safeguard against political defection**, rather than being a **tool of convenience** for ruling parties. Introducing **time-bound, transparent, and impartial mechanisms** is the only way to uphold the **spirit of democracy** and the **rule of law** in India's parliamentary system.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements regarding anti-defection provisions in India:

1. Anti-defection provisions were introduced by the 85th Constitutional Amendment Act.
2. An independent member becomes disqualified if they join any political party after an election.
3. The Speaker's decision regarding defection is not subject to judicial review by the Supreme Court.

How many of the above statements are correct?

- (a) Only one (b) Only two
(c) All three (d) None

Answer: (a) (2 only)

Descriptive Question

Q. Critically examine the issues arising from the role of the Speaker under the Anti-Defection Law. Suggest reforms to ensure a more impartial and timely adjudication of disqualification petitions. [250 words] [15 marks]

WAQF (AMENDMENT) ACT, 2025

Why in News: The **Parliament of India** recently passed the **Waqf (Amendment) Act, 2025**, bringing major changes to the governance and management of **Waqf properties** across the country. This law seeks to resolve long-standing issues related to property disputes, misuse, and lack of accountability in the Waqf system.

What is Waqf?

A **Waqf** is a **charitable endowment under Islamic law**, where a Muslim donates a property for religious or charitable purposes—such as building **mosques, schools, hospitals**, or public utilities. Once declared as waqf, the property becomes **inalienable**—meaning it **cannot be sold, gifted, inherited, or mortgaged**. It is believed to belong to **God permanently**, and must be used for **public good**.

Key Features of the Waqf (Amendment) Act, 2025

The updated act, officially named the **Unified Waqf Management, Empowerment, Efficiency, and Development Act, 2025**, brings several transformative changes:

1. Stricter Rules for Declaring Waqf

- The **'Waqf by user' principle** (declaring property waqf based on long-term religious use) is **removed**.
- Now, **only written declarations by practising Muslims**

(for at least five years) who own the property are accepted.

- **Female heirs** cannot be denied their inheritance under **waqf-alal-aulad** (family endowments).

2. Protection of Government Property

- **Government-owned land** wrongly declared as waqf will **no longer be considered waqf**.
- The **District Collector** will now **investigate and submit a report** to the State Government to settle such disputes.

3. Overhaul of Waqf Boards

- **Waqf Boards** at the central and state levels have been restructured for better inclusivity:
 - **Central Waqf Council** will include **non-Muslims, MPs, legal experts, and Muslim women**.
 - **State Waqf Boards** must include:
 - ◆ At least **two non-Muslims**.
 - ◆ Representatives from **Sunni, Shia, Bohra, Agakhani, and backward Muslim communities**.
 - ◆ **Two Muslim women**.

4. Survey and Registration Reforms

- **District Collectors** will conduct **surveys** of waqf properties, which were earlier delayed or incomplete in many states.
- Surveys must now follow **state tax department guidelines**.
- The **Waqf Board's powers** to identify waqf land have been **curtailed** to ensure **unbiased determination**.

5. Tribunal and Judicial Reforms

- The **Waqf Tribunal** will now be chaired by a **joint secretary or retired judge**.
- The provision for **Muslim legal experts** on tribunals has been **removed**.
- Appeals against tribunal decisions can now be made to the **High Court within 90 days**, enhancing **judicial oversight**.

6. Digitisation and Transparency

- The government will create a **central digital portal** to track and manage all waqf properties.
- The **CAG or other officials** can now audit waqf accounts.
- Regulations related to **registration, auditing, and board meetings** will be governed by the **central government**.

7. Sect-Specific Waqf Boards Allowed

- Separate boards can be created for **Sunni, Shia, Bohra, and Agakhani sects**, ensuring **cultural and theological autonomy**.

Why was this Amendment Needed?

The amendment addresses **multiple problems** that plagued the Waqf system:

A. Irrevocability and Disputes

- The old principle of "**once waqf, always waqf**" led to **disputed claims**, even over government land.
- As of September 2024, nearly **5,973 government-owned properties** had been wrongly declared as waqf.

B. Mismanagement and Illegal Occupation

- Waqf lands were often subject to **encroachment, misuse, and corruption** due to lack of oversight.
- Poor **record-keeping** and **delayed surveys** worsened the situation.

C. Lack of Judicial Remedy

- Earlier, decisions of waqf tribunals **could not be challenged in courts**, limiting **transparency and fairness**.

D. Incomplete Surveys

- States like **Uttarakhand and Gujarat** had not started their waqf property surveys.
- In **Uttar Pradesh**, the waqf survey started in 2014 is still **incomplete**.

Benefits of the Waqf (Amendment) Act, 2025

Transparent Governance

- **Central audits, digital records, and strict survey mechanisms** will enhance transparency and prevent misuse.

Protection of Public and Government Land

- **Wrongful waqf declarations** over government property can now be reversed, preserving **public resources**.

Empowerment of Muslim Women and Minorities

- **Inheritance rights** of Muslim women are now protected.
- Greater **representation of women and diverse sects** on boards promotes **inclusivity**.

Judicial Accountability

- **High Court appeals** ensure better **judicial checks** on waqf-related disputes.

Increased Revenue for Welfare

- Better-managed waqf lands will generate **more income** for funding **education, healthcare, and welfare schemes**.

Concerns and Criticism

While the Act introduces major reforms, it has also drawn some criticism:

Increased Government Control

- **Section 40** of the earlier Act (which allowed the waqf board to declare properties as waqf) has been removed.
- This gives **greater power to the government**, raising concerns of **excessive interference**.

Violation of Article 26?

- Some argue that allowing **non-Muslims** on waqf boards

violates the **right of religious communities to manage their own affairs** under Article 26 of the Constitution.

Removal of ‘Waqf by User’

- Religious sites used for decades without formal waqf declarations may **lose their status**, causing unrest or disputes in communities.

Conclusion

The *Waqf (Amendment) Act, 2025* marks a bold and ambitious attempt to reform an area riddled with legal ambiguity, mismanagement, and social tension. By focusing on *transparency, inclusivity, and accountability*, the law seeks to *preserve waqf heritage, protect rightful ownership*, and ensure that *waqf assets truly serve the community*. However, the *balance between government oversight and community autonomy* will remain a key test of the Act’s long-term success.

EXPECTED QUESTIONS FOR UPSC CSE

Descriptive Question

Q. Critically examine the key features of the Waqf (Amendment) Act, 2025. How does it seek to address the existing challenges in the management of Waqf properties in India? [250 words] [15 marks]

PANCHAYAT ADVANCEMENT INDEX

Why in News: Recently, the **Ministry of Panchayati Raj** launched a new initiative called the **Panchayat Advancement Index (PAI)**. This index is aimed at evaluating how well **Gram Panchayats** are performing in delivering development and improving the quality of life in rural India.

What is the Panchayat Advancement Index (PAI)?

The **Panchayat Advancement Index (PAI)** is a **comprehensive tool** that measures the **developmental performance of Gram Panchayats** across multiple sectors. It helps assess whether a panchayat is making real progress in improving the well-being of people living in rural areas.

This index takes into account a **wide range of indicators**, reflecting the various responsibilities and roles of a panchayat in local governance. It focuses on areas that matter most to citizens, such as:

- 1. Infrastructure**
 - Availability of **basic amenities** like water supply, electricity, roads, drainage, and sanitation.
- 2. Health and Education**
 - **Literacy rates, school enrolment**, presence of educational institutions, and **access to primary healthcare**.

- 3. Economic Indicators**
 - Data on **employment opportunities, income levels, agricultural productivity**, and other sources of livelihood.
- 4. Social Indicators**
 - Quality of life, **gender equality, inclusiveness**, and reduction of **poverty and social discrimination**.
- 5. Governance and Administration**
 - Efficient delivery of public services, **transparency, citizen participation**, and administrative performance.
- 6. Environmental Sustainability**
 - Measures to promote **green practices, waste management, water conservation**, and protecting local ecosystems.

Why is the Panchayat Advancement Index Important?

The Panchayat Advancement Index acts as a **mirror for panchayats** to reflect on their strengths and weaknesses. It is a **data-driven approach** that helps:

- **Identify developmental gaps** in rural areas.
- **Guide local authorities and policy makers** to take corrective action.
- **Ensure targeted interventions** for improving rural livelihoods and infrastructure.
- **Promote transparency and accountability** in grassroots governance.
- Ultimately, it helps in **achieving inclusive rural development** and the goals of schemes like **Sabka Saath, Sabka Vikas**.

Key Findings of the Index

- India has over **2.5 lakh gram panchayats**, and the PAI has so far evaluated data from about **2.16 lakh gram panchayats in 29 states**.
- The index is based on **435 specific local indicators** spread across **nine key themes**:
 1. Poverty reduction
 2. Livelihood generation
 3. Health outcomes
 4. Child-friendliness
 5. Water sufficiency
 6. Clean and green initiatives
 7. Self-sufficiency in infrastructure
 8. Social justice and social security
 9. Good governance and women-friendliness

Categorisation of Gram Panchayats

Based on their performance, panchayats are grouped into five categories:

- Achiever (90+)
- Front runner (75 to <90)
- Performer (60 to <75)
- Aspirant (40 to <60)
- Beginners (<40)

Current Statistics:

- No gram panchayat has reached the “Achiever” level.
- 699 panchayats (0.3%) are classified as **Front Runners**.
- 77,298 panchayats (35.7%) are **Performers**.
- 1,32,392 panchayats (61.2%) are **Aspirants**.
- 5,896 panchayats (2.7%) fall in the **Beginners** category.

State-wise Highlights:

- **Telangana (270)** and **Gujarat (346)** have the most “Front Runner” panchayats.
- **Chhattisgarh** leads in the “Beginners” category with **1,449 panchayats**, followed closely by **Uttar Pradesh (1,237)**.

Conclusion

The *Panchayat Advancement Index* is a *timely initiative* that helps shift the focus from simply spending funds to *delivering measurable results* in rural governance. It promotes *data-informed policy decisions* and *empowers local bodies* to act based on evidence. While the fact that no panchayat has yet reached the “Achiever” category shows that challenges remain, the very presence of this index is a *positive step toward strengthening local democracy and rural development* in India.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements regarding the newly released Panchayat Advancement Index:

1. It covers data from all gram panchayats across the country.
2. The index categorises gram panchayats into five categories: Achiever, Front runner, Performer, Aspirant, Beginners.
3. As per the index, no gram panchayat has been considered as ‘Achiever’.

How many of the above statements are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Answer: (b) (2 and 3 only)

FAST TRACK SPECIAL COURTS

Why in News: Fast Track Special Courts (FTSCs) have shown remarkable efficiency in dealing with cases related to **rape and sexual offences against children under the POCSO Act**. With a **case disposal rate of 96.28%**, they have emerged as a powerful tool to deliver **speedy justice to survivors of sexual crimes**.

Why Are FTSCs Needed?

Even though India has a **strong legal framework** to address crimes like rape and child sexual abuse, the **number of pending cases in regular courts remains very high**. This leads to **delays in justice**, which not only discourages victims but also **weakens the deterrent effect of strict laws**.

Some major concerns include:

- **Delays in trials** due to backlog of cases and shortage of court infrastructure.
- **Lack of dedicated judicial resources** and trained personnel to handle sensitive cases under the POCSO Act.
- **Despite laws like the POCSO Act and CrPC mandating timelines**, investigations and trials often take longer than expected.

To address this problem, the **Supreme Court of India**, in its **Suo Motu Writ Petition (Criminal) No. 1/2019**, took up the issue of **delayed trials in POCSO cases**.

On **July 25, 2019**, the Court directed the government to ensure **timely and efficient disposal** of such cases.

Progress Made So Far

- In response, the **Union Government launched the Fast Track Special Courts (FTSCs) Scheme on October 2, 2019**, to speed up the resolution of rape and POCSO-related cases.
- **Note:** The scheme also aligns with the **Criminal Law (Amendment) Act, 2018**, which strengthened penalties for sexual crimes.
- The FTSC Scheme is implemented as a **Centrally Sponsored Scheme (CSS)** by the **Department of Justice, Ministry of Law & Justice**.

Key Features of the FTSC Scheme:

Features	Details
🎯 Focus	Rape and POCSO Act cases
🏢 Number of FTSCs	790 FTSCs set up (including e- POCSO courts)
📄 Disposal target	Each courts must resolve 165 cases per year
📊 Progress	Over 3 lakh cases disposed so far
📅 2024 Performance	88,902 new cases received, 85,595 resolved (almost 96.28% disposal rate!)

Way Forward

To make FTSCs even more effective, several improvements are needed:

1. Judicial and Administrative Reforms

- **States and High Courts** should frame specific guidelines to ensure faster trials.
- **Female public prosecutors** should be appointed for better sensitivity in handling cases.
- Only **judges experienced in POCSO cases** should be designated to these courts.

2. Upgrading Infrastructure

- Courts must be equipped with **modern technology** like **LCD projectors, audio-video recording systems, and video conferencing facilities.**
- There should be a **strong IT system** in place for **e-filing, digital storage of court documents, and case tracking.**

3. Human Resources and Training

- Increase the number of **trained staff and forensic experts** to speed up investigations and reporting.
- Regular **training and sensitisation programs** for judicial officers and prosecutors on handling child abuse and sexual assault cases.

4. Child-Centric Support Systems

- **Vulnerable Witness Deposition Centres (VWDCs)** should be set up in every district to help children give testimony in a safe and non-intimidating environment.
- Trials should be conducted **in-camera (closed door)**, without disclosing the identity of the child.
- The presence of a **child psychologist** at every FTSC is essential to help child victims through the trial process.

Conclusion


Fast Track Special Courts are a vital part of India’s effort to ensure timely justice for survivors of sexual violence. While their achievements are commendable, much more can be done to further strengthen their impact. With **continued reforms, better infrastructure, and a child-sensitive approach,** FTSCs can become even more efficient in delivering **justice without delay**—a key pillar of the rule of law.

EXPECTED QUESTION FOR UPSC CSE

Descriptive Question


Q. Critically examine the effectiveness of Fast Track Special Courts (FTSCs) in reducing case pendency and suggest measures to improve their functioning. [150 words] [10 marks]


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INTERNATIONAL RELATIONS

CHINA-INDIA RELATIONS AT 75

Why in News: Recently, China and India commemorated the 75th anniversary of the establishment of diplomatic relations. This milestone not only marks seven and a half decades of official ties between two of the world's oldest civilizations but also presents an opportunity to reflect on their shared journey, learn from the past, and look ahead with renewed purpose.

75 Years of Diplomatic Ties:

- India and China officially established diplomatic relations in 1950, making India the **first non-socialist country** to do so with the People's Republic of China.
- Over the last 75 years, the relationship has seen many **ups and downs**—sometimes tense, sometimes warm—but the two sides have kept **moving forward** like two great rivers (Yangtze and Ganges).

Note: The Chinese Ambassador to India has **outlined four key themes**—or “inspirations”—drawn from the history of **India-China relations** that can serve as guiding principles for the future. *These insights are based on his article published in The Hindu newspaper:*

1. Leaders' Strategic Guidance – The “Anchor” of Relations

What it means:

The relationship has been shaped and stabilized by the **vision and decisions of national leaders**, especially during **crucial moments**.

Key Examples:

- **1950:** Mao Zedong (China) and Jawaharlal Nehru (India) initiated ties – historic and bold for that time.
- **1988:** After decades of mistrust post-1962 war, **Rajiv Gandhi** visited China, marking a **reset**. Both sides agreed to “look forward,” i.e., move beyond past conflict.
- **2013–2019:** Xi Jinping and Narendra Modi engaged in “**hometown diplomacy**” and informal summits to build personal rapport.
- **2024:** Leaders met again in **Kazan** and agreed to open a **new chapter** in bilateral relations.

2. People-to-People Exchanges & Cooperation – The “Foundation” of Relations

What it means:

The **cultural, historical, and civilizational links** between

India and China have always created space for friendship and collaboration.

Key Historical Examples:

- **Buddhism:** Chinese monk **Xuanzang** came to India for scriptures; Indian monk **Bodhidharma** went to China to teach Zen Buddhism.
- **Dr. Kotnis:** An Indian doctor who served in China during WWII is revered in China.
- **Tagore:** Visited China and remains a symbol of cultural respect.

Recent Cooperation:

- Since the early 2000s, India and China have signed agreements on a “**strategic and cooperative partnership**”.
 - Bilateral trade has grown from **\$3 billion in 2000** to **\$138.5 billion in 2024**.
 - **Cultural exchanges** have flourished:
 - **Yoga** is very popular in China.
 - **Bollywood movies** have a big fanbase.
 - Over **50 dialogue mechanisms** (forums, meetings) exist covering education, tourism, trade, etc.
3. **Managing Differences Through Dialogue – The “Only Way” Forward**

What it means:

Even if differences arise, both sides **prefer dialogue and peace over conflict**.

Border Issues:

- The **boundary dispute**, a legacy of colonial history, has caused tensions (e.g., 1962 war, Galwan clash).
- Despite this, both countries **talk regularly through established mechanisms:**
 - Special Representatives' talks
 - Working Mechanism for Consultation on Border Affairs

Positive Development:

- By **late 2024**, India and China had managed to reduce border tensions through **intense diplomacy**.
- PM Modi's view: **Disagreements are natural**, even among neighbors or within families, but they shouldn't turn into full-blown disputes.

4. Global Cooperation – A Shared “Mission” for the Future

What it means:

India and China, as **major developing countries**, should work together on global issues — not just focus on bilateral problems.

Historical Cooperation:

- Together, they created the **Five Principles of Peaceful Coexistence (Panchsheel)**.
- Participated in the **Bandung Conference (1955)** to support decolonized Asian & African nations.

Current Global Roles:

- Both are part of multilateral forums like:
 - BRICS
 - SCO
 - G-20
- As **leaders of the Global South**, they can jointly:
 - Promote **fair global governance**
 - Defend **developing countries’ interests**
 - Advocate for **multilateralism** (as opposed to unilateral dominance by any one country)

Note: Chinese Ambassador quoted President Xi Jinping: “If China and India speak with one voice, the world will listen. If they join hands, the world will take notice.”

On-the-Ground Developments (2023–2025)

Recent months have seen meaningful steps toward deeper engagement:

- **Leaders and Foreign Ministers** have been meeting regularly.
- **Held:**
 - **23rd Special Representatives’ Meeting** on boundary issues.
 - **Vice Minister-Foreign Secretary Dialogue.**
- **Working on:**
 - Resuming direct flights
 - Visa easing
 - Kailash Mansarovar Yatra
 - Allowing resident journalists again

Trade & Exchange:

- **\$23.6 billion trade** in just **first two months of 2025**.
- **Over 70,000 visas** issued to Indians in 3 months — a **15% increase** from last year.

These are strong indicators of the willingness on both sides to look beyond contentious issues and focus on constructive collaboration.

Future Roadmap: What Should India & China Do Next?

1. Build a Healthy and Stable Relationship

- Accept that **we’re partners, not rivals**.
- **Don’t let the border issue** dominate the entire relationship.
- Follow **mutual respect, trust, understanding, and accommodation**.

2. Promote Mutually Beneficial Growth

- India has its “**Viksit Bharat 2047**” vision.
- China is pursuing **high-quality development**.
- Both should **align their growth strategies** and cooperate in areas like tech, infrastructure, green energy, etc.

3. Strengthen Global Cooperation

- Together, support:
 - A **fairer multipolar world** (not dominated by one or two powers)
 - An **inclusive global economy**
- China, as **SCO Chair in 2025**, wants to work closely with India to make the summit a success.

Conclusion: Realising Gandhi’s Dream

Mahatma Gandhi once envisioned a future where a free India and a free China would cooperate for the good of Asia and the world. This vision remains profoundly relevant today. With over 2.8 billion people aspiring for peace, prosperity, and development, the responsibility to strengthen cooperation lies with both nations.

Guided by strategic vision, civilisational wisdom, and a shared sense of purpose, India and China can move beyond their differences to become pillars of a more balanced, just, and peaceful world order. Their cooperation is not just a regional necessity but a global imperative in the 21st century.

EXPECTED QUESTION FOR UPSC CSE

Descriptive Question

Q. In light of the 75th anniversary of diplomatic ties, critically examine the four key principles that can guide the future of India-China relations. Also, suggest a roadmap for building a stable and constructive partnership between the two nations. [250 words] [15 marks]

BIMSTEC SUMMIT 2025

Why in News: The **6th BIMSTEC Summit** was recently held in **Bangkok, Thailand**. The Summit focused on improving regional connectivity, increasing trade, and adopting the much-awaited **BIMSTEC Charter**, which gives a formal structure and guiding principles to the organization.

About BIMSTEC

- The **Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC)** is a regional organization formed in **1997** to foster cooperation among seven countries located near or around the **Bay of Bengal**. It was originally called **BIST-EC**, and Myanmar's joining led to its renaming as BIMSTEC.
- **Members:** Bangladesh, Bhutan, India, Myanmar, Nepal, Sri Lanka, and Thailand.
- **Objective:** To promote economic growth, social progress, and regional integration across sectors like **trade, transport, energy, technology, fisheries, tourism, environment, and disaster management**.
- There are **14 priority sectors**, each led by a different member country.

Key Highlights of the 6th BIMSTEC Summit:

Bangkok Vision 2030

A strategic plan called "**Bangkok Vision 2030**" was adopted to make BIMSTEC a stronger, more united, and resilient regional organization in the coming years.

BIMSTEC Centre of Excellence for Disaster Management

A new regional disaster management center will be set up in **India**. This will help member countries work together in handling natural disasters like earthquakes, floods, and cyclones, and improve relief and rehabilitation efforts.

Trade and Transport Agreements

Important agreements were signed to improve trade ties and develop better transport networks among the BIMSTEC countries.

Joint Disaster Relief Response

The members promised to work closely on disaster relief operations, especially in light of the recent **earthquake in Myanmar**.

Why is BIMSTEC Strategically Important?

Geopolitical Importance

BIMSTEC includes seven countries from **South Asia and Southeast Asia**, surrounding the **Bay of Bengal**. This area is crucial because around **25% of the world's trade** passes through it, making it an important region in global trade and geopolitics.

Enhanced Regional Connectivity

- The **India-Myanmar-Thailand Trilateral Highway** (started in 2002) aims to connect the three countries over **1,360 km** by road, improving trade and people-to-people contact.
- The **Mekong-Ganga Cooperation (MGC)**, started in 2000, connects India with five Southeast Asian countries, focusing on tourism, culture, and transport linkages.

Economic Growth and Trade Potential

The combined population of BIMSTEC countries is around **1.5 billion people**, with a total GDP of **about \$3 trillion**. However, trade within BIMSTEC is still very low compared to their trade with other regions. To improve this, BIMSTEC is working on a **Free Trade Agreement (FTA)**, which could increase regional trade by **20-30%**.

Energy Cooperation

BIMSTEC countries plan to share energy resources, like **hydropower from Bhutan** and **natural gas from Myanmar**. Bhutan's hydropower capacity is expected to reach **10,000 MW by 2030**, much of which will be exported to India and other BIMSTEC nations.

Joint Efforts in Environment and Disaster Management

The Bay of Bengal region often faces **natural disasters** such as cyclones, floods, and earthquakes. For example, **Cyclone Amphan in 2020** affected **14 million people in India and Bangladesh**. The new **BIMSTEC Disaster Management Centre** will help all member countries work together in dealing with such calamities.

BIMSTEC countries are also serious about **climate change** and are working towards green energy and sustainable development goals. **India, for instance, plans to produce 500 GW of renewable energy by 2030.**

Regional Security and Counter-Terrorism Cooperation

BIMSTEC members jointly tackle issues like **terrorism, drug smuggling, and human trafficking**. In 2017, India hosted the first **BIMSTEC Joint Working Group on Counter-Terrorism** to enhance cooperation on security matters.

BIMSTEC vs SAARC

SAARC (South Asian Association for Regional Cooperation) has remained inactive mainly due to political tensions between **India and Pakistan**. BIMSTEC, which excludes Pakistan, has emerged as a better alternative for regional cooperation and connectivity.

At the same time, as **China expands its influence** in the region through projects like the **Belt and Road Initiative (BRI)**, BIMSTEC provides India and like-minded nations a platform to promote regional collaboration based on mutual interests.

Promoting People-to-People and Cultural Connections

Programs like the **Mekong-Ganga Cooperation (MGC)** have boosted tourism and cultural exchanges. More than **2.5 million tourists from BIMSTEC countries visit each other's nations annually**, fostering stronger ties and cultural understanding.

India's Leading Role in BIMSTEC

India has consistently taken the lead in BIMSTEC through various initiatives:

- **Hosting important meetings** and proposing key projects like the **Disaster Management Centre**.
- Aligning BIMSTEC's objectives with its **Neighbourhood First** and **Act East Policies**, aimed at improving ties with neighboring countries and Southeast Asia.
- Driving **economic initiatives** as one of the largest economies in the group.
- Leading **security cooperation** through military exercises and intelligence sharing.
- Actively participating in **regional dialogues** to address collective challenges.

Conclusion

BIMSTEC has emerged as a crucial regional grouping for enhancing *economic cooperation, connectivity, disaster management, energy sharing, and security collaboration*. India's active involvement in BIMSTEC not only strengthens its *regional leadership* but also complements its broader diplomatic goals through the *Act East and Neighbourhood First policies*. In an era of shifting geopolitics, BIMSTEC holds the potential to bring together South and Southeast Asia for collective prosperity and peace.

EXPECTED QUESTION FOR UPSC CSE

Descriptive Question

Q. Discuss the strategic importance of BIMSTEC for India's Act East and Neighbourhood First policies. How does India's role within BIMSTEC align with its regional aspirations? [15 Marks] [250 Words]

INDIAN OCEAN RIM ASSOCIATION (IORA)

Why in News: India is set to assume the **chairmanship of the Indian Ocean Rim Association (IORA) in 2025**. As part of its leadership, India aims to **enhance governance, boost funding through private partnerships, integrate technology, and promote maritime education**. These efforts align with India's **SAGAR vision (Security and Growth for All in the Region)** and are designed to make IORA a stronger platform for regional cooperation and sustainable development.

What is IORA?

The **Indian Ocean Rim Association (IORA)** is a **regional intergovernmental organisation** that was formally established on **7 March 1997**. The idea for IORA emerged in **1995**, during a visit by **Nelson Mandela** to India. He emphasised the need for cooperation among the countries that share the Indian Ocean.

Originally known as the **Indian Ocean Rim Association for Regional Cooperation (IOR-ARC)**, the organisation was formed to **promote peace, economic cooperation, and sustainable development** in the Indian Ocean region.

Structure of IORA

- The **Council of Foreign Ministers (COM)** is the apex decision-making body. It meets **once a year**.

- The **Committee of Senior Officials (CSO)** meets **twice a year** to review progress and implement IORA's agenda.
- Various **Working Groups and forums** consisting of government officials, business leaders, and academics support the implementation of projects and policies.

Member Countries of IORA

IORA has 23 Member States, which include coastal countries around the Indian Ocean. These are:

Australia, Bangladesh, Comoros, France, India, Indonesia, Iran, Kenya, Madagascar, Malaysia, Maldives, Mauritius, Mozambique, Oman, Seychelles, Singapore, Somalia, South Africa, Sri Lanka, Tanzania, Thailand, United Arab Emirates (UAE), and Yemen.

Tip for UPSC: Countries like **France** and **Australia** are members due to their overseas territories in the Indian Ocean. Countries like **USA** and **China** are **not** members but act as **dialogue partners**.

Challenges in the Indian Ocean Region

1. Security Threats

- Piracy
- Terrorism
- Human and drug trafficking

2. Environmental Risks

- Cyclones, rising sea levels, and marine pollution
- Overfishing and coral reef degradation

3. Development Gaps

- Poor infrastructure
- Political instability
- Limited financial resources and technical capacity

Key Issues Faced by IORA

Funding Constraints

- IORA depends heavily on **voluntary contributions from member states**, which is **inadequate**.
- Its annual budget is only **a few million dollars**, whereas the **Indian Ocean Commission (IOC)**—with just 5 members—has a **\$1.3 billion budget (2020–25)**.
- Sectors like **maritime security, blue economy, and fisheries management** require **long-term, sustainable investment**.

Institutional Limitations

- IORA has a **small Secretariat** with limited manpower.
- **Manual and outdated systems** reduce efficiency in project implementation and policy tracking.

Geopolitical Limitations

- IORA is dominated by **middle and small powers**.
- Superpowers like the **USA and China** are only **dialogue partners**, and not fully engaged.

India's Priorities as IORA Chair (2025–2027)

Under its SAGAR vision, India plans to:

1. **Enhance the IORA Budget**
 - Seek **public-private partnerships** with stakeholders from sectors like **shipping, oil & gas, fisheries, and tourism** to strengthen funding.
2. **Integrate Technology**
 - **Digitise governance** and data systems to improve coordination, efficiency, and policy-making.
3. **Promote Maritime Education and Research**
 - Collaborate with universities and technical institutes to launch **industry-relevant courses** such as **marine accounting, oceanography, and logistics**.

Way Forward for a Stronger IORA

Private Sector Engagement

- Involve **shipping companies, marine insurance firms, and port operators** in funding and decision-making.

Leverage Strengths of Member States

- **Australia:** Marine science and environmental monitoring
- **France and Singapore:** Advanced maritime technology and port management
- **UAE and Oman:** Investments in port infrastructure and blue economy sectors

Promote Traditional Knowledge

- Use local and **traditional maritime practices** from countries like **Sri Lanka, Maldives, and Seychelles** to ensure **sustainable marine governance**.

Strengthen International Partnerships

- Deepen engagement with **dialogue partners** like the **USA, EU, and Japan** for financial and technical support.

Skill Development

- Offer **interdisciplinary training** to youth and professionals to meet **maritime sector employment demands**.

Encourage Research Collaboration

- Promote joint **industry-academia projects** to address region-specific challenges such as **coastal erosion, marine pollution, and fisheries conservation**.

Conclusion

The Indian Ocean region is strategically important for *global trade, energy flows, and biodiversity*. Yet, it faces *shared transnational threats*—climate change, maritime insecurity, and development disparities.

As the *incoming Chair of IORA*, India is *uniquely positioned* to lead institutional reforms, bridge funding gaps, and advance regional cooperation through its *SAGAR vision*. By combining *technology, education, private sector participation, and international partnerships*, India can

help *transform IORA into a more dynamic and effective organisation*.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following countries:

- | | |
|-----------|--------------|
| 1. France | 2. Australia |
| 3. China | 4. USA |

How many of the above countries are members of the Indian Ocean Rim Association (IORA)?

- | | |
|----------------|--------------|
| (a) Only one | (b) Only two |
| (c) Only three | (d) All four |

(b) Answer

Descriptive Question

Q. How can India leverage its SAGAR vision and partnerships with member-states to transform IORA into a more effective platform for regional cooperation? Discuss the potential challenges in achieving these goals. [250 words] [15 marks]

INDIA-US NUCLEAR DEAL AND THE FUTURE OF SMALL MODULAR REACTORS

Why in News: Recently, the **United States Department of Energy (US DoE)** has given permission to an American company, **Holtec International**, to **design and build nuclear reactors in India**. This is a major step forward in nuclear cooperation between the two countries and could open new doors for India's clean energy sector.

Key Developments

- The US DoE has allowed **Holtec International** to transfer its **small modular reactor (SMR) technology** to three companies in India:
 - **Holtec Asia** (Holtec's regional branch)
 - **Tata Consulting Engineers Ltd.**
 - **Larsen & Toubro Ltd. (L&T)**
- This permission comes under a strict US law known as **10CFR810 regulation**, which controls the transfer of nuclear technology to other countries.
- The move comes weeks after both countries announced plans to **renew their nuclear partnership** under the **US-India 123 Civil Nuclear Agreement**.

Why is this Important?

A New Chapter in India-US Nuclear Relations

For many years, tough American rules made it difficult for US companies to work on nuclear projects in India. Even though

the **123 Agreement** was signed in 2007, it failed to bring big results because of legal, safety, and investment concerns.

This recent approval signals a **fresh start** in fulfilling the promise of that deal.

Boost for India’s Nuclear Energy Sector

India has mostly used **older nuclear reactors** based on heavy water technology. The introduction of **SMRs** can **modernise India’s nuclear infrastructure**, providing safer, faster, and cleaner energy options.

The Liability Challenge

However, a key hurdle remains — India’s **Civil Liability for Nuclear Damage Act, 2010**. This law makes **equipment suppliers liable for damages in case of a nuclear accident**. This provision has made foreign companies hesitant to invest in India’s nuclear projects, fearing heavy penalties.

Unless this issue is addressed, foreign investment in nuclear energy will remain limited.

What are Small Modular Reactors (SMRs)?

Let’s break this down simply:

- **Small Modular Reactors (SMRs)** are **advanced nuclear power plants** designed to produce a limited amount of electricity — up to **300 megawatts (MW)** per unit. This is about **one-third the capacity of traditional nuclear reactors**.
- **As the name suggests:**
 - **Small:** Physically much smaller than conventional nuclear plants.
 - **Modular:** Can be **manufactured in factories and transported** to the installation site as ready-made units.
 - **Reactor:** Like larger reactors, they use **nuclear fission** (splitting of atomic nuclei) to produce heat and generate electricity.

Comparison: Older Heavy Water Reactors vs Small Modular Reactors (SMRs)

Aspect	Older Heavy Water Reactors	Small Modular Reactors (SMRs)
Size and Setup	Massive structures built entirely on-site. Construction takes years and costs billions. Uses 'heavy water' to sustain reactions, making them unique but expensive.	Compact in size some small enough to fit on a truck. Factory-made parts allow quicker and easier assembly.
Fuel and Efficiency	Uses natural uranium, requiring little processing, but generates less energy per ton.	Uses enriched uranium, which produces more energy in less space and lasts longer before needing refueling, making them highly efficient.
Safety	Based on older technology and safety standards. Relies on human operators and backup systems. Less capable of automatically handling emergencies.	Built with modern 'passive safety' systems. Can automatically cool down or shut off without human help - like a car with automatic emergency braking.
Flexibility	Fixed in one location, designed to power large grids.	Highly flexible. Can be installed in remote areas, industrial sites, or disaster zones due to their small, portable design.
Cost and Time	Expensive and time-consuming - often takes a decade or more and heavy investment	Faster and cheaper. Can be built within a few years and cost less upfront thanks to factory-based manufacturing.

What is the US-India 123 Civil Nuclear Agreement?

Popularly known as the **123 Agreement**, it was signed in 2007 to allow **civil nuclear trade and cooperation between India and the United States**.

- The agreement was necessary because of a US law (**Atomic Energy Act of 1954, Section 123**) which mandates a formal pact for sharing nuclear technology for peaceful purposes.
- It was a landmark deal because it ended India’s decades-long isolation from international nuclear trade.

What is 10 CFR Part 810 Regulation?

This is a **US regulation** that controls the transfer of nuclear technology from American firms to other countries.

- It allows only the transfer of **unclassified nuclear technology**-like designs, construction methods, operation, and maintenance for commercial nuclear reactors.
- It **does not allow transfer of nuclear weapons-related information or materials** like enriched uranium.
- The recent permission to Holtec came under this regulation, showing a controlled but progressive approach to nuclear trade.

Conclusion

This development marks a significant step forward in India’s energy transition. As India moves towards **cleaner**

and safer energy sources, SMRs could play a vital role in ensuring energy security while reducing carbon emissions. However, legal challenges like the *nuclear liability law* must be resolved to fully realise the potential of India-US nuclear cooperation.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

- Q. 10CFR810 regulation, recently seen in the news, is related to —
- (a) US trade tariffs
 - (b) Ozone-depleting substances
 - (c) Nuclear power plants
 - (d) Greenhouse gases and climate targets

Answer: (c)

Descriptive Question

Q. What are Small Modular Reactors (SMRs)? Examine the advantages of SMRs over the traditional Heavy Water Reactors. [150 words] [10 marks]

HUMANITARIAN MISSIONS BY INDIA

Why in News: Recently, India launched **Operation Brahma** to assist in rescue and relief efforts in **Myanmar**, after a powerful **7.7 magnitude earthquake** struck the country and neighbouring **Thailand**. This timely response once again highlighted India’s growing role as a **“First Responder”** in the region, underlining its commitment to humanitarian values and regional stability.

India’s Humanitarian Tradition

India has always been an **active and responsible participant in international humanitarian efforts**. Even though India is **not a signatory to the 1951 United Nations Convention on Refugees**, it has consistently practised essential humanitarian principles such as:

- **Non-Refoulement** (not sending refugees back to a country where they may face persecution)
- Voluntary repatriation
- **Equality before the law** for refugees and asylum seekers.

India is also a member of the **Executive Committee of the United Nations High Commissioner for Refugees (UNHCR)**, where it plays a constructive role in global refugee protection and humanitarian issues.

Major Humanitarian Missions by India in Recent Years

India has carried out several large-scale and high-impact **Humanitarian Assistance and Disaster Relief (HADR)**

missions in recent years, both for its own citizens and for people in foreign countries affected by conflicts or natural disasters. **Here’s a look at some significant operations:**

Operation Brahma (2024)

- Launched after the devastating earthquake in **Myanmar and Thailand**.
- India acted as a **“First Responder”**, delivering **15 tonnes of relief materials**.
- Dispatched **search and rescue teams**, medical personnel, and essential supplies including **tents, blankets, food items, water purifiers, and medicines**.
- A **C130J aircraft** was used to transport these relief materials to **Yangon**.

Operation Ajay (2023)

- Launched to safely evacuate Indian nationals from **Israel and Palestine** following the escalation of the **Israel-Hamas conflict** in October 2023.

Operation Kaveri (2023)

- Conducted to rescue Indians stuck in **Sudan**, where a violent conflict broke out between the **Sudanese Armed Forces and Rapid Support Forces (RSF)**.
- India safely evacuated hundreds of its citizens amidst heavy fighting.

Operation Dost (2023)

- Carried out to support **Turkey and Syria** after a massive earthquake in February 2023.
- India sent **search and rescue teams, medical aid, and relief materials**.

Operation Ganga (2022)

- Launched to evacuate Indians stranded in **Ukraine** after the **Russia-Ukraine conflict** began.
- India set up **24x7 control rooms** and arranged safe crossings via **Hungary, Poland, Romania, and the Slovak Republic**.

Operation Devi Shakti (2021)

- Initiated during the crisis in **Afghanistan**, after the **Taliban takeover**.
- Evacuated Indian nationals, as well as Afghan partners and other vulnerable individuals.

Vande Bharat Mission and Operation Samudra Setu (2020)

- **Vande Bharat Mission:** Conducted to bring back thousands of Indians stranded abroad due to the **COVID-19 lockdown**.
- **Operation Samudra Setu:** An Indian Navy-led operation to repatriate Indians from overseas.

Operation Raahat (2015)

- Organised to evacuate Indian and foreign nationals from **war-hit Yemen** amid the **Saudi-led military intervention**.

Operation Maitri (2015)

- Launched after a massive earthquake struck **Nepal**.
- India provided **rescue, evacuation, and humanitarian relief assistance**.

Operation Safe Homecoming (2011)

- A mix of **air and sea evacuations** to bring back Indian citizens stranded in **Libya** during the civil war.

Operation Sukoon (2006)

- Conducted during the **Israel-Hezbollah conflict in Lebanon**.
- Evacuated Indian citizens, as well as **Sri Lankans and Nepalese nationals**, from the war zone.

Why These Missions Matter

India’s humanitarian missions have not only showcased its capacity to respond swiftly to crises but have also reinforced its image as a **responsible regional and global actor**. These missions strengthen diplomatic ties, build goodwill, and position India as a **Humanitarian Superpower in the making**.

The Road Ahead: What India Needs to Do

As the world faces increasing **natural disasters, conflicts, and humanitarian crises**, India must adjust on multiple fronts to keep pace with these growing challenges:

- **Adopt a Future-Oriented Approach:** Past experiences alone won’t be enough. India should prepare for **complex and unpredictable threats** in the future — from climate disasters to cyber emergencies.
- **Improve Coordination Among Government Agencies:** Many government departments, **state governments, armed forces, media, and civil society groups** work together during relief operations. India needs to establish **better coordination mechanisms** to make these efforts more effective and seamless.
- **Leverage Regional and International Groupings:** India should actively use platforms like **IORA (Indian Ocean Rim Association), SAARC (South Asian Association for Regional Cooperation), BIMSTEC (Bay of Bengal Initiative), and QUAD** to carry out joint **Humanitarian Assistance and Disaster Relief (HADR)** missions, improve regional preparedness, and enhance mutual cooperation.

Conclusion

India’s active participation in humanitarian operations reflects its long-standing tradition of compassion, responsibility, and commitment to the **“Vasudhaiva Kutumbakam” (the world is one family)** philosophy. As humanitarian crises become more frequent and complex, India’s evolving leadership in the **HADR space** is both timely and necessary — a testimony to its rising global stature and moral responsibility.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following:

	Operation / Mission	Country
1.	Operation Brahma	Myanmar
2.	Operation Ganga	Turkey
3.	Operation Devi Shakti	Yemen
4.	Operation Kaveri	Ukraine

Which of the above pairs are correctly matched?

- (a) 1 only
- (b) 1 and 2 only
- (c) 2 and 3 only
- (d) 3 and 4 only

(a) Answer

EXTRADITION PROCESS

Why in News: In a major development in the pursuit of justice for the **2008 Mumbai terror attacks**, **Tahawwur Hussain Rana**, a key accused, has been **extradited from the United States to India**. He is now expected to **face trial in a special National Investigation Agency (NIA) court** in India. This extradition marks a significant step in India’s efforts to bring all conspirators of the **26/11 attacks** to justice.

What is Extradition?

Extradition is a formal legal process in which **one country hands over an individual** to another country **for trial or punishment** for crimes committed in the requesting country’s jurisdiction.

- It is usually based on a **bilateral treaty** between two countries or a **multilateral agreement**.
- Extradition without a treaty is **extremely rare**, and even with treaties, the process can be **complex and time-consuming**.

Extradition Treaties: How Do They Work?

Older Treaties

- These often contain a **list of specific crimes (e.g. murder, kidnapping, terrorism)**.
- Only people charged or convicted of these crimes can be extradited.

Modern Treaties

- Follow the principle of **dual criminality**, which means that the act must be **considered a crime in both countries**.
- For example, if both countries treat terrorism as a serious offence, extradition is more likely to be approved.

Exceptions to Extradition

- **Political offences** (like rebellion or sedition) are usually **excluded** from extradition.

- **Extradition can also be denied for reasons such as:**
 - Risk of unfair trial
 - Torture or death penalty
 - Lack of sufficient evidence

India's Extradition Network

- According to the **Ministry of External Affairs, India has signed extradition treaties with 48 countries**, including the **United States**.
- It also has **non-binding extradition arrangements with 12 other countries**, which are more flexible but less enforceable.

How Does the Extradition Process Work?

1. **Request Made:** The country where the crime occurred (in this case, India) **formally requests** extradition.
2. **Legal Review:** The country where the person is located (in this case, the US) **examines the request** through its legal system.
3. **Conditions Check:**
 - Some treaties allow extradition **only after conviction**.
 - Others allow extradition **once charges are officially filed**.
4. **Appeal and Final Order:** The accused can **appeal the extradition** in court. Extradition only happens **after all legal options are exhausted**.
5. **Custody and Transfer:** Once approved, officials from the requesting country **travel to take custody** of the individual.

India-US Extradition Treaty

- Signed in **June 1997** by representatives of both countries.
- Provides a **legal framework** for sending individuals back and forth to face justice.
- **Extraditable offences** are those that are **punishable with imprisonment of more than one year in both countries**.
- **Political offences are excluded**, making it harder to extradite individuals accused of politically motivated crimes.

Extradition in the Context of Terrorism

While India and the US have a treaty, **actual extraditions have been rare**, especially in **terrorism cases**.

Successful Extraditions from the US to India

- **Charanjeet Singh Cheema** (alleged Khalistani terrorist) – extradited in **2005**
- **Kulbeer Singh (Barapind)** – extradited in **2006**

Notable Rejections

- The US **refused to extradite David Headley**, another key planner of the **26/11 attacks**, who turned approver and entered a **plea bargain** in the US.

Who is Tahawwur Rana?

- **Tahawwur Hussain Rana** is a **Pakistani-origin Canadian national**, who was **living in the US**.

- **He is accused of:**
 - **Helping David Headley**, who conducted surveillance in Mumbai for the Lashkar-e-Taiba terror group.
 - **Being part of the wider conspiracy** behind the 2008 Mumbai attacks that left **166 people dead**.
- Though previously convicted in the US for **supporting terror plots**, he was **not convicted** in connection with the Mumbai attacks.

What Happens Next?

Now that Rana has been extradited:

- He will be **produced before a special NIA court** in India.
- India will **present evidence** collected during investigations.
- He is expected to **stand trial** for his alleged role in the 26/11 conspiracy.

Conclusion

The *extradition of Tahawwur Rana* is a *landmark moment in India's counter-terrorism efforts*. It reflects the growing strength of India's *legal diplomacy* and *international cooperation* on counter-terrorism.

However, this case also highlights the *challenges of the extradition process* — including legal hurdles, political considerations, and the need for strong bilateral relations.

For India, this development is not just about bringing one accused to justice, but about *sending a strong message that terrorism will not be tolerated, and justice will be pursued across borders*.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following countries:

- | | |
|--------|----------------|
| 1. USA | 2. UK |
| 3. UAE | 4. Switzerland |

How many of the above countries have an extradition treaty with India?

- | | |
|----------------|--------------|
| (a) Only one | (b) Only two |
| (c) Only three | (d) All four |

(d) Answer

Descriptive Question

Q. Extradition is a key tool in the fight against transnational crimes like terrorism and money laundering. Examine the legal and diplomatic challenges involved in extradition, with reference to recent cases like Tahawwur Rana. [250 words] [15 marks]

DEBT-TO-GDP RATIO (A KEY MEASURE OF FISCAL HEALTH)

Why in News: As both the Union Government and the states of India struggle to meet their debt targets, a few states such as West Bengal and Gujarat have emerged as positive examples in narrowing the debt gap. The Union government has announced that starting from 2026–27, the debt-to-GDP ratio will become India's primary fiscal anchor, with a target to maintain it between 49% and 51% by 2031.

What is the Debt-to-GDP Ratio?

The debt-to-GDP ratio is an important economic indicator that compares a country's total government debt to its Gross Domestic Product (GDP). It reflects how much the country owes compared to what it produces in a year.

- **Formula:** Debt-to-GDP Ratio = (Total Government Debt / GDP) × 100

What it Tells Us:

- A low debt-to-GDP ratio means the country's economy is strong enough to repay its debt without borrowing more.
- A high debt-to-GDP ratio suggests that the government may struggle to repay its debt, especially if economic growth is weak.

India's Fiscal Journey: Debt Trends

Early 2000s:

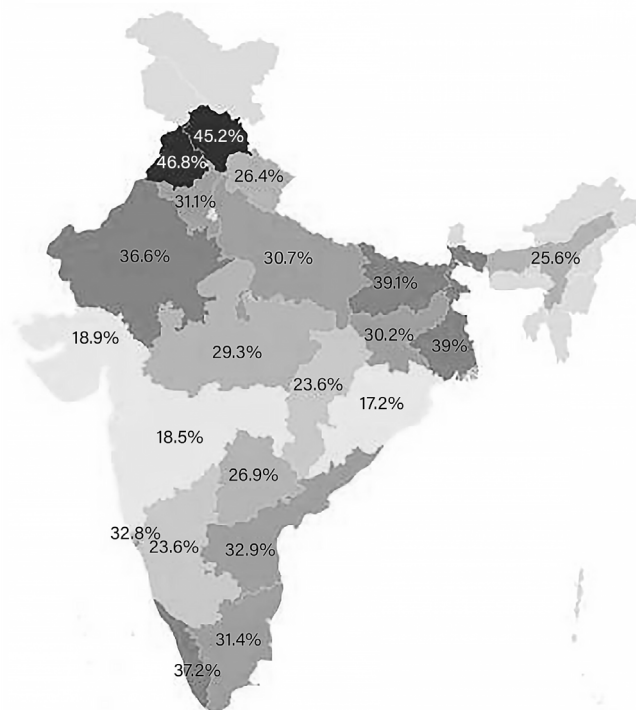
- When the Fiscal Responsibility and Budget Management (FRBM) Act was passed in 2003, India's total government debt (Centre + states) was 83.23% of GDP.
- **Centre's share:** 65.98%
- **States' share:** 31.79%

Post-COVID Spike:

- Due to pandemic-related spending and shrinking revenues, India's debt-to-GDP ratio rose sharply to 89.45% in 2020–21.
- This ratio decreased to 81.59% by 2023–24, but it still remains above the 2018 target levels.
 - **Centre's share (2023–24):** 57.45%
 - **States' share (2023–24):** 27.61%

State-wise debt-to-GDP ratios in 2022-23

Debt-to-GDP ratio
20% 25% 30% 35% 40% 45%



State-Wise Scenario

A recent study by NCAER (National Council of Applied Economic Research) analyzed 21 major Indian states and found that 17 states saw a rise in their debt-to-GDP ratios between 2012–13 and 2022–23.

States with the Highest Debt-to-GDP Ratios (2022–23):

- **Punjab:** 46.8%
- **Himachal Pradesh:** 45.2%
- **Bihar:** 39.1%

States with the Highest Rise Since 2012–13:

- **Punjab:** Increased by 15.8 percentage points
- **Tamil Nadu:** 13.5 percentage points
- **Telangana:** 12.6 percentage points

States with Improving Trends:

Only four states, including West Bengal and Gujarat, showed meaningful improvements in narrowing the debt gap over the last decade.

Why is a Lower Debt-to-GDP Ratio Important?

- It shows that the **government is spending within its means** and **future generations will not be burdened** by current borrowing.
- It helps improve **investor confidence**, strengthens **sovereign credit ratings**, and ensures **macroeconomic stability**.
- A lower ratio also allows the government more room to **increase spending during emergencies** like pandemics or natural disasters.

Fiscal Anchor from 2026–27

The **Union Government has decided to shift its fiscal anchor** from the fiscal deficit to the **debt-to-GDP ratio** beginning 2026–27. The **goal is to bring this ratio down to the range of 49%–51% by the year 2030–31**, helping ensure **long-term economic sustainability**.

Conclusion

India is entering a *crucial phase of fiscal reform* where the *debt-to-GDP ratio will guide future economic decisions*. While the Centre and most states are currently falling short of their debt targets, the shift towards a clear *fiscal anchor* offers a structured path to *sustainable public finance*. Learning from states like *West Bengal and Gujarat*, and focusing on *responsible borrowing and efficient spending*, India can build a stronger and more resilient economy.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements:

1. A low debt-to-GDP ratio indicates trouble paying off external debts due to the low level of foreign exchange, while a country with a high debt-to-GDP ratio typically has an economy that produces goods and services sufficient to pay back debts without incurring further debt.
2. Punjab, Himachal Pradesh and Bihar are among the states with highest debt-to-GDP ratios.

Which of the above statements is/are correct?

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

Answer: (b)

EXTREME POVERTY IN INDIA

Why in News: Dharmadam constituency in Kannur (Kerala) has become the **first constituency in the state to eliminate extreme poverty**. This local success story is part of a larger mission, as the **Kerala government aims to declare the entire**

state “**extreme poverty-free**” by **1 November 2025**, marking a historic milestone in India’s poverty alleviation efforts.

What is Extreme Poverty?

Extreme poverty refers to a condition where individuals or families **lack access to basic needs** for survival. In Kerala, the state government defines extreme poverty using **four key indicators**:

1. Food availability
2. Health
3. Income
4. Housing

In a detailed survey, the government identified **64,002 families** living in extreme poverty. To address this, **micro-level action plans** were created to improve their living conditions, focusing on each family’s specific needs.

Kerala’s Achievement and Vision

- Kerala has always performed well in social indicators.
- According to **NITI Aayog’s Multidimensional Poverty Index (MPI) 2021**, Kerala had the lowest poverty rate in India – just **0.71%**.
- The **Dharmadam model** shows how targeted governance, data-driven planning, and political will can **effectively eliminate extreme poverty**.

Understanding Global and Indian Poverty Lines

Global Benchmark:

- According to the **World Bank**, the **extreme poverty line is \$2.15 per day (2017 PPP)**.
- This benchmark reflects the **minimum income** needed to meet essential human needs in low-income countries.

History of Poverty Estimation in India

India has a long history of trying to measure and reduce poverty, beginning even before independence.

Pre-Independence Efforts:

- **Dadabhai Naoroji:** In his famous book “*Poverty and the Un-British Rule in India*”, he presented early poverty statistics.
- **National Planning Committee (1938):** Initiated under the Indian National Congress.
- **Bombay Plan (1944):** Proposed industrial and economic reforms.

Post-Independence Committees:

India’s poverty line was historically based on **minimum calorie intake**, then evolved to include **consumption expenditure and multi-dimensional factors**.

1. Planning Commission (1962)

Initiated formal poverty estimation using **per capita expenditure** as a benchmark.

2. Dandekar & Rath (1971)

Linked poverty line to **minimum calorie requirements** (2,400 kcal in rural areas and 2,100 kcal in urban areas).

3. Alagh Committee (1979)

- First official poverty line based on **nutrition-linked consumption basket**.
- Defined poverty in terms of food and basic non-food needs.

4. Lakdawala Committee (1993)

- Continued calorie-based method but allowed **state-specific poverty lines**.
- Ignored health and education spending.

5. Tendulkar Committee (2009)

- Shifted to **Mixed Reference Period (MRP)** for surveys.

- Included **health and education** in consumption expenditure.
- Set all-India poverty line at **Rs. 446.68/month for rural** and **Rs. 578.80/month for urban** populations (2004–05).

6. Rangarajan Committee (2012)

- Formed to **review and improve poverty estimation methods**.
- Proposed a **broader consumption basket** and considered **minimum living standards**.
- However, the **government did not officially adopt** its recommendations.

Major Poverty Alleviation Programmes in India

India has launched several programmes over the years to reduce poverty, improve employment, and ensure food security:

Programme	Focus Area
National Food for Work Programme	Food-for-work in rural areas
Swaranjayanti Gram Swarozgar Yojana (SGSY)	Rural self-employment
Sampoorna Grameen Rozgar Yojana (SGRY)	Employment + food grain support
Indira Awaas Yojana (IAY)	Rural housing for the poor
Pradhan Mantri Gramodaya Yojana (PMGY)	Basic services (housing, education, health)
Rural Employment Generation Programme (REGP)	Job creation via village industries
Prime Minister's Rozgar Yojana (PMRY)	Youth self-employment
Antyodaya Anna Yojana (AAY)	Subsidised food for poorest families
Swarna Jayanti Shahari Rozgar Yojana (SJSRY)	Urban employment and skill training

Conclusion

The *elimination of extreme poverty in Dharmadam* is not just a *symbolic achievement*; it is a *practical demonstration of what focused governance can achieve*. With *data-based planning, community involvement, and targeted social welfare*, the vision of a *poverty-free India* becomes more realistic. Kerala's model offers valuable *lessons for other states*, especially in how poverty can be addressed not just through income, but through a *holistic approach to food, housing, health, and dignity*.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following:

- | | |
|------------------------|-------------------------|
| 1. Alagh Committee | 2. Lakdawala Committee |
| 3. Tendulkar Committee | 4. Rangarajan Committee |

Which of the above are committees on poverty estimation in India?

- (a) 1 and 2 only
- (b) 1, 2 and 3 only
- (c) 2, 3 and 4 only
- (d) 1, 2, 3 and 4

Answer: (d)

REPO RATE AND INDIA'S MONETARY POLICY FRAMEWORK

Why in News: Recently, the **Monetary Policy Committee (MPC)** of the **Reserve Bank of India (RBI)** decided to reduce the **repo rate by 25 basis points (0.25%)**, bringing it down to **6%**. This move is significant as it directly impacts **borrowing costs, inflation, and overall economic growth** in the country.

What is the Repo Rate?

The **Repo Rate** (short for *Repurchase Rate*) is the **interest rate at which the RBI lends money to commercial banks for short periods**.

In this process:

- Banks sell **government securities** to the RBI.
- They agree to **buy them back later at a fixed price**.

This system helps the RBI manage:

- Liquidity in the economy (availability of money in the market)
- Inflation (rise in prices)
- Economic growth

Why Does the RBI Change the Repo Rate?

The RBI changes the repo rate from time to time to achieve several economic goals:

1. **To Control Inflation:** If inflation is rising (prices of goods and services increasing), the RBI increases the repo rate. This makes loans costlier, reducing borrowing and money supply in the market, helping to bring down prices.
2. **To Boost Growth:** When economic growth is slowing, the RBI lowers the repo rate. This makes loans cheaper, encouraging people and businesses to borrow, invest, and spend more, which boosts the economy.
3. **To Manage Liquidity:** By adjusting the repo rate, the RBI ensures there's neither too much nor too little money circulating in the economy.

What is Monetary Policy?

Monetary Policy is the process through which the **RBI controls the money supply, interest rates, and liquidity in the economy**. Its main objectives are:

- Maintaining price stability

- Ensuring economic growth
- Keeping financial markets stable

What is the Monetary Policy Committee (MPC)?

The **Monetary Policy Committee (MPC)** is a key body of the RBI responsible for deciding the **repo rate** and other monetary policy measures to manage inflation and economic growth.

When was it formed?

The MPC was created under **Section 45ZB of the RBI Act, 1934** (amended in 2016) and became functional in **October 2016**.

Mandate of the MPC

- To set the **benchmark repo rate** so that inflation stays within the **target range of 4% ± 2%**.
- To review monetary policy at least **four times a year** (usually every two months).
- To take decisions by **majority vote**. If there's a tie, the **RBI Governor has a casting vote**.

Composition of the MPC (6 Members)

- 3 Members from RBI:
 1. **RBI Governor** – Chairperson (Ex-officio)
 2. **Deputy Governor** in charge of monetary policy
 3. **One RBI officer** (usually an Executive Director)
- 3 Members Nominated by the Government of India:
 - Eminent economists or policy experts.
 - Appointed for **four years** and cannot be reappointed.
 - Selected by a **Search-cum-Selection Committee** led by the **Cabinet Secretary**.
 - Approved finally by the **Appointments Committee of the Cabinet (ACC)**.

Important Monetary Policy Tools Used by RBI

The RBI uses several tools to control money supply, inflation, and ensure financial stability. These are classified into **quantitative (general)** and **qualitative (selective)** measures.

A. Quantitative Tools (General Tools)

- **Repo Rate:** The interest rate at which RBI lends short-term money to banks. Increase in repo rate = costlier loans, less money in the market. Decrease in repo rate = cheaper loans, more money in the market.
- **Reverse Repo Rate:** The rate at which RBI borrows money from banks. Higher rate = banks park extra money with RBI (reduces liquidity). Lower rate = banks keep money for lending (increases liquidity).
- **Cash Reserve Ratio (CRR):** Percentage of a bank's total deposits to be kept in cash with RBI. High CRR = less money for lending. Low CRR = more money for lending.

- **Statutory Liquidity Ratio (SLR):** Minimum percentage of a bank's deposits to be maintained in **gold, cash, or government-approved securities**. High SLR = less money for loans. Low SLR = more money for loans.
- **Open Market Operations (OMO):** RBI buys or sells **government securities** in the open market.
 - **Selling securities** = takes out money from the market.
 - **Buying securities** = injects money into the market.
- **Marginal Standing Facility (MSF):** Banks can borrow overnight funds from RBI at a higher rate than repo, during emergencies.
- **Bank Rate:** Long-term interest rate at which RBI lends to banks. Less commonly used now but still relevant.
- **Liquidity Adjustment Facility (LAF):** A framework using repo and reverse repo rates to manage daily liquidity mismatches in the banking system.
- **Market Stabilization Scheme (MSS):** Special bonds issued to absorb excess money, usually during high foreign capital inflows.

B. Qualitative Tools (Selective Tools)

- **Moral Suasion:** RBI requests or advises banks to behave in a certain way, like not lending too much to risky sectors, without using strict rules.
- **Credit Rationing and Direct Action:** RBI can set limits on loans to certain sectors or companies and, if necessary, take action against banks for not following guidelines.

Conclusion

The *Repo Rate* is one of the most important tools in RBI's monetary policy toolkit, helping to control inflation, manage liquidity, and support economic growth. The *Monetary Policy Committee (MPC)* plays a central role in maintaining macroeconomic stability by adjusting this rate and other monetary policy instruments.

Understanding these concepts is crucial to grasp how *India's economy is managed and stabilized* in changing global and domestic conditions.

EXPECTED QUESTION FOR UPSC CSE

Descriptive Question:

Q. Discuss the role of the Monetary Policy Committee (MPC) in maintaining macroeconomic stability in India. How do the various monetary policy tools employed by the Reserve Bank of India contribute to achieving the committee's objectives? [250 words] [15 marks]

EQUALISATION LEVY (GOOGLE TAX)

Why in News: In a recent amendment to the **Finance Bill, 2025**, the **Central Government has proposed to abolish the 6% Equalisation Levy** (also known as the **Google Tax**) on digital advertising services. This change will take effect from **April 1, 2025**, and is being seen as a step toward aligning India's tax regime with global standards and improving international trade relations.

What is the Equalisation Levy?

The **Equalisation Levy (EL)** is a type of **direct tax** introduced in **2016** by the Indian government to **tax income generated by foreign digital companies from Indian users**, even when these companies have **no physical presence in India**.

It is **colloquially known as the "Google Tax"**, because it was primarily targeted at global tech giants like Google and Facebook that earn revenue through digital advertising in India but pay very little or no tax here.

Key Features of the Equalisation Levy

- **Introduced in 2016** at the rate of **6%** on the **amount paid for digital advertising services to non-resident companies**.
- The **6% levy is imposed only when the payment exceeds ₹1 lakh in a financial year**.
- It is applicable **only to business-related transactions**. **Personal use of services is exempt**.
- **Resident Indian businesses** making payments to foreign digital advertising platforms were required to **deduct the levy at source** before payment.

Expansion in 2020: 2% Levy on E-commerce Operators

In 2020, through an amendment to the **Finance Act**, the **scope of the equalisation levy was widened** to cover **non-resident e-commerce operators** supplying:

- Goods
- Services
- Or both

This new **2% levy** was **separate from the original 6% levy**, and it **covered revenues earned by foreign e-commerce platforms** like Amazon, Alibaba, and others who **sold goods or provided services online to Indian customers**.

International Pushback and Repeal of 2% Levy

The **United States government strongly opposed** both levies, especially the 2% version, calling them **"discriminatory and unreasonable"**. Their argument was that:

- The tax **targeted only foreign companies**, while **Indian companies were exempt**.
- This violated **principles of fair trade and digital economy taxation**.

In response to mounting pressure and to avoid a potential **trade war**, India repealed the **2% equalisation levy** in 2024 as part of negotiations with the US and other OECD countries on global digital tax norms.

However, the **original 6% levy on digital advertising** remained in force—**until now**.

What's Changing from April 1, 2025?

The government has **now proposed to abolish the remaining 6% equalisation levy on online advertising services**, effectively ending the Google Tax regime.

Implications of the Abolition

Cost Reduction for Businesses

- Removing the 6% EL will **lower compliance and taxation costs** for Indian businesses that advertise on global platforms.

Boost to the Digital Economy

- By aligning with **international tax norms**, India is likely to **attract more digital investment**, and **enhance the competitiveness** of its online advertising and e-commerce sectors.

Improved Indo-US Trade Relations

- This move is seen as a **confidence-building measure**, especially towards the US, signaling India's **willingness to resolve trade irritants** and support multilateral digital taxation frameworks.

Simplified Tax Policy

- It is part of India's broader strategy to **streamline the tax system**, reduce disputes and litigation, and make the business environment **more predictable**.

Conclusion

The abolition of the **6% Equalisation Levy from April 2025 marks the end of India's unilateral digital tax measures**, clearing the way for a **more coordinated global approach** to taxing the digital economy. It also reflects India's shift towards **tax simplification, investment friendliness, and global tax cooperation**—essential elements for building a strong digital future.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. The 6% Equalisation Levy in India is applicable on which of the following services?

- Online advertising services
- Export of consultancy services
- Sale of luxury goods in India
- E-commerce supply chain services

(a) Answer

INDIA ENDS TRANSHIPMENT FACILITY WITH BANGLADESH

Why in News: India has recently ended the transshipment facility it had allowed for Bangladesh. **This facility earlier enabled goods from Bangladesh to be transported via India's air cargo routes.** The decision came in the backdrop of rising logistical problems, strategic concerns, and controversial remarks made by Bangladeshi leaders.

Why Did India Terminate This Facility?

Logistical Challenges and Growing Congestion

- Indian exporters, especially from sectors like garments and pharmaceuticals, complained that a large number of trucks from Bangladesh arriving at India's transit points — like the Delhi Air Cargo Complex — was causing heavy congestion.
- Reports showed that about **20-30 truckloads of Bangladeshi cargo arrived daily**, leading to delays in clearing Indian cargo.
- This pushed up **air freight rates** and created a **logistical bottleneck**, affecting Indian traders and businesses.

Strategic and Diplomatic Concerns

- Recently, some Bangladeshi officials, during visits to China, made statements hinting that **Bangladesh held strategic leverage over India's northeastern region**.
- These remarks raised serious concerns in New Delhi as they were seen as **provocative and against India's sovereignty and security interests**.
- India thus reviewed several bilateral trade and transit arrangements, including this transshipment facility.

Impact on Indian Exporters

- There were complaints that sometimes **Bangladeshi cargo was getting priority** at Indian ports and cargo terminals.
- This led to increased delays and rising costs for Indian exporters, especially during the peak export season.
- Export industry bodies like the **Apparel Export Promotion Council (AEPC)** strongly demanded the withdrawal of this facility.

Compliance with International Trade Rules

- Though some questioned whether India's move violated **World Trade Organization (WTO)** rules on free transit of goods, Indian officials clarified that the decision was purely based on **operational difficulties and national interest**.

Understanding India-Bangladesh Relations

Despite this issue, India and Bangladesh have historically shared strong relations in several areas:

Trade

- Bangladesh is **India's largest trading partner in South Asia**.
- In **2023-24, bilateral trade stood at around \$12.9 billion**.
 - India's exports to Bangladesh: about **\$11.06 billion** (mainly textiles, petroleum, machinery, and chemicals)

- India's imports from Bangladesh: about **\$1.8 billion** (mainly garments, jute, and agricultural products)
- Both countries are working on a **Comprehensive Economic Partnership Agreement (CEPA)** to further reduce tariffs and boost investments.

Infrastructure and Connectivity

- **Old rail links have been revived**, and new bridges like **Maitri Setu** have been built to improve trade and movement.
- **20 river routes** operate as per a protocol between the two nations.
- The **Khulna-Mongla Port Rail Line** and various cross-border rail routes have helped enhance regional trade connectivity.

Energy Cooperation

- Projects like the **Maitree Super Thermal Power Plant** in Bangladesh and the **India-Bangladesh Friendship Pipeline** for diesel supply have strengthened energy ties.
- India also exports **over 1,100 MW of electricity** to Bangladesh through dedicated grid connections.

Defence and Security

- Joint military exercises like **Exercise Sampriti** (Army) and **Bongosagar** (Navy) are held regularly.
- Both countries collaborate in **counter-terrorism and intelligence-sharing**, particularly concerning insurgent groups in Northeast India.

Cultural and People-to-People Relations

- **Bangladeshi tourists form the largest group visiting India**, especially for medical treatment.
- Educational scholarships, film festivals, and cultural celebrations (like **Mujib Borsho**) continue to promote strong cultural ties.

Challenges in India-Bangladesh Relations

However, the relationship faces some hurdles:

Political Changes

- After the **ouster of Sheikh Hasina in 2024**, new leadership under **Muhammad Yunus** has adopted a more balanced foreign policy, engaging both India and China.
- This shift has created **strategic uncertainties** for India.

Water Sharing Disputes

- The long-pending **Teesta River water-sharing issue** remains unresolved.

- West Bengal fears losing water, while Bangladesh demands a fair share for its farmers.
- The stalemate strains diplomatic relations.

Border Security

- The **4,096-km border** faces challenges like **illegal migration, smuggling, and occasional clashes**.
- Recent incidents have highlighted the need for better coordination and strict border management.

China's Rising Presence

- China's growing investments in **Bangladesh's infrastructure, ports, and defence sectors** worry India.
- This could tilt the regional power balance, affecting India's strategic interests.

Conclusion

India and Bangladesh are at a crucial point in their relationship. While both nations have built strong trade and cultural ties, emerging challenges need careful handling.

What should be done?

- Resolve *political sensitivities and water-sharing disputes* through patient dialogue.
- Strengthen *border security cooperation* to curb illegal activities.
- Keep regional influence balanced by offering *competitive investments and infrastructure support*.
- Focus on *people-to-people connections* like tourism, healthcare, and education exchanges to maintain goodwill.

A relationship based on trust, mutual respect, and open communication will help both neighbours navigate these challenges.

EXPECTED QUESTION FOR UPSC CSE

Descriptive Question

Q. Critically examine the reasons behind India's termination of the transshipment facility with Bangladesh. Evaluate the broader implications of this decision on India-Bangladesh relations, keeping in view the regional geopolitics and economic cooperation. [250 words 15 Marks]

TACKLING MISINFORMATION IN INDIA

Why in News: The World Economic Forum's *Global Risks Report 2025* has spotlighted **misinformation and disinformation** as the most significant short-term global threat.

Difference Between Misinformation and Disinformation

Misinformation	Disinformation
False or inaccurate information shared without intent to deceive.	False or misleading information shared deliberately to mislead or deceive.
Unintentional-The person sharing it may believe it true	Intentional-The person knows it's false and wants to mislead.
Your uncle forwards a fake WhatsApp message about a health tip, thinking it's helpful	A group creates a fake video showing a leader making a hateful speech to stir up violence.
Still harmful, but often spread innocently.	Dangerous-can influence elections, incite violence, or manipulate public opinion.
Often from misinformed individuals, poorly researched articles, or rumors.	Often from political actors, state-sponsored campaigns, or troll farms.

What is a Global Risk?

WEF defines a **global risk** as:

- An event or trend that can badly affect a **large number of people**,
- Damage the **world economy**, and
- Harm **natural resources** or **political stability**.

Why is Misinformation such a Big Risk Now?

Because the digital world has exploded:

- Billions of people are using the internet and social media.
- **Artificial Intelligence (AI)** is making it easier to create realistic fake images, videos (deepfakes), and messages.
- **People are divided politically and socially, making them more likely to believe things that confirm their biases.**

This creates "information disorder" – where truth and lies get mixed up.

The Threat Landscape: Information Disorder

- India, with its digital population poised to **exceed 900 million users**, stands at a critical juncture. Its **diverse political and social fabric** provides fertile ground for manipulated narratives.
- **Without timely policy responses**, the country may face a crisis that spans far beyond the political domain.
- Disinformation not only sways voters and **erodes democratic institutions** but also **disrupts economies, fuels communal tension, and sparks international conflicts**.
- Trust in traditional media is waning. Citizens are increasingly **turning to social media for news and**

information—platforms that are rife with unverified content.

- Much of this misinformation is shared **through peer networks**, often without malicious intent but with harmful consequences. **The rise of deepfakes and AI-generated content exacerbates this problem, creating hyper-realistic but entirely false information that spreads rapidly.**
- **Former U.S. President Joe Biden's caution about an emerging "tech oligarchy"** is particularly relevant to India. **As the world's largest democracy, India must urgently implement strong digital governance measures.**
- A policy similar to the European Union's Digital Services Act—which addresses disinformation and Foreign Information Manipulation and Interference (FIMI)—could serve as a model.

Disinformation in India: An Escalating Crisis

- **India's information ecosystem** is already under strain. **Major political figures and parties have used social media platforms to amplify unverified or manipulated content.**
- According to a study (by the Indian School of Business and the CyberPeace Foundation):
 - **46%** of false content is political (e.g. fake speeches, wrong election data).
 - **33.6%** are about general issues (e.g. economy, policies).
 - **16.8%** are religious (e.g. targeting communities to create hate).
- **Hostile foreign actors** also play a role. Since the **2017 Doklam standoff**, India has faced a steady stream of Chinese-origin disinformation.

- In response, India banned over 300 Chinese apps, including TikTok, to reduce foreign interference. Platforms such as Weibo have been used to circulate distorted narratives about India, further complicating bilateral relations.
- Compounding the issue, a recent survey reveals that **young Indians—the country’s demographic dividend—**are especially vulnerable to online misinformation.
 - The report also highlights **that citizens in high-income nations are more concerned about disinformation** than those in lower-income countries, although India presents an important exception.

Steps Forward

The *Global Risks Report 2025* recommends several measures to address the spread of misinformation:

- **Upskilling developers** who work on algorithms to reduce embedded biases.
- **Establishing supervisory boards and AI councils** to ensure oversight of generative AI practices.
- **Enhancing public awareness and digital literacy**, particularly among youth.
 - Use campaigns like RBI’s **Financial Literacy Campaign** (with Amitabh Bachchan) to spread awareness.

India has already taken initial steps. **Initiatives like Shakti – India Election Fact-Checking Collective and the Deepfake Analysis Unit** were instrumental during the 2024 general elections.

With over 400 million Facebook users and more than 500 million on WhatsApp, India is the largest market for many tech giants. This gives Indian regulators significant leverage to push for policy changes.

Inspired by the EU’s model, India could enforce:

- **Regular audits and transparency requirements** for platforms with over 45 million users.
- **Mandated risk assessments** for very large online platforms (VLOPs).
- **Disclosure norms** for online political ads, including funding sources and targeted demographics.

However, this push for regulation must avoid overreach. Excessive surveillance or censorship could erode democratic safeguards. The *WEF Global Risks Report* itself flags both censorship and state surveillance as emerging global threats. Therefore, India must strike a careful balance between curbing misinformation and protecting individual freedoms.

Conclusion

India, as the world’s largest democracy, must lead by example:

- Build a **resilient society** where people are informed, critical, and united.
- Strengthen its **laws, policies, and public awareness.**

- Encourage **cooperation between government, civil society, and tech companies.**

The key is not just fighting falsehoods—but protecting **truth, unity, and democracy** in an increasingly digital and divided world.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Which of the following statements correctly describe the risks associated with misinformation and disinformation as identified in the WEF Global Risks Report 2025?

1. They can destabilize democratic institutions and disrupt economies.
2. Deepfake technology and AI-generated content contribute to the spread of disinformation.
3. Misinformation is primarily spread by malicious actors with clear intent to deceive.
4. India’s ban on several Chinese apps post-Doklam was partly aimed at countering information manipulation.

Select the correct answer using the code below:

- (a) 1 and 2 only (b) 1, 2 and 4 only
 (c) 2, 3 and 4 only (d) 1, 2, 3 and 4

Answer: (b)

VANDE BHARAT EXPRESS (SAFETY CONCERNS)

Why in News: The *Vande Bharat Express* has revolutionized passenger rail travel with its modern design and faster connectivity. However, a recent **railway safety report** has raised



some serious concerns about the train’s **vulnerability to accidents**, especially due to **cattle run-overs** and **obstructions on tracks**.

Status of Vande Bharat Network (as of December 26, 2024)

- A total of **136 Vande Bharat train services** were running across India.
- These trains connect key cities and reduce travel time significantly.
- They are among the **flagship projects** of Indian Railways and are being expanded rapidly.

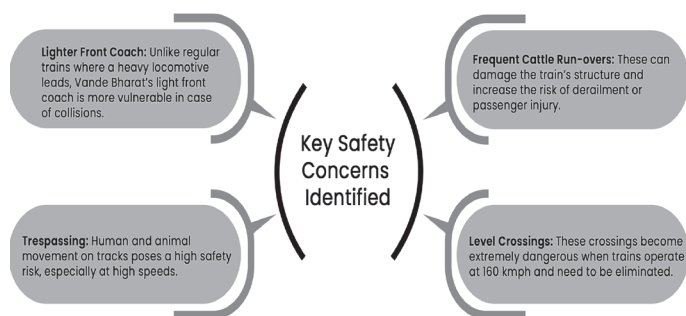
What is the Vande Bharat Express?

Introduced in **February 2019**, the first Vande Bharat Express ran between **Delhi and Varanasi**.

- It is India's first **semi-high-speed, fully air-conditioned train**, with **modern amenities, automatic doors, GPS-based passenger information, and faster acceleration**.
- Manufactured by the **Integral Coach Factory (ICF), Chennai**, it is a **train set** — meaning no separate engine or locomotive, as propulsion is distributed throughout the train.

What Does the Safety Report Say?

- A report on railway safety highlights that the **leading coach of Vande Bharat is lighter than traditional locomotives**.
- This makes it **more prone to damage or serious accidents** if the train hits **cattle** or other obstructions at **high speeds**, especially at **160 kmph**.
- The report was prepared by the **Commissioner of Railway Safety** under the **Ministry of Civil Aviation**.



Engineer's Clarification (The Train Is Safe)

- A former Principal Chief Mechanical Engineer at ICF defended the design.
- He explained that the **front nose cone** is designed to **crumple** and **absorb impact**, reducing the force of a collision.
- The **cattle guard** at the front is meant to **scoop and deflect obstructions**, minimizing damage.
- He noted that **train sets worldwide**, including **EMUs (Electric Multiple Units)** and **MEMUs (Mainline EMUs)**, use similar lightweight designs.
- According to him, "**lighter doesn't mean unsafe**" — it's standard in modern train design.

Why Is the Design Like This?

- Vande Bharat is designed for **speed and energy efficiency**.
- It is **engine-less** — propulsion is distributed across the coaches for better performance.
- Lightweight coaches help the train to **accelerate and decelerate faster**, saving time and fuel.
- This model is similar to **European and Japanese high-speed trains**.

What Solutions Does the Report Recommend?

To ensure safe operation of high-speed trains, the report suggests:

- **Fencing of Tracks:** Build **strong fences** along tracks to prevent **cattle and human trespassing**.
- **Eliminate Level Crossings:** Convert all crossings into **rail overbridges (ROBs) or underpasses**, especially on high-speed corridors.
- **Monitor Vulnerable Areas:**
 - Identify **regular trespassing zones** and **cattle crossing points**.
 - Deploy **Railway Protection Force (RPF)** personnel and **increase patrolling**.
 - Construct **subways or footbridges** for safe crossing.

The Bigger Picture: Safety vs. Speed

- The Vande Bharat project represents India's ambition to **modernize rail transport** and provide **world-class amenities**.
- However, as trains become faster, **safety infrastructure must be upgraded** simultaneously.
- **Track fencing, advanced signaling, elimination of crossings, and public awareness** are essential to prevent accidents.

Conclusion

- Vande Bharat Express is a symbol of **India's technological progress**, but the safety concerns flagged in the report **must not be ignored**.
- A **balanced approach** is needed — continuing the expansion of modern trains **along with serious investment in safety systems**.
- Only then can India truly match global standards in **safe and efficient rail travel**.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

- Q. With reference to the Vande Bharat Express, consider the following statements:
1. It is a semi-high-speed train with distributed propulsion and no separate locomotive.
 2. The nose cone and cattle guard in Vande Bharat are designed to absorb and deflect impacts during collisions.

3. The train is manufactured by the Integral Coach Factory, Chennai.
4. It can currently operate on all railway lines across India at 200 kmph.

Which of the statements given above are **correct**?

- (a) 1, 2 and 3 only (b) 1 and 4 only
 (c) 2 and 3 only (d) 1, 2, 3 and 4

Answer: (a) 1, 2 and 3 only

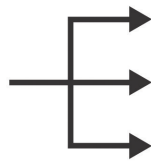
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CHINA'S RARE EARTH EXPORT CURBS

Why in News: The ongoing trade war between the United States and China has taken a new turn. China has recently imposed export restrictions on rare earth elements (REEs) and magnets.

Note: These materials are essential for manufacturing various products — from semiconductors and smartphones to fighter jets and missile systems. Although the restrictions are not a total ban, they require Chinese refiners to seek permits, which could delay global supplies.

What Are Rare Earth Elements (REEs)?

Rare earth elements are a group of 17 chemical elements found in the earth's crust. Despite their name, they are not actually rare in terms of availability, but they are difficult to extract and purify. These elements are divided into two types:

- Light REEs
- Heavy REEs

Some countries with natural reserves of REEs include India, China, Myanmar, Japan, Australia, and North Korea.

Why Are They Important? The specific elements targeted by China — dysprosium, gadolinium, lutetium, samarium, scandium, terbium, and yttrium — have crucial applications:

- **Dysprosium:** Used in electric motors and hard drives due to its strong magnetic properties.
- **Gadolinium:** Helps in nuclear reactor shielding and medical imaging equipment.
- **Lutetium:** Applied in PET scanners and oil refining.
- **Samarium:** Found in powerful magnets for electronics.
- **Scandium:** Used in making strong aluminium alloys for fighter aircraft.
- **Terbium:** Helps in lighting systems of electronic gadgets.
- **Yttrium:** Used in cancer treatments and high-tech superconductors.

Why China's Move Matters Globally?

- China is the dominant player in refining heavy REEs. Nearly all the heavy REEs used across the globe are processed there.
- This gives China significant power over critical supply chains in electronics, defence, and clean energy sectors.

- Even if China hasn't banned exports, the new restrictions mean delays and disruptions for many countries.

Impact on India

- For India, the immediate impact may be limited. India imports a relatively small quantity of REEs — about 2,270 tonnes in 2023–24.
- Most of India's high-end manufacturing still happens abroad, in countries like China and Japan. Japan, for instance, has prepared for such disruptions by maintaining long-term stockpiles.
- However, the situation highlights India's vulnerability. Although India has about 6% of the world's REE deposits, environmental concerns have slowed mining and refining activities.
- Currently, India extracts light REEs through the public sector firm Indian Rare Earths Ltd (IREL), especially from monazite-rich beach sands in Kerala.

India's Response: The National Critical Mineral Mission (NCMM)

- Recognising the strategic importance of REEs, India has launched the National Critical Mineral Mission (NCMM).
- The goal is to make India more self-reliant and reduce dependency on a few countries for critical materials.

Key highlights of NCMM:

- Plan to take up 1,200 mineral exploration projects.
- Offer exploratory licenses to encourage private participation.
- Auction more critical mineral blocks for mining.
- Aim to secure both domestic sources and foreign partnerships for critical minerals.

The mission includes REEs under the broader category of "critical minerals" — those essential for modern technologies, clean energy, and national security.

Conclusion

China's decision to control REE exports underscores the need for supply chain diversification. For India, it is a wake-up call to fast-track domestic capabilities in rare earth extraction and refining. With initiatives like the NCMM, India aims to become more resilient and self-reliant in critical mineral supply, aligning with both economic and strategic goals.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q1. With reference to Rare Earth Elements (REEs), consider the following statements:

1. India is self-sufficient in both mining and refining of heavy rare earth elements.
2. China is the world’s dominant player in refining heavy rare earths.
3. Monazite-rich beach sands in Kerala are a major source of rare earth elements in India.

Which of the statements given above is/are correct?

- (a) 1 and 2 only (b) 2 and 3 only
 (c) 1 and 3 only (d) 1, 2 and 3

Answer: (b)

Descriptive Question

Q2. China’s rare earth export restrictions reveal the geopolitical importance of critical minerals in the 21st-century economy. In this context, critically evaluate India’s preparedness and policy approach to ensure supply chain security for rare earth elements and other critical minerals. [150 words] [10 marks]

INDIA, THE ARCTIC, AND THE NORTHERN SEA ROUTE

Why in News: The world of global trade is changing rapidly. Uncertainty due to the U.S.–China trade war, climate change, and shifting global alliances is pushing countries to rethink their trade strategies. One of the most interesting developments is the growing importance of the Arctic region, both as a sign of climate crisis and as a potential trade and energy hub.

The Arctic (From Climate Alarm to Trade Route)

- The Arctic region is melting at a dangerous pace. According to NASA, the Arctic Sea ice in September is shrinking at a rate of 12.2% per decade compared to the 1981–2010 average.
- This melting ice is opening up a new trade route known as the Northern Sea Route (NSR), which connects the Atlantic and Pacific Oceans through the Arctic.
- This could become the shortest route between Europe and Asia, drastically cutting shipping time and costs.
- This new route is gaining importance not only for economic reasons but also for geopolitical and strategic interests.
- The NSR could challenge traditional routes like the Suez Canal and Malacca Strait, which are vulnerable to political tensions.

India and the Arctic: A History of Early Engagement



- India’s interest in the Arctic is not new. It signed the Svalbard Treaty in 1920 and is the only developing country besides China to have an Arctic research base called Himadri.
- India has also studied how the melting Arctic ice could affect monsoon patterns and agriculture at home.
- In 2022, India released its Arctic Policy, focusing on science, climate, and strategic engagement. But now, there is a need to act on this policy to take advantage of emerging trade opportunities.

Strengthening Shipbuilding for Arctic Navigation

- Navigating the Arctic is tough. The icy conditions require special ships and equipment.
- **Note:** Recognising this, the Indian government announced a \$3 billion Maritime Development Fund in the 2025–26 Budget.
- It also plans to support shipbuilding clusters to create a stronger and more diverse fleet.
- India must invest in building ice-class ships, ice-breaking fleets, and provide specialised training for its sailors. These steps are crucial for India to use the NSR effectively.

Multilateral Engagement and the Arctic Circle India Forum

- India needs to engage in international dialogues for capacity building, knowledge sharing, and training. An opportunity for this will come soon, with the Arctic Circle India Forum being held in New Delhi. This event can help India shape the global Arctic conversation from an Asia-centric and India-specific perspective.
- India should also consider appointing a Polar Ambassador to represent its interests on Arctic issues globally.

- This would strengthen India’s voice in platforms like the Arctic Council, where non-Arctic observers like India now outnumber the actual Arctic states.

Environmental Responsibility and Climate Commitments

- While the NSR offers commercial advantages, it is also situated in one of the most fragile ecosystems on Earth.
- In 2024, studies (e.g., in the journal Nature Climate Change) revealed that global temperatures temporarily breached the 1.5°C mark, putting the goals of the Paris Agreement at risk.
- India must strike a balance: taking advantage of new opportunities while not contributing to environmental harm. This will require careful diplomacy, eco-friendly technologies, and responsible exploration.

India’s Arctic Partnerships

- Russia, with its vast Arctic coastline and experience in Arctic navigation, is a natural partner.
- In 2024, India and Russia decided to form a working group on the NSR.
- **Note:** The Chennai–Vladivostok Maritime Corridor could link Indian ports to key Arctic gateways like Pevek, Tiksi, and Sabetta. However, deeper ties with Russia could also mean indirectly supporting China’s Polar Silk Road, part of its Belt and Road Initiative (BRI). This route lets China avoid the Malacca Strait chokepoint and gives it greater control over Arctic trade.
- On the other hand, aligning with the Western bloc, including the U.S., may reduce India’s access to Arctic resources controlled by Russia. The ideal but complex path is for India to cooperate with both the U.S. and Russia, while also building partnerships with Japan and South Korea. These countries share India’s concerns about growing China-Russia ties in the Arctic.
- Together, this group can push for a reform of the Arctic Council, making it more inclusive and fairer for all stakeholders.

Conclusion

India must walk a fine line in the Arctic: using the Northern Sea Route for trade while preserving the fragile ecosystem, and balancing relations with both Western powers and Russia. The time for action is now. With proper investments, smart diplomacy, and strategic partnerships, India can become a key player in the future of Arctic trade and governance.

PRELIMS SPECIAL

Climate Impact on Monsoon

- Arctic warming (4 global average) disrupts atmospheric circulation.
- Less sea ice = lower rainfall in western/peninsular India; more in central/northern India.
- Threatens agriculture and water security.

Energy Security

- Arctic holds 13% of world’s oil, 30% gas.
- India imports Arctic hydrocarbons via Sakhalin-I, Vankorneft (Russia is now India’s top oil supplier).

Strategic Trade Routes

- Northern Sea Route (NSR) = shortest Asia-Europe link, bypasses Suez.
- NSR traffic rose to 37.9 MT in 2024; cuts costs/time for Indian trade.
- Linked via INSTC for access to Europe & Central Asia.

Critical Minerals Access

- Arctic (e.g., Greenland) rich in rare earths — key for India’s tech & defense sectors.
- Supports ‘Make in India’ & Critical Mineral Mission.

Scientific Research & Collaboration

- India’s Himadri Station (Svalbard) aids climate studies.
- Indo-Norway ties boost Arctic-tropics climate link research.
- Insights aid Himalayan (Third Pole) ecosystem understanding.

EXPECTED QUESTIONS FOR UPSC CSE

Descriptive Question

Q3. India’s engagement with the Arctic is a strategic necessity shaped by trade, climate, and geopolitics. Examine the opportunities and challenges India faces in its pursuit of Arctic partnerships and the use of the Northern Sea Route, with particular reference to environmental concerns and evolving global alliances. [250 words] [15 marks]

INDIA’S FLUE GAS DESULPHURISATION (FGD) POLICY

Why in News: As India intensifies its push towards cleaner energy and emission controls, the debate around the mandatory installation of Flue Gas Desulphurisation (FGD) units in coal-fired power plants has resurfaced.

Key Details:

- A recent study commissioned by the Office of the Principal Scientific Adviser to the Government of India, and conducted by the National Institute of Advanced Studies (NIAS), Bengaluru, has proposed a significant policy shift—calling for a rollback of the universal FGD mandate issued by the Ministry of Environment, Forest and Climate Change (MoEFCC).



- The study recommends that instead of applying the FGD requirement to all 537 coal-fired thermal power plants in the country, it should be limited only to those that burn imported coal or high-sulphur coal (greater than 0.5% sulphur content).
- This recommendation is based on scientific assessments, economic considerations, and the distinctive environmental and climatic conditions of India.

What is FGD?

- It’s a technology that removes sulphur dioxide (SO₂) from the exhaust gases of coal-fired power plants before they are released into the air.
- Think of it like a filter that catches SO₂ from the smoke of power plants.

The FGD Mandate and Its Status

In 2015, in an effort to reduce sulphur dioxide (SO₂) emissions—a key contributor to air pollution and acid rain—the Environment Ministry made it mandatory for all thermal power plants to install FGD systems. The deadline for compliance was originally set for 2018.

However, in the face of technical, logistical, and financial challenges, compliance has been repeatedly delayed.

Current Situation (as of 2025):

Status	Numbers
Total coal-fired power plants	537
Plants in process of installing FGD	230
Plants that haven’t even ordered FGD	260
Plants that have actually installed FGD	Only 8%
Cost of installing FGD	₹1.2 crore per megawatt
Current coal capacity	218,000 MW
Expected by 2032	283,000 MW

Why Rethink the Blanket Policy?

The NIAS report challenges the “one-size-fits-all” approach, making a case for differentiated policy implementation based on fuel type and regional environmental factors:

1. Low Sulphur Indian Coal

About 92% of coal used in India has low sulphur content (between 0.3% and 0.5%), which leads to relatively lower SO₂ emissions. The Central Pollution Control Board (CPCB) already mandates stack heights of at least 220 metres for power plants. This design enables effective dispersion of emissions, reducing the concentration of pollutants at ground level.

2. Indian Climatic Conditions

The study highlights that India’s tropical climate, coupled with high stack emissions, does not favor the accumulation of sulphur compounds near the ground, thereby reducing risks associated with local air quality degradation and acid rain.

In support of this, a 2024 study by IIT-Delhi, also cited in the NIAS report, concluded that acid rain was not a significant issue in India—a finding that weakens the rationale for blanket FGD deployment.

3. High Economic and Environmental Cost

Installing FGDs across all plants would significantly increase:

- Capital and operational costs
- Electricity consumption within power plants
- Freshwater usage, critical in water-stressed areas

The report estimates that from 2025 to 2030, FGD installations could:

- Increase CO₂ emissions by 69 million tonnes
- Reduce SO₂ emissions by 17 million tonnes

This trade-off raises an important policy question: should marginal SO₂ reductions come at the cost of increased carbon emissions and water usage?

The Climate Paradox: SO₂ as a Cooling Agent?

The report also brings an unusual but scientifically debated perspective to the fore: the role of SO₂ emissions in masking global warming. According to the Intergovernmental Panel on Climate Change (IPCC), sulphur aerosols have a cooling effect on the atmosphere.

From 2010 to 2019, SO₂ emissions are believed to have offset global warming by approximately 0.5 C compared to pre-industrial levels. While not a justification for unchecked pollution, this nuance adds complexity to the discussion on emission controls and climate balance.

Way Forward:

Given the data and analysis, the NIAS study argues for a targeted and risk-based approach. Policymakers may consider:

- Restricting FGD mandates to plants using high-sulphur or imported coal
- Investing in modern stack monitoring and dispersion modelling tools
- Focusing on overall emission control strategies (including NOx and PM)
- Prioritising water-efficient emission technologies

This approach could ensure cost-effective compliance, while also aligning with India's twin goals of clean air and energy security.

Conclusion

India is at a critical juncture, balancing environmental imperatives with energy needs and developmental goals. While reducing SO₂ emissions remains important, science-backed, region-specific strategies may offer a more sustainable path than blanket mandates.

The challenge is not only about what we regulate—but also how wisely and effectively we do so. As India moves towards its 2030 energy targets and commitments under the Paris Agreement, regulatory decisions must integrate scientific evidence, economic viability, and environmental justice.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q4. With reference to Flue Gas Desulphurisation (FGD) in thermal power plants, consider the following statements:

1. FGD systems are primarily used to remove nitrogen oxides (NOx) from flue gases.
2. Indian coal typically has a high sulphur content exceeding 1%.
3. Installation of FGD units increases freshwater consumption and CO₂ emissions.
4. The Central Pollution Control Board mandates tall stacks in power plants to aid dispersion of sulphur dioxide.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 3 and 4 only
- (c) 1, 2 and 3 only
- (d) 2, 3 and 4 only

Answer: (b)

INDIA'S MONSOON FORECAST FOR 2025

Why in News: India is likely to receive an 'above normal' monsoon this year — the second consecutive year of good rainfall — according to the India Meteorological Department (IMD).

In its first long-range forecast for 2025, the IMD said that rainfall is expected to be 105% of the Long Period Average (LPA) with a margin of error of ±5%.

What is the Long Period Average (LPA)?

The LPA is the average rainfall recorded in the southwest monsoon season (June to September) over a long period — currently calculated for the years 1971 to 2020, which stands at 87 cm.

Based on how rainfall compares to the LPA:

- Less than 90% = Deficient
- 90% to 95% = Below Normal
- 96% to 104% = Normal
- 105% to 110% = Above Normal
- Above 110% = Excess Rainfall

So, with a forecast of 105%, 2025 is expected to have 'above normal' rainfall.

A rain check

Data for the charts were sourced from the Centre for Monitoring Indian Economy (CMIE) and the Ministry of Statistics and Programme Implementation (MOSPI).

Chart 1: The difference in first rainfall forecast by the IMD and the actual rainfall in the respective years (in % points)

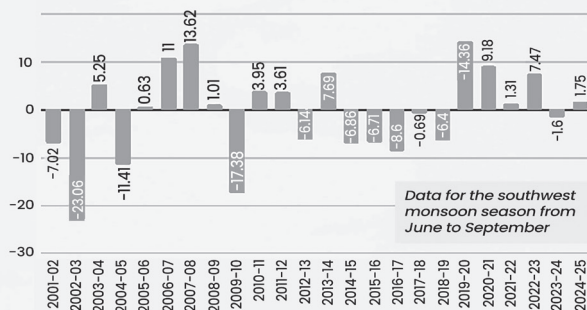


Chart 2: The spatial distribution of rainfall across regions during the southwest monsoon season (as a % deviation from normal). Data for 2023-24

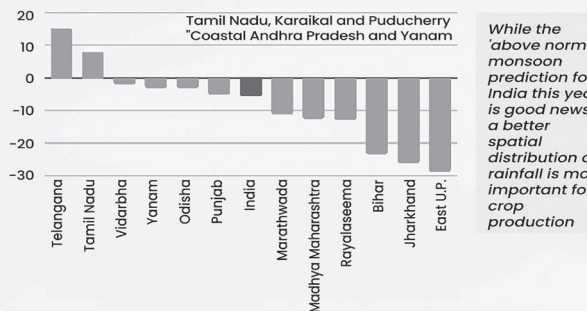


Chart 3: The chart shows headline and food inflation (Y-o-Y change, in %)



Can We Trust the Forecast?

While this is good news, we should remember that IMD's early forecasts have often missed the mark. In over 20 years, the first forecast has matched actual rainfall within the $\pm 5\%$ margin only 8 times. However, things are improving.

- Since 2007, IMD has been using an advanced statistical model for better accuracy.
- Since 2021, it adopted a multi-model ensemble dynamical system that combines global climate models with IMD's own models.
- According to former Secretary at the Ministry of Earth Sciences, this has greatly improved forecast accuracy, though seasonal forecasting still remains a major scientific challenge.

What About El Niño and La Niña?

Monsoons are deeply affected by global climate phenomena, especially:

- **El Niño:** Warms the Pacific Ocean surface and reduces monsoon rains in India.
- **La Niña:** Cools the Pacific and usually brings more rain to India.

For 2025, the IMD has predicted neutral ENSO (El Niño–Southern Oscillation) conditions, meaning neither El Niño nor La Niña is expected to influence the monsoon. That's a good sign.

Another important factor is the Indian Ocean Dipole (IOD). A positive IOD (warmer western Indian Ocean) usually enhances rainfall in India, while a negative IOD does the opposite.

Rainfall Varies by Region

While the national average rainfall might be above normal, regional differences are often stark.

- In 2023, India had below normal rainfall overall, but Tamil Nadu, Telangana, and Puducherry saw excess rainfall.
- At the same time, Bihar, Jharkhand, and East UP received much less rainfall.
- The IMD is working on better regional rainfall forecasting, but accurately predicting spatial variation remains a challenge.

Good Monsoon = Better Harvest = Lower Food Inflation

A good monsoon usually boosts farm output, which helps keep food prices stable. This is crucial for a country like India, where agriculture directly affects inflation.

In 2024, India received 108% of LPA rainfall, and as a result:

- Agricultural output grew by 3.6%
- Foodgrain production rose by 5.7%
- Food prices fell, especially from January 2025 onwards

Food inflation, which was over 8% in December 2024, dropped below 6% in January 2025, and by March 2025, food inflation was lower than headline inflation — the first time since July 2023.

Note: But Rainfall Alone Isn't Everything

The Director at WRI India points out that many other factors affect food prices:

- Heatwaves
- Crop diseases
- Transport issues
- Trade restrictions

In fact, an HSBC report says that rising temperatures, not just poor rainfall, are now the biggest threat to food prices.

Future Outlook for Agriculture

According to government estimates:

- 166 million tonnes of foodgrains will be produced in 2024–25
- Cereal production (159 million tonnes) and rice production (121 million tonnes) will hit record growth rates

But for agriculture, timing and regional distribution of rainfall matter more than just total rainfall.

For instance:

- In Maharashtra, excess rainfall destroyed onion crops
- In the Gangetic plains and Punjab, less rain delayed paddy sowing, which pushed up food costs

Conclusion

While the 'above normal' monsoon forecast for 2025 is promising, India must remain alert. Better spatial forecasting, climate-resilient farming, and market preparedness will help turn this forecast into real economic gains for farmers and consumers alike.

EXPECTED QUESTION FOR UPSC CSE

Descriptive Question

Q5. While a good monsoon is vital for India's agricultural output and inflation control, rainfall alone does not guarantee food security. In the light of this statement, discuss the multifaceted relationship between monsoon patterns, agricultural performance, and food inflation in India. [250 words] [15 marks].

UNDERSTANDING EARTHQUAKES: CAUSES, EFFECTS, AND MEASUREMENT

Why in News: Recently, a powerful earthquake struck Myanmar, causing significant damage and triggering regional emergency relief efforts. This incident highlights the importance of understanding earthquakes — what causes them, how they are measured, and where they commonly occur.

What is an Earthquake?

An earthquake is the sudden shaking of the Earth's surface

caused by a quick release of energy from within the Earth's crust (called the lithosphere). This energy moves outwards in the form of seismic waves, which travel through the Earth, shaking the ground and sometimes causing cracks, landslides, or even tsunamis.

The point inside the Earth where the earthquake starts is called the focus, and the point directly above it on the surface is called the epicenter.

Types of Seismic Waves

There are two main types of waves that travel through the Earth's interior:

Primary Waves (P-waves)

- They are the fastest seismic waves.
- Move like a push-pull motion (compressional waves).
- Can travel through both solids and liquids (like the Earth's mantle and outer core).
- They are the first waves recorded by instruments called seismographs.

Secondary Waves (S-waves)

- Move slower than P-waves and arrive after them.
- Cause ground shaking in an up-and-down or side-to-side motion.
- Can only travel through solid materials.
- They cannot pass through the Earth's liquid outer core, creating a region called the S-wave shadow zone where these waves are not felt.

Causes of Earthquakes

Earthquakes happen when built-up stress inside the Earth is suddenly released. This can happen due to both natural and human-made reasons.

Natural Causes

- **Tectonic Plate Movements:** The Earth's crust is made up of huge plates that constantly move. When these plates collide, pull apart, or slide past each other, stress builds up and is released as an earthquake.
 - **Subduction Zones:** Where one plate slides under another, causing powerful, deep earthquakes.
- **Faulting:** Cracks in the Earth's crust, called faults, can slip suddenly due to pressure, causing earthquakes.
- **Volcanic Activity:** The movement of magma underground can crack rocks, triggering earthquakes, often near volcanoes.

Human-Induced Causes

- **Mining Operations:** The collapse of deep underground mines can cause tremors.
- **Reservoir-Induced Seismicity:** The weight of large reservoirs can disturb stress patterns in the crust.
- **Explosions:** Nuclear or large chemical explosions can mimic earthquake effects.
- **Over-Tourism & Construction:** In ecologically fragile areas like the Himalayas, heavy infrastructure, overuse of groundwater, and increased vehicle load can destabilize the land, triggering minor quakes and landslides.

How Are Earthquakes Measured?

Earthquakes are measured in two ways:

- **Magnitude:** The actual energy released at the earthquake's source.
- **Intensity:** The effect of the earthquake on people, buildings, and the environment at a particular place.

Scales Used

- **Richter Scale:** Measures the amount of energy released. It's a logarithmic scale — each whole number increase represents a tenfold increase in energy.
- **Moment Magnitude Scale (M_w):** More accurate for measuring large earthquakes. It considers the size of the fault, amount of slip, and rock properties.
- **Mercalli Intensity Scale:** Describes what people feel and the damage observed, from I (not felt) to XII (total destruction).
- **Modified Mercalli Intensity (MMI):** A refined version that assesses local effects because the same earthquake can feel different in different places.

Where Do Earthquakes Commonly Occur?

Earthquakes mostly occur along fault lines and tectonic plate boundaries. Major earthquake zones are:

- **Ring of Fire:** A belt around the Pacific Ocean known for frequent earthquakes and volcanoes (Japan, Indonesia, USA, Chile, etc.).
- **Alpine-Himalayan Belt:** Stretches from Southeast Asia through the Himalayas to the Mediterranean. This zone forms where the Indian Plate collides with the Eurasian Plate.
- **Mid-Oceanic Ridges:** Underwater mountain chains like the Mid-Atlantic Ridge, where plates move apart, causing tremors.
- **Continental Rift Zones:** Such as the East African Rift, where the Earth's crust is breaking apart.

Sagaing Fault (Myanmar)

A significant fault line in Myanmar, the Sagaing Fault is a right-lateral strike-slip fault, meaning the land on either side moves horizontally. It stretches over 1,000 km, making it one of Southeast Asia's longest active faults.

Conclusion

Earthquakes are a natural phenomenon caused by the movement of the Earth’s crust, but human activities are also increasingly contributing to minor seismic disturbances. Understanding how earthquakes occur, where they are likely to strike, and how to measure them is crucial for disaster preparedness and risk management. As urbanization expands into vulnerable zones like the Himalayas and coastal belts, responsible development and strict environmental safeguards are more important than ever.

EXPECTED QUESTION FOR UPSC CSE

Descriptive Question

Q6. Discuss the primary causes and characteristics of earthquakes, and evaluate the role of both natural and human-induced factors in triggering them. Also, explain how earthquakes are measured and distributed globally. [250 words [15 marks]

CLINIDIUM LALITAE: A NEW BEETLE SPECIES

Why in News: In a recent breakthrough, scientists from the Zoological Survey of India (ZSI) have discovered a new species of beetle in the Talley Valley Wildlife Sanctuary in Arunachal Pradesh.

Key Details

This beetle belongs to a rare group of insects known as ground beetles, specifically from the subfamily Rhysodinae. The new species has been named *Clinidium lalitae* in honour of Dr. Lalita Ray Chaudhury, a pioneering coleopterologist (scientist who studies beetles) and former ZSI researcher.

About *Clinidium lalitae*

- *Clinidium lalitae* is a ground beetle species belonging to the subfamily Rhysodinae, a rare group found on forest floors.
- These beetles are small, dark-coloured, and have a distinct body shape that helps them navigate through leaf litter and decaying wood.
- They are important for forest ecosystems, playing a key role in nutrient cycling and maintaining soil health.
- This beetle species was discovered in a biodiverse forest ecosystem, highlighting the rich but lesser-known fauna of North-East India.
- The species was named in tribute to Dr. Lalita Ray Chaudhury, who contributed significantly to the study of beetles during her tenure at ZSI.

About Talley Valley Wildlife Sanctuary

- **Location:** Situated in Arunachal Pradesh, about 30 km from Ziro town.

- **Altitude:** The sanctuary is located at a height of 2,400 metres, making it a cool, high-altitude forest plateau.
- **Landscape:** The area consists of dense forests, including silver fir trees and pine-covered plateaus.
- **Wildlife:** Home to many endangered species, including the elusive clouded leopard, which indicates a healthy ecosystem.
- **Ecological Value:** The sanctuary is a hotspot of biodiversity and offers immense scope for research and conservation.

About the Zoological Survey of India (ZSI)

- **Established:** On 1st July 1916, with roots going back to 1875, when the Zoological Section was set up in the Indian Museum, Calcutta.
- **Nodal Body:** ZSI is the premier institution for conducting faunal surveys and taxonomic research in India.
- **Works under:** The Ministry of Environment, Forest and Climate Change (MoEFCC).

Main Objectives of ZSI:

- Survey and monitor animal species across ecosystems and protected areas.
- Maintain and develop the National Zoological Collections.
- Conduct taxonomic and systematic studies of Indian fauna.
- Publish key scientific works, such as Fauna of India, Fauna of States, and Fauna of Conservation Areas.
- Periodically review the status of threatened and endemic species.
- Carry out ecological and biological studies of species and their communities.
- Create and maintain the Fauna of India database.
- Provide training and capacity building in taxonomy and conservation.
- Offer wildlife forensic and advisory services to academic and government institutions.
- Maintain museums and regional centres for public and academic outreach.

Conclusion

The discovery of *Clinidium lalitae* not only adds a new species to India’s already rich biodiversity but also underlines the importance of ongoing scientific exploration in remote ecosystems like the Eastern Himalayas. Such findings reaffirm the need to protect fragile habitats like the Talley Valley Wildlife Sanctuary. The dedication of scientists like Dr. Lalita Ray Chaudhury, in whose memory this beetle is named, continues to inspire new generations in the field of taxonomy and conservation science.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. *Clinidium lalitae*, recently seen in the news, is a species of –

(a) Reptiles	(b) Mammals
(c) Flowering plants	(d) Insects

Answer: (d)

INDIA'S FIRST-EVER SEED GERMINATION DATABASE

Why in News: In a landmark step towards strengthening India's efforts to restore its degraded ecosystems, the Ecological Restoration Alliance-India (ERA-I) has launched the country's first-ever Seed Germination Database. This open-access digital resource is aimed at supporting restoration practitioners, nursery managers, researchers, and native plant enthusiasts by providing scientifically tested germination techniques for native plant species.

What is the Seed Germination Database?

The database is a comprehensive collection of over 1,000 germination techniques covering 465 native plant species found across India. It is designed to help users improve the success rate of plant propagation by offering tested, standardised protocols instead of traditional trial-and-error methods.

Key Features of the Database

- **Covers Diverse Native Species:** Includes a wide range of plants like
 - *Aegle marmelos* (wood apple),
 - *Ficus benghalensis* (banyan tree),
 - *Madhuca longifolia* (mahua),
 - *Withania somnifera* (ashwagandha),
 - *Ziziphus mauritiana* (Indian jujube), and many more.
- **Collaborative Effort:** Developed by 23 individuals from 11 institutions, this resource consolidates decades of hands-on learning from across India.
- **Freely Accessible:** The database is open to the public and can be accessed by anyone, helping to democratise ecological knowledge and reach local communities.
- **Scientific Precision:** Offers tailored techniques to enhance germination success, improve nursery outputs, and reduce seed wastage.

Why Was This Database Needed?

Challenges in Native Seed Germination:

- Traditionally, nursery workers and restoration professionals relied on trial-and-error methods, often with poor results.
- In natural conditions, the seed-to-plant survival rate is less than 1%, mainly due to harsh environmental factors and lack of scientific knowledge.
- Many native species are underused in reforestation efforts because their germination techniques were not documented.

The new database fills these critical knowledge gaps and supports scientific and scalable restoration practices.

Why Native Plants Matter in Restoration

- **Ecosystem Resilience:** Native plants are adapted to local soils, climate, and ecological systems, making them more sustainable.
- **Support Biodiversity:** They form mutualistic relationships with native insects, birds, mammals, and soil fungi, preserving ecosystem balance.
- **Climate Resistance:** Native species can withstand local climatic extremes better than exotic or hybrid species, making them vital for climate-resilient restoration.

Link to India's Restoration Goals

- India has pledged to restore 26 million hectares of degraded land under the Bonn Challenge, a global initiative launched in 2011 to bring 350 million hectares of land under restoration by 2030.
- This seed database will help India achieve its Bonn Challenge targets more effectively by standardising and accelerating native plant propagation.

Impacts and Future Implications

- **Scalable Solutions:** Enables the quick setup of native plant nurseries across India.
- **Knowledge Sharing:** Serves as a centralised platform for germination techniques that can be updated and expanded in the future.
- **Community Empowerment:** Makes scientific methods accessible to local communities, NGOs, and farmers engaged in land restoration.

Conclusion

The Seed Germination Database by ERA-I is more than just a collection of techniques—it's a critical tool in India's journey towards ecological sustainability. By addressing longstanding knowledge gaps, empowering local action, and aligning with global restoration goals, this initiative sets a new benchmark for how science can directly serve conservation efforts.

This database can be a model for other countries facing similar challenges of land degradation and biodiversity loss. In a world grappling with climate change, every native seed counts—and with this database, India is ensuring each one gets a better chance to grow.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

- Q. India's first-ever Seed Germination Database has been released by:
- Forest Research Institute
 - Indian Agricultural Research Institute
 - Ecological Restoration Alliance-India
 - Botanical Survey of India

Answer: (c)

WARANGAL CHAPATA CHILLI AND KANNADIPPAYA GET GI TAG

Why in News: Two unique Indian products—Warangal Chapata Chilli from Telangana and Kannadippaya from Kerala—have been granted the prestigious Geographical Indication (GI) tag. This not only gives these products legal protection but also enhances their market value, both domestically and internationally. It also helps protect the cultural identity and livelihood of the communities that produce them.

What is a GI Tag?

A **Geographical Indication (GI)** tag is a form of **intellectual property right** used on products that have a **specific geographical origin** and possess **qualities, reputation, or characteristics** essentially due to that origin. GI tags are governed in India by the **Geographical Indications of Goods (Registration and Protection) Act, 1999**.

GI tagging helps:

- Prevent **unauthorized use** of a registered product name.
- Promote **rural and tribal artisanship**.
- Enable **global recognition** and **premium pricing**.

Warangal Chapata Chilli

- **State:** Telangana
- **Also known as:** Tomato Chilli, because of its bright red colour and round tomato-like shape.
- **Recognition:** This is the 18th product from Telangana to receive the GI tag, and the third agricultural product, after the Banaganapalli Mango and Tandur Red Gram.

Unique Features

- Mild in heat but rich in natural red colour due to high capsaicin oleoresin content.
- The chilli contains 6.37% to 6.75% oleoresin, making it highly sought after for paprika extraction and natural colouring.
- Scoville Heat Units (SHU) range: 3,100 to 6,500, which makes it mildly spicy.
- **There are three types of Warangal Chapata Chilli:**
 - Single Patti
 - Double Patti
 - Odalu
- Its thick-walled pods are widely used in pickle making and for creating colour-rich spice blends.

Significance

The GI tag will help local farmers and spice processors by ensuring fair prices, brand identity, and export potential. It also preserves the regional agricultural heritage.

Kannadippaya

- **State:** Kerala

- **Product Type:** Traditional bamboo mat
- **Significance:** This is the first tribal handicraft product from Kerala to receive a GI tag.

What Makes Kannadippaya Special?

- The name “Kannadippaya” literally means “mirror mat”, referring to its reflective, symmetrical pattern that resembles a mirror.
- It is made using the inner soft layer of reed bamboo, which gives it a smooth texture, durability, and aesthetic beauty.
- The mat offers warmth in winter and a cooling effect in summer, making it ideal for all seasons.

Craftsmanship and Cultural Heritage

- **Woven by five tribal communities of Kerala:**
 - Oorali
 - Mannan
 - Muthuva
 - Malayan
 - Kadar
- These tribes are based in Idukki, Thrissur, Ernakulam, and Palakkad districts.
- Kannadippaya is used not just as a household item but also during tribal festivals and rituals.
- The product is promoted and marketed under TRIFED (Tribal Cooperative Marketing Development Federation of India), which supports tribal livelihoods.

Why the GI Tag Matters

- Protects the traditional knowledge and craftsmanship of Kerala’s tribal artisans.
- Helps create new economic opportunities for remote tribal communities.
- Encourages the preservation of indigenous skills passed down through generations.

Conclusion

The GI tag recognition for Warangal Chapata Chilli and Kannadippaya is a major step in preserving India’s diverse heritage. These products not only reflect the agricultural and artisanal genius of local communities but also help in socio-economic empowerment. As India continues to expand its list of GI-tagged items, it underscores the importance of “local to global” — making traditional Indian products globally competitive while keeping their roots intact.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Kannadippaya, which recently got the GI tag, is associated with the state of...

- (a) Karnataka
- (b) Kerala
- (c) Tamil Nadu
- (d) Telangana

Answer: (b)

RAMADEVARA BETTA VULTURE SANCTUARY

Why in News: The year 2025 marks the fourth consecutive year of successful breeding of the critically endangered Indian long-billed vultures at the Ramadevara Betta Vulture Sanctuary in Karnataka. This is a significant conservation milestone, offering hope for the revival of a species once on the brink of extinction.

About Ramadevara Betta Vulture Sanctuary

- **Location:** Ramanagara, around 50 km from Bengaluru, Karnataka.
- **Area Covered:** 346 hectares of rugged granite hills, cliffs, and forest.
- **Declared:** In 2012, it became India's first vulture sanctuary, specifically created to protect the long-billed vulture (*Gyps indicus*).
- In 2017, it was also notified as an Eco-Sensitive Zone (ESZ) to regulate damaging activities around the sanctuary.

Vultures Found in the Sanctuary

1. Long-billed Vulture (*Gyps indicus*) – Critically Endangered
2. Egyptian Vulture (*Neophron percnopterus*) – Endangered
3. Himalayan Griffon (*Gyps himalayensis*) – Winter visitor
4. Eurasian Griffon (*Gyps fulvus*) – Winter visitor

These vultures rely on tall cliffs and undisturbed nesting sites, making Ramadevara Betta ideal for breeding and roosting.

Major Threats to Vultures in the Region

Despite protection, the vultures in the sanctuary face numerous challenges that threaten their survival:

1. Veterinary Drug Diclofenac

- Diclofenac, a painkiller used for livestock, causes fatal kidney failure in vultures that feed on treated carcasses.
- Though banned in 2006, human-use diclofenac is still misused in veterinary practices.
- Other legal drugs like Nimesulide are also toxic to vultures.

2. Construction Activities

- During the 2019–2020 Mysuru-Bengaluru highway expansion, dynamite blasting near the sanctuary disturbed vultures during critical breeding months.

3. Urban Encroachment

- Expansion of resorts, buildings, and roads near the sanctuary has led to loss of habitat and increased human disturbances.

4. Electrocution and Collisions

- Power lines and other infrastructure developments pose a risk of electrocution or fatal collisions.

5. Breeding Disturbance

- Tourism, trekking, and noise near nesting cliffs can stress breeding vultures, causing them to abandon nests or fail to rear chicks.

6. Low Reproductive Rate

- Vultures lay only one egg per year.
- Even with successful nesting in recent years (2021–2024), the population grows very slowly and remains vulnerable to any shock.

Vultures in India

India is home to nine species of vultures, many of which have seen drastic population declines over the past few decades.

List of Vulture Species in India:

1. Oriental White-backed Vulture (*Gyps bengalensis*) – Critically Endangered
2. Long-billed Vulture (*Gyps indicus*) – Critically Endangered
3. Slender-billed Vulture (*Gyps tenuirostris*) – Critically Endangered
4. Himalayan Vulture (*Gyps himalayensis*)
5. Eurasian Griffon (*Gyps fulvus*)
6. Red-headed Vulture (*Sarcogyps calvus*) – Endangered
7. Egyptian Vulture (*Neophron percnopterus*) – Endangered
8. Bearded Vulture (*Gypaetus barbatus*)
9. Cinereous Vulture (*Aegypius monachus*)

Legal Protection

- The three critically endangered species — Oriental White-backed, Long-billed, and Slender-billed vultures — are listed in Schedule I of the Wildlife (Protection) Act, 1972, offering the highest level of protection.
- All other vulture species are also protected under the Act.

Did You Know?

- Vultures are called “Nature’s Clean-Up Crew” because they prevent the spread of diseases by efficiently disposing of animal carcasses.
- The sharp decline of vulture populations in India has been linked to a rise in feral dog populations and spread of rabies, due to slower carcass disposal.

Conservation Success at Ramadevara Betta

- From only 5–6 nesting pairs, the long-billed vulture population is now gradually recovering, thanks to stricter surveillance, community awareness, and regulated activities near nesting sites.

- The sanctuary’s success story serves as a model for vulture conservation in India.

Conclusion

The Ramadevara Betta Vulture Sanctuary stands as a beacon of hope in India’s battle to save vultures. However, this success is fragile and reversible. Stronger action is needed to ban all vulture-toxic drugs, enforce habitat protection, and educate communities about the role of vultures in maintaining ecological balance. Long-term conservation success will depend on sustained efforts, research, and policy support.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. India’s first vulture sanctuary, the Ramadevara Betta Vulture Sanctuary, is situated in —

(a) Andhra Pradesh (b) Maharashtra

(c) Karnataka (d) Odisha

Answer: (c)

SALT PAN LANDS

Why in News: The Maharashtra government has approved the allocation of 256 acres of salt pan land in Mulund, Kanjurmarg, and Bhandup areas of Mumbai for the Dharavi Redevelopment Project (DRP). This land will be used to rehabilitate ineligious slum dwellers affected by the project. While the decision may ease urban housing pressures, it has raised environmental concerns about the use of ecologically sensitive salt pan lands.

What are Salt Pan Lands?

Salt pan lands are low-lying, coastal areas where salt is extracted by evaporating sea water. Over time, they evolve into salt marshes and wetlands, playing a critical ecological role in the coastal ecosystem.

Key Features:

- They absorb excess rainwater, acting like natural sponges.
- They serve as buffer zones during storms and high tides, protecting coastal areas from flooding and erosion.
- They support intertidal activity, which is vital for marine ecosystems.
- These lands are home to unique biodiversity, including migratory birds, crabs, algae, and salt-tolerant plants.

Protection Under Coastal Regulation Zone (CRZ) Rules

According to the CRZ Notification of 2011, salt pan lands are classified under the CRZ-1B category, which includes intertidal zones of ecological importance.

Under CRZ-1B rules:

No construction or economic activity is allowed on salt pan lands, except for traditional salt production and natural gas exploration.

Salt Pan Lands in India: Distribution

Across India, **60,000 acres** are officially demarcated as salt pan lands. These are spread across **six coastal states:**

State	Salt Pan Area (in acres)
Andhra Pradesh	20,716 acres
Tamil Nadu	17,095 acres
Maharashtra	12,662 acres
Gujarat, Odisha, Karnataka	Remaining areas

In **Mumbai alone, 5,378 acres** are classified as **salt pan lands**, a key ecological resource now under pressure from urban expansion.

Why Are Salt Pans Important?

Salt pans are not just flat wastelands — they are natural protectors of the environment and silent contributors to coastal resilience.

Ecological Importance:

- Act as flood buffers and reduce the impact of cyclones, storm surges, and heavy rainfall.
- Maintain soil salinity balance and prevent inland salinisation.
- Support migratory birds and aquatic life, enhancing coastal biodiversity.

Climate Role:

- Salt pans help moderate microclimates and regulate moisture and heat in coastal areas.
- Their wetland-like characteristics contribute to carbon sequestration.

Cultural and Economic Value:

- Traditional salt farming supports local livelihoods.
- Salt pans form part of India’s cultural heritage, especially in regions like Kutch and Tamil Nadu.
- In some regions, they are emerging as eco-tourism attractions.

Concerns with Conversion to Urban Use

The use of salt pan lands for infrastructure and housing raises several concerns:

- Environmental degradation of coastal ecosystems.
- Increased risk of urban flooding, especially in cities like Mumbai, already vulnerable to waterlogging.
- Violation or relaxation of CRZ norms may set dangerous precedents for other ecologically fragile lands.

Special Focus: Coastal Regulation Zone (CRZ) – UPSC Prelims

Notes

The **CRZ Rules** were first issued in **1991** under the **Environment (Protection) Act, 1986** by the **Ministry of Environment and Forests**.

CRZ Zone Categories:

CRZ Category	Description
CRZ-IA	Ecologically sensitive areas (mangroves, coral reefs, etc.)
CRZ-IB	Intertidal zones , such as salt pans
CRZ-II	Developed urban areas within municipal limits
CRZ-IIIA	Rural areas with high population density (>2161/km ²); 50m No Development Zone (NDZ)
CRZ-IIIB	Rural areas with low population density (<2161/km ²): 200m NDZ
CRZ-IVA	Seaward side water and seabed (up to 12 nautical miles)
CRZ-IVB	Tidal-influenced inland water bodies

Conclusion

The proposed use of salt pan lands in Mumbai for slum rehabilitation is a classic case of development versus environment. While urban housing is a pressing need, the ecological services provided by salt pans must not be undervalued. Balancing sustainable urban planning with ecosystem preservation is essential for long-term resilience, especially in climate-vulnerable coastal cities.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements about Salt Pan Lands:

1. They are classified as CRZ-II areas under the Coastal Regulation Zone rules.

2. Salt pans help reduce the impact of floods in coastal areas.
3. Economic activities like housing and infrastructure development are permitted on salt pans as per CRZ norms.

Which of the above statements is/are correct?

- (a) 1 and 2 only (b) 2 only
(c) 1 and 3 only (d) 1, 2 and 3

Answer: (b)

HOW LIPIDS ARE CHANGING OUR UNDERSTANDING OF EVOLUTION

Why in News:

- Our body is made up of trillions of cells. Inside each cell are many smaller parts — including **proteins**, which are made using instructions from **DNA**. These proteins perform most of the cell's jobs — like transporting things, breaking down substances, or acting as messengers.
- For decades, scientists have believed that **changes (mutations) in DNA drive evolution** by making **new proteins** with new functions.
- But this view focuses mainly on proteins and genes. Now, scientists are starting to realize that other molecules like lipids (fats) may also play an important role in how life evolved.

What Are Lipids?

- Lipids are **fats**. Inside cells, lipids make up the **membranes**, which are like flexible walls that surround and separate different parts of the cell. These membranes are made up of **lipid molecules** with a water-attracting “head” and two water-repelling “tails.”
- Until recently, scientists mostly thought of these lipids as **passive packaging** — just background material for the proteins that do the “real” work.

The New Study: What Was Discovered?

A research team at **CSIR-CCMB Hyderabad** wanted to investigate this further. They focused on a very important **membrane protein complex** called **Respiratory Complex 1 (RC1)**.

What is RC1?

RC1 is a large group of proteins that sits inside **mitochondria** — the energy-making parts of our cells. It plays a **key role in respiration**, the process where our cells use oxygen to generate energy. If RC1 doesn't work properly, it can cause **diseases**.

RC1 has three parts:

1. **One part makes energy** inside the mitochondria.
2. **One part goes through the membrane** and moves hydrogen ions.

3. **One part sticks out between membranes**, but its full function isn't clear yet.

The Twist: Lipids Interact with Proteins!

While studying RC1, the scientists found **something surprising**:

- Many of the **mutations** that caused RC1 to malfunction were not in the protein core, but in the **regions where proteins touch the lipids**.
- That means **lipids aren't passive**; they play a **direct role** in whether proteins can work properly.

Plants vs. Animals

They discovered that lipids are different in plants and animals:

- **Plant lipids** have **kinky, flexible tails**.
- **Animal lipids** are **straighter and more rigid**.

These structural differences affect how **well proteins fit** in the membrane. Using experiments and computer models, they found:

- Plant RC1 proteins work best with **plant lipids**.
- Human RC1 proteins work best with **human lipids**.
- If you put a **plant RC1 protein** into a **human cell**, it **falls apart!**

Note: Proteins and lipids must be **compatible**, and this suggests they **evolved together** — not separately.

Co-evolution: Proteins and Lipids Evolve Together

This leads to a **big idea**:

- **Proteins and lipids in cell membranes have co-evolved** — meaning they changed together over time to suit each other.
- Especially in mitochondria, where energy generation is critical, this compatibility is key.

Example:

Plants, which face extreme environmental stress (heat, drought, etc.), have **more flexible lipids**. This flexibility may have helped them survive, and in turn, their proteins **evolved to match** these flexible lipids.

Why This Study Matters

1. **Expands Evolutionary Theory:** Evolution is not just about genes and proteins — **lipids matter too**.

- Impacts Health:** Many drugs (like **statins**) affect lipids. Understanding lipids better could improve treatment strategies.
- Explains Diseases:** Mutations in **lipid-interacting regions** may help us understand **mitochondrial disorders**.
- New Research Needed:** Studying lipids is hard because:
 - They are more complex than proteins.
 - Their structure depends on both genes and environment.
 - Tools to study them are limited.
- Future of Medicine and Evolution:** This could lead to **better medical treatments** and a **richer understanding of life's evolution**.

Conclusion

For a long time, biology textbooks have shown cell membranes as simple lipid layers holding complex proteins. But this new research is pushing scientists to think differently. Lipids are not just passive players — they could be key contributors to evolution and health.

It's time we gave lipids the attention they deserve. By doing so, we can deepen our understanding of life and improve how we treat disease. And that's a win-win for both science and society.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. With reference to recent advances in cell biology, consider the following statements:

- Lipids play only a structural role in cell membranes and do not influence protein function.
- The compatibility between membrane proteins and lipids may be a result of co-evolution.
- Mutations in the regions where proteins interact with lipids can affect protein function.

Which of the statements given above is/are correct?

- (a) 1 and 2 only (b) 2 and 3 only
(c) 1 and 3 only (d) 1, 2 and 3

Answer: (b)

TYPE 5 DIABETES

Why in News: Type 5 diabetes, a form of diabetes seen in **lean and undernourished young adults in low- and middle-income countries**, has finally been **officially recognised** by the **International Diabetes Federation (IDF)**. This long-

ignored type of diabetes affects millions but remained outside the global diabetes classifications until now.

What is Type 5 Diabetes?

Type 5 diabetes, also known as **Malnutrition-Related Diabetes Mellitus (MRDM)**, mostly affects **young people who are thin, undernourished, and from economically weaker sections in countries like India, Bangladesh, and parts of Africa**.

This type of diabetes is quite different from the commonly known **Type 1 and Type 2 diabetes**. It is closely linked to **chronic malnutrition**, which often begins **before birth** when a baby does not receive proper nutrition in the mother's womb, and continues after birth due to poverty and lack of proper food.

Important facts about Type 5 Diabetes:

- It is estimated to affect **20–25 million people worldwide**, mainly in **Asia and Africa**.
- **Insulin injections**, which are life-saving for Type 1 diabetes, **do not work effectively** for Type 5 diabetes patients.

It has **no confirmed genetic or autoimmune cause**, unlike other types of diabetes.

Key Features and Markers

Some distinct features of **Type 5 diabetes** include:

- A **very low Body Mass Index (BMI)**, usually less than **18.5 kg/m²**.
- **Insulin secretion is severely reduced**, but not as low as in Type 1 diabetes.
- A **much lower percentage of body fat** compared to those with Type 2 diabetes.
- There's **no autoimmune damage** to the pancreas, which is a feature of Type 1 diabetes.

What Causes Type 5 Diabetes?

The primary cause is **chronic malnutrition** that begins **before birth**. If a baby:

- **Does not get enough nutrition in the womb**, it may develop health risks later.
- If the child later gains excessive weight, it may lead to **Type 2 diabetes**.
- But if the child stays **undernourished before and after birth**, the risk of developing **malnutrition-related Type 5 diabetes increases**.

This reflects the harsh realities of many developing nations, where **poverty and food insecurity** persist over generations.

Treatment and Management

Since **Type 5 diabetes** has only recently been officially recognised, **standard treatment guidelines and diagnostic tests are still being developed**.

At present, management includes:

- A **nutritious and high-protein diet**, with sufficient calories from **carbohydrates and healthy fats** to help improve body weight and nutritional status.

It is different from **GPS jamming**, which involves **blocking real GPS signals** so the receiver cannot find its location. In spoofing, **false location data** is sent to **trick** the GPS receiver into thinking it is somewhere else.

This is far more **dangerous** than jamming because spoofing is **intentional, silent**, and can **mislead** pilots or operators **without them even noticing** until it's too late.

How GPS Works in Aviation?

Aircraft use the **Global Navigation Satellite System (GNSS)**, commonly known as **GPS**, to **determine their exact position, altitude, and timing**. This system depends on signals from multiple **satellites orbiting the Earth**.

If these signals are jammed or spoofed, the aircraft may:

- Lose its **true position**
- Fly in **wrong directions**
- Risk **collision or airspace violations**

Types of GPS Attacks

GPS Jamming

- Sends **high-power signals** to **block real GPS signals**
- Makes the receiver **unable to detect its actual position**
- Can be caused by **solar storms**, but is increasingly seen in **conflict zones**
- **Small devices** (as small as a mobile phone) can be used to jam signals

GPS Spoofing

- **Fake signals** are sent to **fool the GPS receiver**
- Tricks the system into thinking it's in a **completely different location**
- Can misguide aircraft, ships, or vehicles without alerting operators
- Often used in **grey-zone warfare** or **cyber warfare**

Real-World Dangers of GPS Spoofing

Aviation Risks

- **Aircraft deviation** from flight paths
- **Mid-air collisions** or **airspace violations**
- **Rescue missions delayed** due to wrong GPS data

Maritime Risks

- **Ships veer off course**, risking **collisions** or **environmental disasters**
- **Cargo delays**, impacting **global trade**

Logistics & Supply Chain

- **Wrong deliveries** by trucks, drones, or ships
- **Increased costs** due to rerouting and delays

Telecommunications

- **Mobile networks** depend on GPS for **timing**
- Spoofing can cause **call drops, internet failure**, and **5G issues**

Energy Sector

- **Power grids** need GPS for **timing and synchronisation**
- Spoofing can cause **blackouts**, especially in **renewable energy systems**

Defense and Military

- **Military drones or missiles** could be **misdirected**
- **Troop movements and battlefield coordination** can be disrupted
- **National security** at serious risk

India's Steps to Tackle GPS Spoofing

India is taking some important measures to **protect its aviation and defense systems** from such threats:

- **Indigenous Navigation System – NAVIC**

India has developed its own navigation system called NAVIC (Navigation with Indian Constellation). It provides an **Indian alternative to GPS**, especially useful during **emergencies or warfare**.

- **Advanced Aircraft Systems**

IAF aircraft are equipped with **backup systems** like **INS (Inertial Navigation System)** that do not rely on GPS.

- **Regulatory Measures by DGCA**

The **Directorate General of Civil Aviation (DGCA)** has instructed airlines to use **indigenous GNSS receivers** and adopt **GAGAN**, India's **satellite-based augmentation system**.

- **Sensor Deployment for Spoofing Detection**

India can deploy **ground and airborne sensors** to **quickly detect and trace spoofing sources** using **triangulation methods**.

- **Secure Communication Tools – SAMBHAV**

The Indian Army has developed **SAMBHAV**, a secure mobile ecosystem. While not directly an anti-spoofing tool, its **encrypted communication** adds an **extra layer of cybersecurity**.

- **Technology Innovation & Self-Reliance**

India must invest in producing **low-cost indigenous NAVIC receivers**, especially for **defense and aviation**, avoiding dependence on **foreign-made (especially Chinese) hardware**.

- **Way Forward: A Multi-Pronged Strategy**

To deal with GPS spoofing, India needs:

- **Technological self-reliance** through indigenous systems
- **Multi-sensor verification** to double-check GPS data
- **Real-time spoofing detection systems**
- **Training of pilots and defense personnel** to handle spoofing situations
- **Regional cooperation** with friendly countries to tackle grey-zone threats

Conclusion

GPS Spoofing is a silent cyber weapon—one that doesn't explode but can silently derail aircraft, disrupt networks, misguide ships, and weaken national defense. It is a *new challenge in modern warfare*, and India must be *proactive, technologically advanced, and strategically united* to protect its skies and sovereignty. By combining *science, security, and strategy*, India can ensure that its *relief missions, defense operations, and civilian aviation remain safe and resilient* in the face of digital warfare.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

- Q. Which of the following statements best describes GPS spoofing?
- Deliberately blocking or jamming genuine GPS signals so that receivers cannot lock onto them.
 - Re-broadcasting authentic GPS signals from a remote antenna to extend coverage.
 - Encrypting GPS data streams to prevent unauthorised access.
 - Transmitting counterfeit GPS signals to deceive a receiver about its true location or time.

(d) :Answer

Descriptive Question

- Q. How is GPS spoofing different from GPS jamming? Evaluate the implications of GPS spoofing in the real world. [150 words] [10 marks]

CLEAN AI

Why in News: A recent report from the **International Monetary Fund (IMF)** says that even though AI needs a lot of energy, the **economic benefits** it will create (like more productivity, more jobs, more innovation) will be **greater than the environmental damage** it might cause.

Note: But there's a **catch** — countries must make sure that **AI is powered by clean energy** (like solar, wind, or nuclear) as much as possible.

Key Points to remember:

- The world is entering a new era powered by **Artificial Intelligence (AI)**. AI has the potential to transform industries, create new jobs, and drive economic growth. But like every major technological advancement, it also brings new challenges — especially for the environment.
- AI and **sustainable development** do not have to be enemies. With the right policies and planning, countries can embrace AI without sacrificing their environmental goals. **India**, too, must stay firmly on the path of building **sustainable AI infrastructure**.

AI's Growing Appetite for Energy

AI requires vast computing power. Training AI models, storing data, and running AI-based applications depend on huge **data centres** — facilities that consume enormous amounts of electricity.

The IMF report notes that in the **United States**, which is the largest hub for AI computing in the world, the expansion of AI alone could **increase electricity prices by up to 9%**.

- If this electricity comes **from fossil fuels like coal and oil**, it would mean a significant rise in carbon emissions.
- On the other hand, if AI data centres are powered by **renewable energy** like solar, wind, or even nuclear power, the environmental damage can be greatly reduced.

Thus, the choice of energy sources will determine whether the AI revolution becomes a threat to climate goals or supports a cleaner future.



India's Position

In India, the government is making initial investments in AI infrastructure through **the IndiaAI Mission**.

- As of now, India's AI development is **not large enough** to significantly impact the country's overall energy mix.
- But **this is the right time** to embed sustainable practices into the AI journey from the very beginning.
- At the **AI Action Summit in Paris** earlier this year, India made it clear that it aims to **develop AI responsibly**, keeping sustainability in mind. **This approach is smart and necessary for several reasons:**
 - **India has a net zero target for 2070** — meaning it aims to balance the amount of carbon dioxide it emits with the amount it removes.
 - **If AI infrastructure grows without green energy planning, it could add to emissions, making the net zero target harder to achieve.**

How AI Can Become Greener

There are two main reasons why focusing on green energy for AI is especially important:

1. Massive Electricity Consumption

Data centres are already among the highest electricity consumers globally, and AI will only make this worse.

- Without renewables, the rise in energy demand could mean **more pollution and higher energy costs**.

- By using **solar, wind, and nuclear power**, countries can meet AI's energy needs without worsening the climate crisis.
2. Unique Opportunity for Captive Renewable Infrastructure
- Data centres offer a special advantage:** they occupy hundreds of acres of land, often in concentrated hubs.
- These spaces are **perfect for installing solar panels or wind turbines** nearby, making them partly self-sufficient in energy.
 - Some Indian companies are already moving in this direction, signing agreements to buy renewable energy specifically for powering their data centres.

There is also exciting potential in **small modular nuclear reactors (SMRs)**:

- **SMRs could provide clean, steady electricity to large data clusters without emitting greenhouse gases.**
- Combined with solar and wind energy, SMRs could **dramatically cut the carbon footprint** of AI operations.

Beyond Electricity: Other Environmental Challenges

AI's environmental impact is **not limited to electricity use**. There are other important areas to watch:

- **Mining of minerals:** AI hardware like chips and servers require rare minerals, the extraction of which can harm ecosystems.
- **Water usage:** Data centres use large amounts of water for cooling their systems.
- **Electronics waste:** Manufacturing electronics leaves behind industrial waste and effluents.

India is also aiming to become a major hub for **electronics manufacturing**. Thus, it is critical to ensure that these industries also adopt **sustainable mining practices, efficient water management, and eco-friendly manufacturing methods**.

A Strategic Moment for India

- India is at a **turning point**.
 - As the country builds its AI infrastructure and electronics manufacturing capabilities, it must make **clean energy and sustainability central to its strategy**.
 - Proactive steps today will prevent costly environmental damage in the future.
 - Moreover, leading in **"Clean AI"** could boost India's international image, helping it become a global leader not just in technology but also in climate action.
- Reaching the **net zero emissions target by 2070** will not be easy. It requires **scaling down pollution-heavy sectors and carefully managing the rise of energy-hungry industries** like AI. By investing early in renewable energy, eco-friendly technologies, and responsible AI development, India can ensure that its technological

dreams do not come at the cost of its environmental responsibilities.

Conclusion

AI is a game-changing technology that can uplift economies and societies. But without careful planning, it could also put additional pressure on our planet. India must seize the opportunity to build a **sustainable AI ecosystem**, balancing innovation with climate responsibility. The future is bright — if we power it cleanly.

EXPECTED QUESTION FOR UPSC CSE

Descriptive Question

- Q. The rise of Artificial Intelligence offers immense economic promise, but also poses serious environmental challenges. In the context of India's Net Zero ambitions, critically examine the need for a Clean AI strategy and suggest policy measures to ensure sustainability in AI development. [150 words] [10 marks]

POTENTIAL LIFE ON K2-18B

Why in News: Scientists have made an exciting discovery on a distant planet named **K2-18b**, located about **124 light-years away from Earth**. Using the powerful **James Webb Space Telescope (JWST)**, they have detected certain molecules in its atmosphere that, on Earth, are closely linked to **life processes**.

This discovery has revived hopes in the search for **life beyond our planet**.

What is K2-18b?

K2-18b is an **exoplanet** — which means it is a planet outside our solar system. It orbits a star named **K2-18**; a **cool red dwarf star** located in the **Leo constellation**.

- The planet was discovered in **2015** by **NASA's Kepler mission**.
- It lies within the **habitable zone** of its star. This is a region around a star where temperatures might allow **liquid water to exist on a planet's surface**, which is considered an important condition for life.

K2-18b is about **2.6 times bigger than Earth** and has **8.6 times Earth's mass**. It falls into a category called **sub-Neptune planets** — these are mid-sized planets larger than Earth but smaller than Neptune, and while we don't have such a planet in our solar system, astronomers believe they might have **hydrogen-rich atmospheres** and possibly **liquid water oceans** underneath.

What Did the James Webb Space Telescope (JWST) Find?

The **James Webb Space Telescope (JWST)** is currently the most advanced space observatory ever built, launched to look deeper into the universe and uncover its mysteries.

Using its **Near-Infrared Imager and Slitless Spectrograph (NIRISS)** and **Near-Infrared Spectrograph (NIRSpec)**, JWST observed the atmosphere of K2-18b and made some intriguing findings:

- It detected the presence of **methane (CH₄)** and **carbon dioxide (CO₂)** in the planet's atmosphere.
- Interestingly, it did **not detect ammonia (NH₃)** — a chemical whose absence supports a particular type of planet classification known as **Hycean planets**.

Hycean planets are hypothetical exoplanets that have **hydrogen-rich atmospheres** and **liquid water oceans** underneath. These are considered possible candidates for hosting life.

- What excited scientists the most was a possible hint of **dimethyl sulfide (DMS)** in K2-18b's atmosphere.

Why is this important?

On Earth, **DMS is produced only by biological processes**, especially by **marine phytoplankton** — tiny aquatic plants. If confirmed, the presence of DMS could be a **strong indicator of life** on K2-18b.

However, scientists have cautioned that more observations are needed to confirm whether this detection is genuine.

About the James Webb Space Telescope (JWST)

To appreciate this discovery, it's important to understand what the JWST is:

- It is considered the **next-generation space observatory** after the **Hubble Space Telescope**.
- Launched on **25 December 2021**.
- It orbits around **Lagrange point 2 (L2)**, which is a stable point in space about **1.5 million km from Earth**.

Key Partners:

- NASA (National Aeronautics and Space Administration)
- ESA (European Space Agency)
- CSA (Canadian Space Agency)

Mission Goals:

1. **Early Universe:** Study the first stars and galaxies formed after the **Big Bang**.
2. **Galaxies Over Time:** Understand how galaxies, including our Milky Way, have changed over billions of years.
3. **Star Lifecycle:** Observe how stars are born, live, and die.
4. **Other Worlds:** Explore planets around other stars (exoplanets) and their atmospheres to check if they might support life.

Conclusion

The detection of life-related molecules on **K2-18b** has brought the scientific world a step closer to answering one of humanity's oldest and most profound questions: *Are we alone in the universe?*

While it's too early to confirm the presence of life, these findings highlight the capabilities of the **James Webb Space Telescope** and open new frontiers in the search for **habitable worlds beyond our solar system**.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

- Q. What is K2-18b, recently seen in the news?
- (a) Super Earth exoplanet
 - (b) Gene editing tool
 - (c) Human gene linked to cancer
 - (d) International Space Station Module

Answer: (a)

SOLAR IRON OPACITY

Why in News: In a **groundbreaking discovery**, scientists from the **Sandia National Laboratories (USA)**, along with French researchers, have confirmed a **long-standing mystery in astrophysics**: the element **iron** inside the **Sun's interior** is **far more opaque** (less transparent) than our current scientific models have predicted. This breakthrough is helping scientists rethink how **energy flows inside stars** like our Sun.

What is the Solar Iron Opacity Problem?

The "**Solar Iron Opacity Problem**" refers to the mismatch between **observed data** and **theoretical predictions** about how much light or energy gets absorbed by **iron atoms inside the Sun**.

Here's how this puzzle unfolded:

1. Discrepancy in Elemental Abundances (Before 2010s)

Scientists observed that the Sun had **30–50% less** of certain elements like **carbon, oxygen, and nitrogen** than what solar models predicted. This created confusion because the models no longer matched with **observations of the Sun's structure**.

2. 2015 Breakthrough Experiment

A lab experiment showed that **iron atoms**, when placed under extreme heat and pressure like that inside the Sun, were **30% to 400% more opaque** than what theories had calculated. This means that **iron absorbs more energy** than previously thought, especially in the **plasma state** found near the **Sun's radiation and convection boundary**. Scientists proposed that increasing the **Sun's mean opacity** (ability to absorb light) by just **15%** could fix the mismatch in earlier solar models.

3. 2024 Helioseismic Study

A new study used **helioseismology** (studying sound waves inside the Sun) to check how much light gets absorbed in different layers. It found that the **observed opacity** was about **10% higher** than older models but **35% lower** than some recent lab-based predictions. This revealed a **new inconsistency** between **what we see, what we measure, and what we calculate** using theory.

Why Is This Important for Science?

1. Affects Stellar Models:

When iron's opacity is **underestimated**, it gives a **wrong picture of energy transport** inside stars. This means we can't accurately simulate how stars **burn, shine, and evolve**.

2. Impacts Broader Astrophysics:

- **Exoplanets:** Predictions about which planets might support life depend on understanding their host stars.
- **Supernovae:** Star explosions are linked to how energy flows in their core.
- **Galactic Chemistry:** The creation of new elements in stars (called **nucleosynthesis**) relies on correct models of stellar interiors.

So, **solar opacity** isn't just about the Sun — it's about understanding the **entire universe**.

Know Your Sun: The Star That Powers Us

What is the Sun?

The **Sun** is a **4.5-billion-year-old yellow dwarf star**, made mostly of **hydrogen and helium**. It lies at the center of our solar system and provides the energy that makes life on Earth possible.

Science of the Sun: Heliophysics

The study of the Sun and how it affects the rest of the solar system is called **heliophysics**.

Structure of the Sun: From Core to Corona

Let's look at the Sun from the **innermost to outermost layers**:

1. **Core:**
 - The Sun's energy is produced here through **nuclear fusion**.
 - Temperature: around **15 million °C**.
2. **Radiative Zone:**
 - Energy moves outward slowly through radiation.
3. **Convective Zone:**
 - Energy moves in the form of hot, rising gas (convection).
4. **Photosphere (Visible Surface):**
 - What we see as the "surface" of the Sun.
 - Temperature: about **5,500 °C**.
5. **Chromosphere:**
 - A reddish layer visible during solar eclipses.
6. **Transition Zone:**
 - A thin, uneven layer between chromosphere and corona.
7. **Corona (Outer Atmosphere):**
 - Surprisingly, it's **hotter than the surface**, reaching up to **2 million °C!**
 - One of the biggest mysteries in solar physics.

Other Fascinating Facts About the Sun

- **Rotation:** The Sun rotates but not like a solid body — its equator and poles spin at different speeds.

- **Orbit:** It orbits the **center of the Milky Way** every **230 million years**.
- **Birth:** Formed **4.6 billion years ago** from a spinning cloud of gas and dust.
- **Future:** In about **5 billion years**, the Sun will swell into a **Red Giant**, engulfing nearby planets, and eventually shrink into a **White Dwarf**.

Conclusion

The *Solar Iron Opacity problem* reminds us that even our closest star still holds deep secrets. With better understanding of how *iron and other elements behave inside stars*, scientists can build more accurate models of the Sun — which will help us understand everything from the life of stars to the chances of life beyond Earth. This is not just a story about physics, but about *uncovering the cosmic blueprint* of how our universe works.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

- Q. Which of the following correctly lists the layers of the Sun in order from the innermost to the outermost?
- Core - Radiative Zone - Convective Zone - Photosphere - Chromosphere - Corona
 - Core - Convective Zone - Radiative Zone - Photosphere - Corona - Chromosphere
 - Core - Photosphere - Radiative Zone - Convective Zone - Chromosphere - Corona
 - Corona - Chromosphere - Photosphere - Convective Zone - Radiative Zone - Core

Answer: (a)

VEHICLE-TO-GRID (V2G) TECHNOLOGY

Why in News: The **Kerala State Electricity Board (KSEB)**, in collaboration with the **Indian Institute of Technology (IIT) Bombay**, has launched a pilot project to explore the use of **Vehicle-to-Grid (V2G) technology** in the state of Kerala. This is a significant step as Kerala has been witnessing a rapid increase in the adoption of **Electric Vehicles (EVs)**, which has created both opportunities and challenges for the state's power system.

Why is This Project Important?

- Kerala is actively promoting **electric mobility** and has taken multiple initiatives to support **EV charging infrastructure**. However, with the growing number of EVs, there's also a sharp rise in **electricity demand during evening peak hours**, when people return home and plug in their vehicles for charging.
- At the same time, the state is experiencing fast growth in **rooftop solar power adoption**. The problem is that **solar power generation stops after sunset**, just when the electricity

demand spikes. This mismatch between **renewable energy availability** and **electricity consumption patterns** poses a serious challenge to grid stability.

- This is where **V2G technology** comes in — as a smart solution to manage energy demand, supply, and storage efficiently.

What is Vehicle-to-Grid (V2G) Technology?

In simple words, **Vehicle-to-Grid (V2G)** is a technology that allows **electric vehicles to send electricity back to the power grid** from their batteries when needed.

While typically, EVs only draw power from the grid to charge their batteries, V2G introduces **bi-directional charging**, where energy can flow both ways — from the grid to the vehicle and from the vehicle to the grid.

To clarify:

- **Bi-directional charging** means the vehicle battery can be both charged and discharged.
- **V2G technology** specifically refers to sending energy from the vehicle's battery **back to the grid** when required.

For example, during peak demand hours in the evening, when there is little or no solar energy available, EVs connected to V2G-enabled chargers can discharge stored electricity back into the grid, helping to balance supply and demand.

Why is V2G Technology Significant?

This technology offers multiple benefits for both **electricity grids** and **EV owners**:

1. **Mitigates Renewable Energy Volatility:** Renewable sources like **solar and wind** produce electricity intermittently. **V2G technology** allows EV batteries to **store excess renewable energy** during periods of high generation and discharge it back into the grid when generation drops.
2. **Reduces Dependence on Fossil Fuels:** At present, power grids use **fossil fuel-based power plants** to meet sudden spikes in demand (called **peaker plants**). By using EV batteries to supply power during these periods, the reliance on such plants can be reduced.
3. **Leverages Existing Infrastructure:** EV batteries connected to homes, offices, or public charging stations act as **decentralised energy storage units**, eliminating the immediate need for building expensive, large-scale grid batteries.
4. **Optimises Battery Usage:** Studies show that V2G technology can utilise EV battery capacity up to **10 times more efficiently** than normal smart charging systems. For EV owners, this means their idle vehicle batteries can become **income-generating assets** when connected to the grid.
5. **Supports Growth of Renewable Energy:** **V2G helps store and utilise surplus renewable energy** which would otherwise go to waste, thereby enabling greater adoption of **green energy sources** without overburdening the grid.

Status of V2G Technology Across the World

Globally, V2G technology is at different stages of adoption:

- **Europe:** Countries like the **United Kingdom** and the **Netherlands** are among the global leaders in using V2G technology.
- **United States:** The state of **California** has taken the lead in using V2G for grid stability because of its high **renewable energy penetration**.
- **India:** Here, **V2G is still in its early phases**. The primary focus is currently on expanding the **EV charging infrastructure** while planning for **future integration** of V2G into the distribution grid.

What is V2X Technology?

While **V2G** refers specifically to interaction between the vehicle and the power grid, the broader term **V2X (Vehicle-to-Everything)** covers a wider range of applications. These include:

- **Vehicle-to-Home (V2H):** Where EVs can power homes during outages or peak tariff hours.
- **Vehicle-to-Building (V2B):** Where EVs supply power to buildings or commercial complexes.
- **Vehicle-to-Load (V2L):** Where EVs directly power electronic appliances or tools.

Conclusion

The **KSEB-IIT Bombay pilot project** marks an important step in India's journey towards a **cleaner and smarter energy system**. As India accelerates its **electric mobility mission** and increases **renewable energy capacity**, integrating **innovative solutions like Vehicle-to-Grid (V2G)** will be crucial to maintain **grid stability** and improve **energy efficiency**.

If implemented successfully, **V2G technology could transform EVs from just vehicles into mobile, intelligent energy storage units** — benefitting both consumers and power utilities, and supporting India's ambitious **green energy transition**.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

- Q. What is the primary purpose of Vehicle-to-Grid (V2G) technology?
- (a) Reducing greenhouse gas emissions from electric vehicles.
 - (b) Enabling bidirectional energy flow between vehicles and the power grid.
 - (c) Enhancing the battery life of electric vehicles through smart charging.
 - (d) Allowing electric vehicles to charge faster using renewable energy.

(b) Answer

SONIC WEAPONS

Why in News: The Serbian government denied that security forces used a military-grade sonic weapon to disperse and scare protesters at a huge anti-government rally in the capital, Belgrade.

About Sonic Weapons

- Acoustic or sonic weapons are devices that deliver deafening sounds over long distances.
- They can be designed to emit painful audible or inaudible sound waves.
- These devices can also be used to act like voice amplifiers to deliver voice messages or other sounds.
- In 2004, the United States military used speciality devices that could project loud sounds over very long ranges in Iraq for the first time.
- Working of Sonic Weapons
 - Sonic weapons usually comprise hundreds of modern transducers to create highly concentrated and amplified sound.
 - A transducer is an electronic device that converts energy from one form to another.

Types of Sonic Weapons

- **Long-range acoustic device (LRAD)**
 - It has a range of 8,900 metres for intelligible speech, and produces a highly directional “beam” of extremely loud sound which can go to up to 160 decibels (dB).
 - **Manufactured by:** US-based Genasys Inc.
- **Mosquito**
 - It produces very high-pitched sounds that are audible and painful to only younger people, usually teenagers and those in their twenties. It does not affect older people (30 and above).
 - It's not audible to adults because your hearing fades as you get older.
- **Infrasonic weapon**
 - It is a newer technology and could deliver very low-frequency sounds that would be inaudible but could cause pain and disorientation.
 - Its capabilities are under investigation.

Health Effects of Sonic Weapons

- There is little medical literature on the effects of acoustic weapons on people.
- There are reports of hearing loss and prolonged ear pain or ringing, but adequate data is not yet available to develop a consensus.
- However, the weapons can be indiscriminate, causing harm or pain to protesters, bystanders and even police officers themselves.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Sonic weapons are designed to utilise specific sound frequencies to incapacitate targets. Which of the following frequency ranges are primarily employed in such non-lethal weapons?

- Audible sound (20 Hz – 20 kHz) and Ultrasound (above 20 kHz)
- Infrasound (below 20 Hz) and Subsonic sound (below the speed of sound)
- Supersonic (faster than sound) and Ultrasonic (above 20 kHz)
- Infrasound (below 20 Hz) and Ultrasound (above 20 kHz)

Answer: (d)

GAURAV - LONG-RANGE GLIDE BOMB (LRGB)

Why in News: Defence Research and Development Organisation (DRDO) successfully conducted the Release Trials of Long-Range Glide Bomb (LRGB) ‘Gaurav’ from the Su-30 MKI aircraft.

About Gaurav - Long-Range Glide Bomb (LRGB)

- GAURAV is an air-launched 1,000 kg class glide bomb capable of hitting targets at long distances.
- After being launched, the glide bomb steers towards the

target using a highly accurate hybrid navigation scheme with a combination of INS and GPS data.

- GAURAV has been designed and developed indigenously by the Research Centre Imarat (RCI), Hyderabad.

- During the trials, the weapon was integrated into multiple stations in different warhead configurations, with a land target on Island. The trials successfully demonstrated a range close to 100 km with pinpoint accuracy.



- The system has been realised with the support of Development-cum-Production Partners - Adani Defence Systems & Technologies, Bharat Forge and various MSMEs.

Long-Range Glide Bombs

- Long-range glide bombs, sometimes called standoff glide munitions, are unpowered or minimally powered precision-guided weapons that rely on aerodynamic lift to travel extended distances after being released from an aircraft.
- Unlike traditional free-fall bombs, glide bombs have wings or fins that allow them to glide toward their target, often covering ranges from tens to hundreds of kilometres.
- They typically incorporate advanced guidance systems—such as GPS, inertial navigation, or laser homing—to ensure accuracy, even against moving or heavily defended targets.
- When deployed, a glide bomb is released at a high altitude (typically 30,000–40,000 feet) and high speed. The launch aircraft’s momentum and altitude provide the initial energy, while the bomb’s wings extend to maximise the glide distance.
- Components**
 - **Warhead:** Depending on the target, the explosive payload can range from 100 kilograms to over a ton. Warheads may be high-explosive, bunker-busting, or fragmentation-based.
 - **Guidance System:** Most glide bombs use a combination of GPS and inertial navigation for all-weather accuracy. Some advanced models incorporate laser or infrared seekers for terminal guidance, enabling strikes on moving targets.
 - **Aerodynamic Surfaces:** Foldable wings or fins provide lift, allowing the bomb to glide efficiently. The glide ratio—distance travelled per unit of altitude lost—determines the weapon’s range.
 - **Control Unit:** An onboard computer processes navigation data and adjusts control surfaces to keep the bomb on course.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

- Q. Gaurav, developed by the Defence Research and Development Organisation (DRDO) for the Indian Armed Forces, is a ...
- (a) Short-Range Tactical Bomb
 - (b) All-terrain tank
 - (c) Long-Range Glide Bomb
 - (d) Airborne radar system

Answer: (c)

AFRICA INDIA KEY MARITIME ENGAGEMENT (AIKEYME) 2025

Why in News: The Africa India Key Maritime Engagement (AIKEYME) 2025 was inaugurated on 13 Apr 25 in Dar-es-Salaam, Tanzania, marking a significant step in strengthening maritime cooperation between India and African nations.

Key Details

- Duration of Exercise:** 6 Days
- Aim:** It aims to develop collaborative solutions to common regional maritime challenges.
 - It seeks to enhance interoperability and synergise combined operations among the maritime forces of partner nations.
 - It also highlights the strong and friendly relations between India and the African nations.
- Co-hosts:** India and Tanzania
- Participating Countries:** Comoros, Djibouti, Kenya, Madagascar, Mauritius, Mozambique, Seychelles, and South Africa.
- Indian Participation:** INS Chennai (destroyer), INS Kesari (a Landing Ship Tank), and INS Sunayna
- Phases of the Exercise
 - **Harbour Phase:** Inauguration Ceremony and Deck Reception
 - ◆ Table Top and Command Post Exercises focused on anti-piracy ops and information sharing, alongside joint training in seamanship and Visit Board Search and Seizure (VBSS) exercises.
 - **Sea Phase:** Focus on strengthening maritime security cooperation among the participating nations.
- It aligns with India’s vision of promoting Mutual and Holistic Advancement for Security and Growth Across Regions (MAHASAGAR).

India-Africa Defence Engagements

- Africa-India Field Training Exercise (AFINDEX)
 - The Africa-India Field Training Exercise is a joint initiative aimed at enhancing collaborative skills in UN-mandated Peacekeeping Operations and Humanitarian Mine Assistance.
 - It focuses on tactical drills such as mission establishment, civilian protection, convoy security, and mine clearance while fostering the sharing of best practices and team-building between African nations and India.
- India-Africa Defence Dialogue (IADD)
 - The first-ever India-Africa Defence Ministers Conclave (IADMC) was held in Lucknow, Uttar Pradesh, in conjunction with DefExpo on February 06, 2020, co-organised by the Ministry of Defence and the Ministry of External Affairs.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements:

Statement I: The SAGAR doctrine emphasises India’s commitment to enhancing maritime security and fostering economic cooperation in the Indian Ocean region.

Statement II: It aims to position India as a net security provider and promote collective prosperity through regional partnerships.

Which one of the following is correct in respect of the above statements?

- (a) Both Statement–I and Statement–II are correct and Statement–II is the correct explanation for Statement–I
- (b) Both Statement–I and Statement–II are correct and Statement–II is not the correct explanation for Statement–I
- (c) Statement–I is correct but Statement–II is incorrect
- (d) Statement–I is incorrect but Statement–II is correct

Answer: (a)

SAHAstra SHAKTI PROGRAM: LASER-DIRECTED ENERGY WEAPON

Why in News: India has successfully demonstrated its first high-powered laser weapon at the National Open Air Range (NOAR) in Kurnool, Andhra Pradesh.

Key Details

- India has achieved a significant milestone in its directed energy weapons program with the successful demonstration of a 30 kw laser weapon.
- This high-powered laser, developed under the Sahastra Shakti program, can neutralise drones, UAVs, and static targets at a range of 4 km.
- The milestone marks a major step in India’s directed energy weapons (DEW) program, over a decade in the making.

Sahastra Shakti Program

- The foundation for laser-based defence began with a 2012 research paper advocating indigenous development.
- The programme took shape under DRDO, initially through LASTEC and later through the CHES lab in Hyderabad.
- Under the codename Sahastra Shakti, the aim was clear: create weapons to disable enemy drones, optics, and electronic systems.

Progressive upgrades: From MK1 to MK2A

- **Mk1 (2024):** A 2 kw laser system effective against small drones at 1 km.
- **Mk2:** Combined six 2 kw lasers into a powerful 12 kw beam, extending range to over 2 km.
- **Mk2A (2025):** India’s first true high-powered laser at 30 kw.
 - It uses six 5 kw beams, with a range of 4 km.
 - It can target drones, helicopters, and enemy sensors.
 - It is fully indigenous and truck-mounted.

Way Forward

- **Deployment:** The system is in trials and expected to be field-ready within two years.
- **Future Variants:** DRDO is developing versions with 50–100 kw power to counter cruise missiles, jets, and even artillery shells.
- **Next-gen Platforms:** Miniaturised pods for aircraft, naval systems, and eventually space-based lasers are in the pipeline.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. The Sahastra Shakti Program of DRDO is aimed towards developing ...

- (a) Laser-Directed Energy Weapon
- (b) Anti-Tank Missiles
- (c) Submarine Radars
- (d) Anti-aircraft guns

Answer: (a)

NAVAL AVIATION AND RAFALE MARINE (RAFALE M) FIGHTER AIRCRAFT

Why in News: India and France signed a \$7.4 billion (approximately Rs 63,000 crore) government-to-government contract for 26 Rafale Marine (Rafale M) fighter aircraft for the Indian Navy.

Key Details

- The combat aircraft were chosen by the Navy after a competitive process that also involved the American Boeing F/A 18 Super Hornet.
- The Rafale was found to be more suitable for Indian requirements and will have the added advantage of commonality with the Indian Air Force fleet of 36 fighter jets.
- The jets will have cutting-edge weapon systems, including long-range air-to-air missiles, anti-ship weapons and electronic warfare.
- The fighter jets have been urgently required as two Indian aircraft carriers -- INS Vikramaditya and Vikrant -- are now in service, and the current fleet of MiG 29K fighters has shown below-par performance due to maintenance-related issues.
- The Rafale M will be customised to Indian requirements and integrated into the aircraft carriers that have a Russian origin Aviation Facility Complex (AFC).

Versatile, omnirole fighting machines

Rafale-Marine (Rafale-M), designed and produced by Dassault Aviation, is a French fighter aircraft modified to operate out of an aircraft carrier Rafale-Mentered service with the French Navy in 2004.

OMNIROLE CAPABILITIES:

The Rafale can carry out a gamut of combat aviation missions-air superiority and air defence, close air support, in-depth G strikes, reconnaissance, anti-ship strikes and nuclear deterrence-in a single sortie if required.

REINFORCED

UNDERCARRIAGE: All Rafale variants share a common airframe and a common mission system, with the differences between naval and land versions limited mainly to the undercarriage and the arresting hook. This high degree of interoperability with Rafales already in service with the Indian Air Force, commonality allows for interoperability with Rafales already in service with the Indian Air Force.

MULTI-SENSOR DATA

FUSION: Rafales have the unique capability to fuse and process data provided by all onboard and offboard sensors. At the centre of these enhanced capabilities lies a new Modular Data Processing Unit (MDPU). The system's modularity also makes Rafales upgradeable over their service life, to meet evolving tactics and

Naval Aviation

- Naval aviation is the use of military air power by navies, involving aircraft that operate from warships, such as aircraft carriers and other aircraft or helicopter-carrying surface combatants, or land bases to support naval operations.
- It includes specialised naval aircraft designed to meet the unique demands of carrier operations and small decks, such as short takeoffs and arrested landings, and roles such as air-to-air combat, surface and submarine attack, maritime reconnaissance, search and rescue, and logistical support.
- Significance:** Naval aviation is crucial for maintaining control of the seas, supporting naval and ground forces, and projecting military power along distant shores.
 - It includes fixed-wing carrier-borne squadrons, land-based Maritime Patrol Aircraft, Helicopters and Remotely Piloted Aircraft operated from warships and ashore.

Key Roles of Naval Aviation

- Fleet Air Defence:** Providing air cover for naval forces beyond the reach of land-based aircraft.
- Strategic Power Projection:** Allowing deployment of air power without needing land bases.
- Anti-Surface Warfare:** Attacking enemy ships with air-launched missiles.
- Supporting Amphibious Warfare:** Aiding marine landings and operations inland.
- Mine Countermeasures:** Using aircraft to detect and clear enemy mines.

Aircraft Carrier

- An aircraft carrier is a warship that serves as a seagoing airbase, equipped with a full-length flight deck and hangar facilities for supporting, arming, deploying, and recovering shipborne aircraft.
- It allows a naval force to project seaborne air power far from its homeland without having to rely on airfields ashore.

Outcomes

- DUSTLIK -VI enabled both sides to share best practices in Tactics, Techniques and Procedures of conducting Joint Sub-Conventional operations.
- It facilitated developing interoperability, bonhomie and camaraderie between the two armies.
- The Joint Exercise enhanced defence cooperation, further augmenting bilateral relations between the two friendly nations.

EXPECTED QUESTION FOR UPSC CSE**Prelims MCQ**

Q. The annual joint military exercise DUSTLIK is conducted between ...

- (a) India and Kazakhstan (b) India and Kyrgyzstan
(c) India and Tajikistan (d) India and Uzbekistan

Answer: (d)

Free Initiative by Chahal Academy**Editorial Analysis of The Hindu****Scan QR Code**

TRANSFORMING PUBLIC HEALTH IN INDIA

Why in News: This article on public health in India is based on an editorial published in The Hindu newspaper.

Introduction

- Change is a constant in life, and health is no exception. Over the years, the way we look at public health has changed across the world.
- With a growing economy, fast-changing lifestyles, and increasing urbanisation, public health systems are now facing new and complex challenges.
- Some of the most pressing issues today include antimicrobial resistance, a rise in chronic non-communicable diseases (NCDs) like diabetes and heart disease, increasing mental health illnesses, and the threat of zoonotic diseases (those that spread from animals to humans, like COVID-19).
- These challenges are no longer just about treating diseases. They are influenced by people's environment, income levels, education, and even their health-seeking behaviour—how often they visit a doctor, how they view the healthcare system, and their awareness about staying healthy.

Important Data

- NCDs alone account for over 60% of global deaths, and their burden is expected to grow by 17% in the next decade.
- As per the National Health Accounts (2021–22), the per capita out-of-pocket health expenditure (OOPHE) in India has shown a declining trend.
- The Union Ministry of Health and Family Welfare reports that, as of November 2024, over 1.75 lakh Ayushman Arogya Mandirs are operational, recording 350 crore consultations—a strong indicator of growing public trust and access.

India's Big Leap: Ayushman Bharat

In 2018, the Government of India launched an ambitious programme called Ayushman Bharat, aimed at overhauling the public health system and making quality healthcare accessible to every citizen, especially the underprivileged.

This flagship scheme has three major components:

1. Pradhan Mantri Jan Arogya Yojana (PM-JAY):

This is the world's largest government-funded health

insurance scheme. It provides a cover of ₹5 lakh per family per year for secondary and tertiary care hospitalisation, mainly benefiting poor and vulnerable families.

2. Ayushman Arogya Mandirs (AAM):

These are Health and Wellness Centres (HWCs) designed to bring comprehensive primary care closer to people. They offer services for chronic conditions like diabetes and hypertension, mental health support, ENT and dental care, geriatric and palliative care, and even promote healthy living through wellness activities.

3. Pradhan Mantri Ayushman Bharat Health Infrastructure Mission (PM-ABHIM):

Launched in 2021, this component aims to build and strengthen the health infrastructure across the country, ensuring that hospitals and health centres are well-equipped, better staffed, and more resilient to future pandemics or health emergencies.

Reducing Out-of-Pocket Burden

- One of the biggest reasons families fall into poverty is because of high medical bills. The World Health Organization (WHO) defines catastrophic health expenditure (CHO) as spending more than 40% of a family's disposable income on healthcare.
- Programmes like Ayushman Bharat are designed not only to improve people's survival and well-being but also to protect them from such financial disasters.
- The Central Government, along with the States, also supports healthcare through additional schemes like the National Health Mission (NHM), working together to improve infrastructure and services in both rural and urban areas.

Trust in Public Health

- Even with expanding infrastructure, there remains a gap in people's trust in the public health system. Many still prefer private hospitals due to perceptions of better cleanliness, shorter wait times, and personalised care.
- But what exactly is trust in healthcare? It's often defined as the optimistic belief that doctors and healthcare providers will act in the patient's best interest—even when the patient has little control over the situation. In India and other low- and middle-income countries, building such trust remains a big challenge.
- Yet trust is not just an emotional factor—it's strongly tied to health outcomes. When people trust the system:

- They are more likely to seek care early
- They follow treatment plans more faithfully
- They return for follow-up care
- And they avoid high costs in the private sector
- India's public health system has steadily grown, especially at the primary care level. Sub-centres, primary health centres (PHCs), and community health centres (CHCs) are spread across the country to serve both rural and urban populations.
- To ensure these facilities meet international standards, the government introduced National Quality Assurance Standards (NQAS). Based on global best practices from the International Society for Quality in Healthcare (ISQua), NQAS evaluates hospitals in areas like:
 - Patient rights and feedback
 - Infection control
 - Clinical care
 - Infrastructure and support services
 - Quality management and health outcomes

Looking Ahead

India's commitment to the Sustainable Development Goals (SDGs) for 2030 includes building a high-quality and accessible healthcare system for all. But as the Lancet Global Health Commission points out, a quality health system is not just about infrastructure or medicines. It's one that:

- Consistently improves health outcomes
- Is responsive to changing population needs
- Is trusted and valued by all people

Back in 2007, India introduced the Indian Public Health Standards (IPHS) to set minimum service standards. However, the time has come to prioritise NQAS more seriously, which focuses on quality care, not just service availability.

Another important step is to regularly collect feedback from users—how people experience the system matters. If these insights are shared publicly and used to improve services, it can greatly boost confidence in government healthcare.

Conclusion:

India's health system has come a long way. Programmes like Ayushman Bharat are helping to bring affordable and quality healthcare to millions. But for the system to truly serve everyone, it must earn people's trust, deliver high-quality care, and adapt to the changing health needs of the population.

As we move towards 2030, investing not just in buildings and beds, but in care that is respectful, responsive, and rooted in community trust, will be the key to transforming India's public health system for the better.

Good healthcare isn't just about treating illnesses—it's about building a system that people believe in, turn to, and are proud of.

EXPECTED QUESTION FOR UPSC CSE

Descriptive Question

Q. Critically examine the impact of Ayushman Bharat in addressing financial vulnerability, healthcare infrastructure gaps, and public trust. Suggest reforms to further strengthen India's public health system in the run-up to 2030. [250 words] [15 marks]

EMOTIONAL INTELLIGENCE IN EDUCATION

Why in News:

- In today's fast-paced world, adolescents often find themselves juggling academic stress, peer pressure, social expectations, and the challenges of personal growth.
- Recognising this need for emotional support and mental clarity, MiTran Global (An educational organisation) organized a unique, two-day online camp titled 'Imparting Positivity'.
- **Note:** This well-structured programme aims to help students develop clarity, confidence, and emotional intelligence — essential life skills for thriving both in school and beyond.

• Daniel Goleman's five key components of Emotional Intelligence

• Self-Awareness

- **Knowing your emotions:** Recognising what you're feeling in the moment (joy, frustration, anxiety).
- **Understanding impact:** Realising how your moods affect your thoughts, actions, and those around you.

• Self-Regulation

- **Managing impulses:** Pausing before reacting—so you don't snap in anger or panic.
- **Adapting to change:** Staying calm and flexible, even when plans suddenly shift or challenges arise.

• Motivation

- **Inner drive:** Being guided by passion and curiosity, not just grades or praise.
- **Setting goals:** Persisting through setbacks because you believe in the value of what you're working toward.

• Empathy

- **Seeing others' feelings:** Tuning in to classmates' or friends' emotions and perspectives.
- **Responding kindly:** Offering support or understanding when someone is upset, rather than brushing them off.

- **Social Skills**

- **Communicating clearly:**

- Expressing ideas and feelings in ways others can understand.

- **Building relationships:**

- Working well in teams, resolving conflicts calmly, and inspiring cooperation.

Building Emotional Intelligence

- Imagine a classroom where students not only learn math formulas and historical facts, but also learn how to manage their emotions, understand the feelings of others, and form strong relationships. This is the vision of an education system that focuses on emotional intelligence.
- In today's world, students need more than just academic skills. They need to be emotionally strong, empathetic, and able to communicate effectively. Emotional intelligence helps students become not only better learners, but also better human beings.

Why Emotional Intelligence Matters?

- Emotional intelligence (EI) is the ability to understand, manage, and express emotions, while also being able to understand and respond to the emotions of others. It forms the base for key life skills like empathy, resilience, and social communication.
- Far from being an extra topic, emotional intelligence is essential for helping students deal with real-life situations — whether it's handling exam stress, solving conflicts with classmates, or facing failures and criticism. When schools include emotional intelligence as part of learning, students are better prepared to adapt, lead, and succeed.

Benefits of Emotional Intelligence in Education

Many studies have shown that students who receive Social and Emotional Learning (SEL) perform better in school and in life. SEL leads to:

- Better academic performance
- Improved mental health
- A more positive school environment
- Reduced stress and aggression

Note: It also helps teachers by increasing their job satisfaction and reducing burnout. For this reason, training teachers in SEL is just as important as teaching it to students.

Key Skills Emotional Intelligence Builds

1. **Self-awareness:** Students learn to understand their strengths and weaknesses. For example, a student afraid of public speaking might work on it step by step, ask for feedback, and gradually become confident.

2. **Resilience:** Life is full of ups and downs. Emotional intelligence teaches students to see failures as learning opportunities and bounce back stronger from setbacks.

3. **Healthy relationships:** EI helps students make better friendships, deal with peer pressure, and work effectively in teams.

4. **Decision-making and goal setting:** EI improves students' ability to set goals, make responsible choices, and stay motivated.

Teaching Emotional Intelligence Through Modern Methods

Teachers can include emotional learning through project-based learning (PBL) and collaborative problem-solving. These teaching styles promote:

- Creativity
- Teamwork
- Real-world problem solving

This helps students develop not just academic knowledge, but also life skills needed in today's workplaces and communities.

Government Support and National Policy

- The National Education Policy (NEP) 2020 of India strongly supports this approach. It says that learning should be more holistic, flexible, inclusive, and fit for the 21st century. The policy clearly mentions that teachers should focus on socio-emotional learning because it is a key part of a student's overall development.
- UNESCO and other international organisations also promote peace and sustainable development through emotional education and training for teachers. These efforts match well with the vision of NEP 2020.

The Changing World and the Need for EI

- Today, students are growing up in an environment where everything is changing — from urban lifestyles to online learning after the pandemic. They face more social pressure, mental health challenges, and uncertain career paths than ever before. In such a situation, emotional intelligence helps them stay grounded, connected, and confident.
- As traditional social systems change and new ways of living emerge, the need for trust, cooperation, and compassion is greater than ever.

Conclusion

Emotional intelligence is not an optional skill — it is at the heart of true learning. If we want our children to grow into thoughtful, responsible, and emotionally healthy citizens, we must teach them how to understand themselves and others.

By including emotional intelligence in the classroom, we are not just creating better students. We are creating better people, stronger communities, and a brighter future.

EXPECTED QUESTION FOR UPSC CSE

Descriptive Question

Q. Emotional intelligence is as vital as academic learning in preparing students for the challenges of the 21st century. In the light of this statement, examine the role of emotional intelligence in education, and discuss how policies like NEP 2020 aim to integrate it into the Indian school system. [250 words] [15 marks]

TAMIL NADU BANS MAYONNAISE

Why in News: In a significant step towards ensuring food safety, the Tamil Nadu government has imposed a one-year ban on the manufacture, storage, sale, and distribution of mayonnaise made using raw eggs.

Legal Provision for Temporary Health Measures

- The Food Safety and Standards Act, 2006 allows the government to take preventive measures in situations where public health is at risk, even if scientific studies are still ongoing.
- The ban was issued under Section 30 (2)(a) of the Food Safety and Standards Act, 2006
- As the law states, provisional risk management actions can be taken when there is evidence of a potential health hazard, and more time is needed for a comprehensive scientific assessment.
- In such situations, the precautionary principle applies — which means, it is better to act early to prevent harm than to wait for conclusive proof.

Why Has the Ban Been Imposed?

- The primary reason for the ban is that mayonnaise made from raw eggs is classified as a “high-risk food.”
- This type of mayonnaise can easily get contaminated with harmful bacteria, especially if improperly stored or handled. The risk becomes even greater when mayonnaise is prepared in bulk or served in fast food outlets, where hygiene may not always be strictly maintained.

What Makes Raw Egg Mayonnaise Risky?

- Mayonnaise is a semi-solid emulsion, typically made from egg yolk, vegetable oil, vinegar, and various seasonings. It is commonly served with popular food items like shawarma, burgers, and sandwiches.
- When raw eggs are used in the preparation of mayonnaise, it increases the chance of bacterial contamination. The main harmful bacteria identified in this context are:
 - Salmonella typhimurium
 - Salmonella enteritidis
 - Escherichia coli (E. coli)

- Listeria monocytogenes
- These bacteria can cause severe food poisoning, leading to symptoms such as vomiting, diarrhea, abdominal cramps, fever, and in some cases, life-threatening complications, especially in vulnerable groups like children, the elderly, pregnant women, and those with weakened immune systems.

The Role of Food Business Operators

- The government has observed that many food business operators in the State — including restaurants, street food vendors, and caterers — use raw eggs to prepare mayonnaise. However, inadequate storage conditions, lack of temperature control, and unhygienic practices during preparation make the mayonnaise prone to contamination.
- Such practices can turn a commonly used food item into a public health hazard, putting thousands at risk every day. Hence, the government felt an urgent need for intervention.

About FSSAI

The Food Safety and Standards Authority of India (FSSAI) is the top government body responsible for food safety and regulations in India.

Key Facts:

- Established under the Food Safety and Standards Act, 2006.
- Replaced older laws like the Prevention of Food Adulteration Act (1954) and Meat Food Products Order (1973).
- Works under the Ministry of Health & Family Welfare.
- Headquartered in New Delhi, with regional offices across India.

Functions of FSSAI:

- ✓ Sets food safety and quality standards.
- ✓ Issues licenses to food businesses (like restaurants, manufacturers, and sellers).
- ✓ Conducts inspections and food testing to prevent adulteration.
- ✓ Promotes food fortification (adding vitamins/minerals to staples like rice and milk).
- ✓ Runs awareness campaigns like Eat Right India, RUCO (Reuse Cooking Oil), and Food Safety Mitra.

Additional Information: FSSAI Simplifies Food Safety Regulations

Recently, the Food Safety and Standards Authority of India (FSSAI) held a meeting in New Delhi and proposed key changes to food safety regulations. These amendments aim to reduce unnecessary certifications and make it easier for food businesses to operate. Once finalized, these changes will impact food manufacturers, sellers, and consumers across India.

The FSSAI will soon release a draft notification seeking feedback from stakeholders—including businesses, experts, and the public—before finalizing the new rules.

Key Proposed Changes in Food Safety Regulations

1. Single Certification System

Currently, food businesses need multiple certifications:

- FSSAI (mandatory for all food products)
- Bureau of Indian Standards (BIS) (for certain packaged goods)
- AGMARK (for agricultural products like honey, spices, etc.)

The new amendment proposes that only FSSAI certification will be mandatory, removing the need for separate BIS and AGMARK approvals. This move aligns with the government's vision of "One Nation, One Commodity, One Regulator", reducing red tape for businesses.

2. Easier Business Operations

By simplifying regulations, the FSSAI aims to:

- Reduce compliance burdens on food businesses.
- Speed up approvals and licensing processes.
- Encourage more startups and small businesses to enter the food industry.

3. New Standards for More Products

The FSSAI also plans to introduce new quality standards for certain food items that currently lack clear regulations, including:

- **Mead (Honey Wine)** – A fermented alcoholic drink made from honey.
- **Alcoholic Ready-to-Drink (RTD) Beverages** – Pre-mixed cocktails and flavored alcoholic drinks.
- **Haleem** – A popular meat-and-grains dish, especially during Ramadan, which currently has no defined quality standards.

These new standards will ensure better safety, hygiene, and consistency in food products.

Promoting Safer Food Practices

This move by the Tamil Nadu government highlights the importance of food safety and hygiene in everyday food items. With the increasing popularity of street food and fast food, it is essential for both consumers and food handlers to be aware of safe food preparation practices.

While the ban may temporarily affect some food businesses, it sends a strong message that public health takes priority over convenience or cost-cutting in food preparation.

Conclusion

Tamil Nadu's decision to ban mayonnaise made from raw eggs for a year is a precautionary and protective measure aimed at avoiding serious health risks. As food trends evolve and demand grows, it's essential for governments, food businesses, and citizens to stay vigilant about hygiene and safety standards.

Mayonnaise may seem like a harmless side dish, but when prepared carelessly, it can become a carrier of dangerous bacteria. The State's action is a reminder that preventing illness is always better than curing it.

EXPECTED QUESTION FOR UPSC CSE

Descriptive Question

Q. Food safety is a critical component of public health policy in India, especially with the rising consumption of processed and street foods. Discuss the public health concerns associated with unsafe food practices and suggest measures to strengthen food safety mechanisms in the country. [150 words] [10 marks]

CHILD TRAFFICKING

Why in News: Recently, the Supreme Court, in a judgment warned parents to be "extremely vigilant" about their children against gangs trafficking children for sexual exploitation, forced labour, begging and petty crimes, armed conflict, child marriage and even camouflaging sale of infants as inter-country adoption.

What is child trafficking?

- Children are used for exploitation in a variety of ways as part of child trafficking. According to UNICEF, it is a grave crime and a grave human rights violation.
- It doesn't matter if a youngster seems to have "consented" in any manner to being taken advantage of, particularly where pressure, force, deceit, or the misuse of authority or weakness are involved.

Factors responsible for child trafficking

- **Sexual exploitation:** Exploitation in the sex trade industry and domestic labour serves as a significant driver of child trafficking.
- **Poverty:** Families facing economic issues are forced to consider the trafficking of their child to cope with financial struggles.
- **Social issues:** Caste and gender-based discrimination, especially in rural India, creates an environment that leads to the vulnerability of children, especially girl children.
- **Disruptive events:** disruptive events like the COVID-19 pandemic, armed conflicts, organised crimes, and refugee crises increase the vulnerability of child trafficking.
- **Lack of awareness:** Reluctance to seek police assistance due to fear of traffickers and lack of awareness of available remedies.
- **Requirement of cheap labour:** The demand for cheap labour leads to trafficking of children for forced labour.
- Sometimes victims of child trafficking are exposed to multiple forms of exploitation at once. For example, a child made to beg on the streets may also be exploited sexually.

UNODC's Global Report on Trafficking in Persons 2020 reveals:

- Approximately 50,000 victims of human trafficking were identified and reported by 148 countries in 2018.

- Female victims remain the main targets, with 50% of discovered victims having been trafficked for sexual exploitation and 38% having been used for forced work.
- Girls make up 19% and women 46% of all trafficking victims.
- Children make up one out of every three victims found worldwide.
- Over the past 15 years, the proportion of boys among trafficking victims has climbed fivefold, while the proportion of children has tripled.

Legal provisions

- Article 23 of the Indian Constitution, part of the “Right Against Exploitation”, prohibits traffic in human beings and forced labour, including begar (compulsory labour).
- **Section 143 of the Bharatiya Nyaya Sanhita (BNS):** It provides for penal provisions for strict punishment for any offence of human trafficking.
- **Section 144(1) of the BNS:** It provides for strict punishment for the offence of sexual exploitation of trafficked children.
- **Section 139 of the BNS:** It provides for punishment against kidnapping or maiming of a child for the purposes of begging.
- **Section 141 of the BNS:** provides for punishment for the importation of a girl or boy from a foreign country for illicit sexual exploitation, etc.

Way Forward

- **Strengthen Law Enforcement and Judicial Systems:** To discourage traffickers, enforce stringent anti-trafficking legislation and guarantee prompt, time-bound trials.

Also, there is a need to Train police, border officials, and the judiciary to identify and act against trafficking.

- **Cross-Border and Inter-State Cooperation:** In order to conduct cooperative investigations and extradite traffickers, states and nations need to better coordinate through data-sharing mechanisms in place to monitor trafficking networks.
- **Community Awareness and Education:** Run awareness programmes to inform people about the warning signs and dangers of human trafficking in communities that are at risk. Also, include instruction on human trafficking in school curricula.
- **Victim Rehabilitation and Reintegration:** For rescued victims, offer vocational training, legal assistance, shelter, and trauma counselling and ensure that independence and social reintegration receive sustained assistance.
- **Establish a National Anti-Trafficking Authority:** A dedicated, well-funded authority to coordinate policies, victim support, inter-agency action, and monitoring.


Conclusion

Coordination, awareness-raising, victim support, and strict legislation can all help put a stop to human trafficking. To safeguard the weak and uphold justice, a coordinated, rights-based strategy is essential.

EXPECTED QUESTION FOR UPSC CSE



Mains Questions

Q. Child trafficking remains one of the most persistent human rights violations in India. Examine the causes and consequences of child trafficking and suggest a multi-pronged strategy to combat it. [250 words] [15 words]

Free Initiative by Chahal Academy 

Editorial Analysis of Indian Express

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UNESCO MEMORY OF THE WORLD REGISTER

Why in News: On the occasion of World Heritage Day, manuscripts of the Bhagavad Gita and Bharat Muni's Natyashastra have been inscribed in UNESCO's Memory of the World Register.

About Memory of the World Register

- UNESCO launched the Memory of the World (MoW) Programme in 1992 to guard against collective amnesia, calling upon the preservation of the valuable archive holdings and library collections all over the world and ensuring their wide dissemination.
- Vision:** The World's documentary heritage belongs to all, should be fully preserved and protected for all, and, with due recognition of cultural mores and practicalities, should be permanently accessible to all without hindrance.
- The International Advisory Committee (IAC) is the main body responsible for advising UNESCO on the planning and implementation of the Programme as a whole. It comprises 14 members serving in a personal capacity, appointed by the Director-General of UNESCO, and chosen for their authority in the field of documentary heritage.
- The Memory of the World (MoW) Register lists documentary heritage which has been recommended by the International Advisory Committee, and endorsed by the Executive Board, as corresponding to the selection criteria regarding world significance and outstanding universal value.

UNESCO Memory of the World International Register - India

Document	Type	Year Registered	Details
The Institute of Asian Studies (I.A.S.) Tamil Medical Manuscript Collection	Books	1997	Mostly, Tamil Medical Manuscripts preserved at the Institute of Asian Studies reflect the ancient system of medicine, practised by yogis. This system explains the methods of obtaining medicines from herbs, herbal roots, leaves, flowers, barks, fruits, etc. The proportions of the ingredients as well as the specific processes are explained in detail.
Archives of the Dutch East India Company	Books	2003	The Dutch East India Company (VOC), founded in 1602 and liquidated in 1795, was the largest and most impressive of the early modern European trading companies operating in Asia. About twenty-five million pages of VOC records have survived in repositories in Jakarta, Colombo, Chennai, Cape Town, and The Hague. VOC archives make up the most complete and extensive source on early modern world history anywhere, with data relevant to the history of hundreds of Asia's and Africa's former local political and trade regions.
Saiva Manuscript in Pondicherry	Manuscripts	2005	Within a collection of 11,000 manuscripts that concern mainly the religion and worship of the Hindu God Siva, is included the largest collection in the world of manuscripts of texts of the Saiva Siddhānta. In the 10th century CE, this religious tradition, a major current of Hinduism, was spread right across the Indian subcontinent and beyond, as far as Cambodia in the East. It long represented the mainstream of Tantric doctrine and worship and appears to have influenced every Indian theistic tradition.

Rigveda	Manuscripts	2007	The Vedas are generally known as the scriptures of the Hindu community. However, being among the first literary documents in the history of humankind, they transcend far beyond their identity as scriptures. The Rigveda, the oldest among the four Vedas, is the fountain source of the so-called Aryan culture in all its manifestations that spread beyond the Indian subcontinent to large parts of South and Southeast Asia, as well as parts of Central Asia.
Tarikh-E-Khandan-E-Timuriyah	Manuscripts	2011	The Tarikh-e-Khandan-e-Timuriyah recounts the history of the Timurids, i.e. of Timur and his successors in Iran and India. This richly illustrated manuscript was written and created twenty-two years into the reign of the great Mughal emperor and a descendant of Timur, Jalaluddin Mohammad Akbar, in 1577-78 A.D.
laghukālacakratantrarājatikā (Vimalaprabhā)	Manuscripts	2011	These manuscripts are significant in terms of their historical, intellectual and aesthetic value. Tantra apart, the text contains detailed discussions of astrology and astronomy. Many of the Indian philosophical concepts are discussed in depth in this treatise.
Shāntinātha Charitra	Papers	2013	A text in Sanskrit written in Devanagari script. It describes the life and times of Shantinatha, the sixteenth Jain Tirthankara. This work was composed and written in the late fourteenth century 1396 C.E. (1453 Vikram Samvat). This unique manuscript contains as many as 10 images of scenes from the life of Shantinatha in the style of Jain paintings from Gujarat.
Maitreyayvarakarana	Books	2017	Maitreyayvarakarana is a very short text, written on palm leaf in the mixed character of Kutila and Ranjana script, a manuscript of the Pala period (at the time of Gopaladeva, 57th regna; year, approx. 10th century A.D.) is in the possession of the Asiatic Society, Kolkata. It is believed, Maitreya, the future prophet will eventually appear on earth as enlightened Buddha and teach the pure dharma.
Gilgit Manuscript	Manuscripts	2017	The birch bark and clay-coated Gilgit manuscripts are the oldest surviving manuscripts in India. These manuscripts include both canonical and non-canonical Buddhist works that throw light on the evolution of Sanskrit, Chinese, Korean, Japanese, Mongolian, Manchu and Tibetan religious and philosophical literature. The Gilgit manuscript contain inter alia Sutras (aphorism) from the Buddhist canon, Samadhirajasutra and the Saddharmapundarikasutra (the Lotus Sutra) form part of the corpus that covers a wide range of subjects including religion, ritual, philosophy, iconometry, folk tales, medicine and many other areas of human life and knowledge.
Abhinavagupta (940-1015 CE): Collection of Manuscripts of his works	Books	2023	This collection comprises 248 Manuscripts of Abhinavagupta (CE 940-1015), an outstanding Indian thinker in the domain of philosophy, aesthetics, literary theory, performative art, music, tantra, yoga, and devotion who lived in Srinagar, Kashmir in the 10th century. Composed around 41 granthas (texts), the manuscripts document a knowledge culture whose intellectual and artistic influence once permeated Northeast Asia, Central Asia, and South Asia.

First Summit Meeting of the Non-Aligned Movement Archives	-	2023	The collection consists of 76 files of textual archives, 242 photographs, 1 audio archive, and 15 films. The First Summit Meeting of Non-Aligned Movement (NAM) was held in Belgrade, Yugoslavia initiated by Ghana, India, Indonesia, United Arab Republic, and Yugoslavia.
Manuscript Collection of Bhagavadgītā	Manuscripts	2025	The Bhagavadgītā, containing 700 verses in 18 chapters, is embedded within the Bhīṣmaparva (adhyāya 23-40) of the epic Mahābhārata. Bhagavadgītā is a central text in the continuous, cumulative ancient intellectual Indian tradition, synthesizing various thought movements such as, Vedic, Buddhist, Jain and Cārvāka.
Manuscript of the Natyasastra of Bharatamuni	Manuscripts	2025	Preserved at the Bhandarkar Oriental Research Institute and codified around the 2nd century B.C., the Nāṭyaśāstra of Bharatamuni is an epitome of the Nāṭyaveda, an oral body of knowledge of performing art containing 36,000 verses known as the Gāndharvaveda. The Nāṭyaśāstra embodies a comprehensive set of rules that define nāṭya (drama), abhinaya (performance), rasa (aesthetic experience), bhāva (emotion), saṅgīta (music), among others, thus articulating the character of Indian theatre, poetics, aesthetics, dance and music.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following ancient Indian texts:

1. Rigveda
2. Maitreyayvarakarana
3. Shāntinātha Charitra

Which of the above texts are in the UNESCO Memory of the World International Register?

- (a) 1 and 2 only (b) 2 and 3 only
(c) 1 and 3 only (d) 1, 2 and 3 only

Answer: (d)

- Previously restricted to specific communities, the doors of the four sanctums of the temple were opened to all sections following a campaign led by a reformist organisation.
- Only people from the Brahmin, Marar and Variyar communities were allowed to enter the space earlier. Maniyani, Nair, Vaniya and a few other communities were allowed entry during the festival period.

About Pilicode Rayaramangalam Temple

- **Location:** Kasaragod District, Kerala
- **Deity:** Goddess Bhadrakali Bhagavathi, revered for her fierce and protective nature.
- **Major Festivals**
 - Theyyam Thira Kaliyattam
 - ◆ The annual Theyyam Thira Kaliyattam festival at the temple spans three days during the Malayalam month of Medam.
 - ◆ It features performances of various Theyyam rituals, including Oorpazhassi Theyyam, Bhagavathy Theyyam, and Vettakkorumakan Theyyam.
 - **Thrikarthika**
 - ◆ Thrikarthika, also known as Karthigai Deepam, is a festival celebrated predominantly in South India, especially in Kerala and Tamil Nadu.
 - ◆ It falls on the day when the Karthika Nakshatra coincides with Purnima in the Tamil month of Karthigai.
 - ◆ During Thrikarthika, devotees light rows of oil lamps in and around their homes and temples to invoke blessings and dispel darkness.

PILICODE RAYARAMANGALAM TEMPLE

Why in News: The inner quarter of the centuries-old Pilicode Rayaramangalam temple in Kasaragod, Kerala, has been opened to all sections of society for the first time following a reformist campaign.

Key Details

- Devotees from all communities entered the nalambalam (the sacred inner quarter) of the Pilicode Rayaramangalam temple.

Temple Entry Movements in Kerala

- Vaikam Satyagraha (1924–1925)
 - **Context:** The Vaikam Satyagraha was the first organized movement in Kerala to challenge caste-based untouchability. Lower-caste communities like the Ezhavas and Pulayas were barred from using roads surrounding the Vaikam Temple in Travancore, despite upper-caste Hindus, Christians, and Muslims freely accessing them.
 - **Leadership:** Spearheaded by T.K. Madhavan of the Sree Narayana Dharma Paripalana Yogam (SNDP Yogam) and supported by the Kerala Pradesh Congress Committee (KPCC). Mahatma Gandhi endorsed the movement but insisted it remain a Hindu-led effort.
 - **Methods:** A 20-month nonviolent protest (satyagraha) involving marches, petitions, and symbolic defiance of caste restrictions.
 - **Outcome:** In 1925, the Travancore regime partially conceded, opening three of the four temple roads to all castes. By 1928, all temple roads in Travancore were opened, marking a symbolic victory against caste oppression.
- Guruvayoor Satyagraha (1931–1932)
 - **Context:** Following the Vaikam success, the focus shifted to the Guruvayoor Temple in Malabar (under British rule), where lower-caste Hindus were barred from entry. This movement coincided with the Civil Disobedience Movement (CDM) but was framed as a social reform struggle.
 - **Leadership:** Led by K. Kelappan, a Congress leader, with Gandhi advising a non-political, Hindu-centric approach.
 - **Methods:** Satyagrahis faced violent repression, and Kelappan undertook a fast unto death to pressure the temple trustee (the Zamorin of Calicut).
 - **Outcome:** Though the satyagraha was suspended without immediate success, it amplified national awareness and pressured authorities. The movement's moral force contributed to the eventual Temple Entry Proclamation of 1936 in Travancore.
- Temple Entry Proclamation of 1936
 - The Temple Entry Proclamation was a decree issued by Maharaja Chithira Thirunal Balarama Varma on November 12, 1936, that allowed lower-caste Hindus, including Dalits, to enter Hindu temples in Travancore.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. The historic Pilicode Rayaramangalam Temple is located in ...

- (a) Tamil Nadu (b) Andhra Pradesh
 (c) Kerala (d) Karnataka

Answer: (c)

ASI'S UNDERWATER EXPLORATION PROJECT IN DWARKA

Why in News: The Archaeological Survey of India (ASI) has undertaken a project to ascertain the antiquity of the recovered objects from underwater Dwarka by scientific analysis of sediments, archaeological, and marine deposits.

Key Details: About the Project

- **Initiative:** Led by the Archaeological Survey of India (ASI)'s Underwater Archaeology Wing (UAW).
- **Scope:** Combining onshore and offshore expeditions at Dwarka and Beyt Dwarka, Gujarat.
- **Team:** A nine-member team, including archaeologists and divers, headed by Prof. Alok Tripathi (ASI Additional Director-General).
- **Objective:** To determine the antiquity of recovered artefacts through scientific sediment analysis, marine deposit studies, and archaeological documentation.

About Dwarka

- Also known as the Gateway to Heaven, the city of Dwarka was, reportedly, discovered in 1988, submerged around 100 ft below the Gulf of Cambay.
- The town has association with Lord Krishna who is believed to be the founder of this town by reclaiming 12 yojana land from the Sea (Vishnu Puran, 5.23.13).
- The glorious town of Dwarka was submerged by the sea just after the death of Lord Krishna.

Key Objectives

- **Antiquity Verification**
 - Use scientific methods (sediment analysis, marine deposit studies) to date artefacts and structures.
 - Study submerged remains to reconstruct Dwarka's historical timeline.
- **Exploration Expansion**
 - Extend investigations to Okhamandal city and other potential sites.
 - Identify new areas for underwater excavations.
- **Documentation & Preservation**
 - Photograph and document features like stone anchors, sculptures, and submerged structures.
 - Address challenges like vegetation growth and calcareous deposits on artefacts.

Historical Context and Past Efforts

- **Findings**
 - Stone anchors, iron objects, copper rings, beads, pottery, and sculptures.
 - Submerged structural clusters near Dwarkadhish Temple.

- **2007 Excavation:** A 10-meter-deep deposit with 26 layers revealed artefacts like iron tools and pottery.
- **Mythological Link:** Beyt Dwarka is associated with Lord Krishna's ancient home.
 - It is mentioned in ancient texts like the Mahabharata and Harivamsa.

Government Initiatives

- **Sudarshan Setu:** Inaugurated by PM Modi in 2024, connecting Okha to Beyt Dwarka.
- **Submarine Service Plan:** Proposed by the Gujarat government to aid devotees and researchers in exploring submerged relics.

Significance of the Project

- **Cultural & Archaeological Impact**
 - Strengthens understanding of India's maritime history and trade networks.
 - Validates mythological narratives with empirical evidence.
- **Technological & Methodological Advancements**
 - Combines underwater archaeology with scientific analysis (e.g., sediment dating).
 - Leverages collaboration between ASI and Indian Navy divers.
- **Tourism & Heritage:** Submarine service could boost religious tourism while preserving underwater heritage.

Challenges and Considerations

- **Environmental Factors:** Marine deposits and vegetation hinder artefact recovery.
- **Balancing Exploration & Preservation:** Ensuring tourism development does not damage fragile sites.
- **Interdisciplinary Coordination:** Requires seamless integration of archaeology, marine science, and technology.

Underwater Archaeology Wing (UAW)

- The beginning of underwater archaeology in India can be traced back to 1981. Offshore explorations in the country generated a lot of popularity to this discipline.
- Thereafter, the establishment of the Underwater Archaeology Wing (UAW) in the Archaeological Survey of India (ASI) in 2001 marked a major step towards the development of the subject.
- Since its inception, the UAW has been engaged in conducting underwater archaeological studies in the Arabian Sea and the Bay of Bengal.
- **Functions of UAW**
 - Documentation of underwater sites and ancient shipwrecks
 - Training of professional archaeologists, young researchers and students
 - Conduct of seminars to discuss various aspects and to bring awareness

- Protection of underwater cultural heritage
- Adoption of "Convention on the Protection of the Underwater Cultural Heritage" by UNESCO in 2001 displays the global concern about the protection and management of underwater cultural heritage. UAW has initiated steps for the protection and preservation of the underwater cultural heritage.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Which of the following is the primary objective of the Underwater Archaeology Wing of the Archaeological Survey of India (ASI)?

- Preserving underwater cultural heritage
- Conducting surveys and excavations
- Training archaeologists in underwater methods
- All of the above

Answer: (d)

VIKRAMSHILA UNIVERSITY

Why in News: A decade after Nalanda University came up in the foothills of Rajgir, work is on to revive Vikramshila University, another ancient centre of learning in Bihar.

About Vikramshila Mahavihar (University)

- Rising above the ruins, glistening in the sun, is a cruciform brick stupa, the centrepiece of the Vikramshila site.
- All around the stupa are the cells (208 of them, 52 on each side) where student-monks of one of the most splendid universities of its time practised Tantrayana.
- Scholars at Vikramshila excelled in Tantrayana, which incorporated tantric practices and rituals.
 - **Tantrayana:** Last of the three great vehicles of Indian Buddhism after Hinayana and Mahayana.
- Founded by Pala king Dharmapala of the Pala dynasty in the late 8th to early 9th Century AD, Vikramshila Mahavihar existed and flourished at the time of Nalanda.
- At its peak, Vikramshila University was a centre of knowledge for the world.
- While Nalanda University flourished from the Gupta Period (320-550 AD) to the 12th Century, Vikramshila thrived during the Pala Period (8th to 12th century).
- Vikramshila was the only university that specialised in tantric and occult studies.
- During Dharmapala's reign, Vikramshila reigned supreme and is known to have controlled Nalanda's affairs as well.
- At one point, Nalanda and Vikramshila, who had

a common patron in King Dharmapala, exchanged knowledge and teachers, who were called Acharyas.

• **Subjects at Vikramshila**

- At its peak, subjects such as theology, philosophy, grammar, metaphysics and logic were taught at Vikramshila.
- The most important branch of learning were the tantras because Vikramshila flourished in the days of tantricism, when occult sciences and magic were subjects of study both in Buddhism as well as Hinduism.

• **Scholars:** The university produced several eminent scholars, among them, Atisa Dipankara, who played a key role in the establishment of Buddhism in Tibet.

• **Decline of Vikramshila**

- Vikramshila prospered for about four centuries before fading out along with Nalanda around the 13th century.
- The decline can be attributed to a combination of factors, from the rise of Hinduism and the decline of Buddhism to the invasion of Bakhtiyar Khalji.
- The ruins (stupa and the remains of the cells & a vast library) bear witness to this rise and fall of Vikramshila.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements regarding Vikramshila University:

1. It was founded by the Gupta king Samudragupta I in 6th century AD.
2. It was well known for tantric and occult studies, and students practised the Tantrayana.

Which of the statements above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Answer: (b)

JALLIANWALA BAGH MASSACRE AND SIR CHETTUR SANKARAN NAIR

Why in News: Prime Minister Narendra Modi recalled the nationalist and jurist Sir Chettur Sankaran Nair, who fought a legendary courtroom battle against a senior official of the British Raj who had sued Sir Sankaran for holding him responsible for the Jallianwala Bagh massacre of 1919.

About the Jallianwala Bagh Massacre

- The incident dates back to April 1919, when the British were facing major protests in Punjab against the Rowlatt Act, that let them arrest people without any warrant or trial.
- Sir Michel O’ Dwyer imposed martial rule in Lahore and Amritsar on April 11, but the order reached Amritsar only on April 14.
- Alongside, he also sent Col R E H Dyer, who was then holding the temporary rank of Brigadier General, from the Jalandhar cantonment to Amritsar.
- On April 13, a large peaceful crowd had also gathered to protest against the arrest of Dr Satyapal and Dr Saifuddin Kitchlew for opposing the Rowlatt Act in a compound called Jallianwala Bagh in Amritsar.
- Upon hearing about the large gathering, Col Dyer marched into the Bagh with a column of 50 soldiers armed with. 303, Lee Enfield and bolt-action rifles around 5 pm.
- It’s said he ordered troops to surround the compound, situated between houses and narrow lanes and launched indiscriminate firing on the assembled men, women and children who lacked the means to escape.
- While the British official report stated that 379 people were killed in the incident, some estimates put the death toll in the thousands.

Aftermath

- Among those who managed to escape was Udham Singh, then 21. He vowed to avenge the massacre, and shot dead Sir Michael O’Dwyer at Caxton Hall in London in 1942.
- Nobel laureate Rabindra Nath Tagore returned his knighthood, describing the incident as “without parallel in the history of civilised governments”.
- Mahatma Gandhi started his non-cooperation movement soon afterwards.
- On October 14, 1919, the Disorders Inquiry Committee was formed to inquire about the massacre. It later came to be known as the Hunter Commission.
- The Committee condemned the incident but did not impose any punishment on Dyer.

About Sir Chettur Sankaran Nair

- Sir Chettur Sankaran Nair was an acclaimed lawyer and judge in the Madras High Court and one of the early builders of the Indian National Congress (INC).
- In 1897, he became the youngest president of the Indian National Congress.
- By 1908, he had been appointed as a permanent judge of the Madras High Court.
- Nair believed in India’s right to self-government. In 1919, he played an important role in the expansion of provisions in the Montagu-Chelmsford reforms, which introduced a system of dyarchy in the provinces and increased participation of Indians in the administration.

- In 1922, Nair published *Gandhi and Anarchy*, a book in which he spelt out his critique of Gandhi's methods of non-violence, civil disobedience, and non-cooperation.

Jallianwala Bagh Massacre and Trial

- Following the massacre of Jallianwala Bagh, he resigned from the Viceroy's Council in protest.
- He also accused Michael O'Dwyer, who was Lieutenant Governor of Punjab at the time of the massacre, of following policies that led to the deaths.
- O'Dwyer sued Nair for defamation in England, expecting the English court to side with him.
- The trial before the King's Bench in London went on for five and a half weeks. It was the longest-running civil case at the time.
- **Judgment:** The 12-member all-English jury was presided over by Justice Henry McCardie, who did not attempt to hide his bias toward O'Dwyer. The jury sided with O'Dwyer by a majority of 11 against 1, the lone dissent coming from the Marxist political theorist Harold Laski.
- Nair was ordered to pay £500 and the expenses of the trial to the plaintiff. O'Dwyer said he would forgo the penalty if Nair apologised. Nair refused.

- **Impact:** The trial had a resounding impact on the British Empire in India. At a time when the nationalist movement was gaining momentum, Indians saw in the judgement the clear bias of the British against them and an effort to shield their own.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements regarding the Jallianwala Bagh Massacre:

1. The Jallianwala Bagh Massacre occurred in 1919 during a peaceful gathering protesting the repressive Rowlatt Act.
2. The British government promptly issued an official apology and dismissed General Dyer from service after the incident.

Which of the statements above is/are correct?

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

Answer: (a)

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GOVERNMENT SCHEMES

PMAY-U-2.0

Why in News: Recently, the Secretary of the Ministry of Housing and Urban Affairs (MoHUA) chaired the **first meeting of the Central Sanctioning and Monitoring Committee (CSMC) under PMAY-U 2.0.**

Key Details

- Proposals for construction of over **3.52 lakh houses have been approved** under Pradhan Mantri Awas Yojana – Urban 2.0 (PMAY-U 2.0).
- The Beneficiary Led Construction (BLC) and Affordable Housing in Partnership (AHP) components of PMAY-U 2.0 have approved 3,52,915 lakh homes in **10 States/UTs**, including Andhra Pradesh, Arunachal Pradesh, Bihar, Haryana, Jammu & Kashmir, Odisha, Puducherry, Rajasthan, Telangana, and Uttar Pradesh.

PMAY-U 2.0

- Administrative ministry:** Ministry of Housing and Urban Affairs.
- The goal of PMAY-U 2.0** is to improve the quality of life for urban poor and middle-class families by providing financial aid for the construction, acquisition, or rental of reasonably priced homes in urban regions.
- Special attention:** Special attention will be given to **marginalized groups**, including slum dwellers, SC/STs, minorities, widows, persons with disabilities, and other underprivileged sections of society. Along with, groups like Safai Karmi, street vendors, artisans, anganwadi workers, and residents of slums/chawls.
- Beneficiaries classification:** **Economically Weaker Section (EWS), Low Income Group (LIG), and Middle Income Group (MIG)** segments who do not own a pucca house anywhere in the country.
- Income criteria:**
 - **EWS households:** Annual income **up to ₹3 lakh.**
 - **LIG households:** Annual income from **₹3 lakh to ₹6 lakh.**
 - **MIG households:** Annual income from **₹6 lakh to ₹9 lakh.**
- Components of PMAY-U 2.0:**
 - Beneficiary-Led Construction (BLC):** Financial assistance to eligible EWS families to construct new houses on their own available vacant land. States/

UTs may also provide land rights (pattas) to landless beneficiaries.

- Affordable Housing in Partnership (AHP):** Financial assistance to EWS beneficiaries for owning houses constructed in partnership with States/UTs, cities, public, and private agencies.
 - Affordable Rental Housing (ARH):** The ARH vertical will be implemented through two models: utilizing existing government-funded vacant houses and constructing new rental housing units. TIG of ₹3,000 per sqm will be provided for projects using innovative technologies.
 - Interest Subsidy Scheme (ISS):** The ISS vertical offers a 4% interest subsidy on home loans up to ₹25 lakh for EWS/LIG and MIG families. The subsidy will be provided in five yearly installments, with a maximum subsidy of ₹1.80 lakh.
- Funding Mechanism**
 - The **Ministry, State/UT/ULBs, and beneficiaries** would all contribute to the cost of building a home under PMAY-U 2.0, with **different cost-sharing arrangements based on the location.**
 - In order to facilitate loans for affordable housing, the corpus of the **Credit Risk Guarantee Fund Trust (CRGFT)** has also been enhanced from **₹1,000 crore to ₹3,000 crore.**
 - Technology & Innovation Sub-Mission (TISM)**
 - to direct the use of cutting-edge, environmentally friendly, and modern technologies in order to build homes more quickly and with greater quality.
 - Web portal:** https://pmaymis.gov.in/PMAYMIS2_2024/PmayDefault.aspx. - Beneficiaries can apply directly.
 - PMAY-U 2.0 & Marginal sections of society**
 - **Women empowerment:** 2.67 lakh + houses For women, including single women and widows.
 - **Transgenders:** 90 houses have been allotted to Transgenders.
 - **SC beneficiaries:** 80,850 houses.
 - **ST beneficiaries:** 15,928 houses.
 - **OBC beneficiaries:** 2,12,603 houses.

Pradhan Mantri Awas Yojana - Urban 2.0

- 1 crore houses for urban poor & middle-class families with investment of ₹10 Lakh crore
- Government Assistance of ₹2.30 Lakh crore
- Pucca houses for EWS/LIG/MIG segments with annual income from ₹3 Lakh/₹6 Lakh/₹9 Lakh
- Construct, purchase or rent a house at affordable cost in next 5 years
- Provision of interest Subsidy to facilitate loans at affordable rates

Conclusion

By addressing the housing needs of EWS, LIG, and MIG segments, the PMAY-U 2.0 scheme seeks to uplift the lives of millions of Indian citizens, ensuring that every individual has access to safe, secure, and affordable housing.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements regarding PM Awas Yojana - Urban 2.0 (PMAY-U-2.0):

1. The scheme is administered by the Ministry of Housing and Urban Affairs.
2. It guarantees financial assistance to any citizens who do not own a pucca house anywhere in the country.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Answer: (a)

5 YEARS OF NATIONAL TECHNICAL TEXTILES MISSION

Why in News: The National Technical Textiles Mission (NTTM) launched in 2020 by the Ministry of Textiles to boost technical textiles in India, recently completed 5 years.

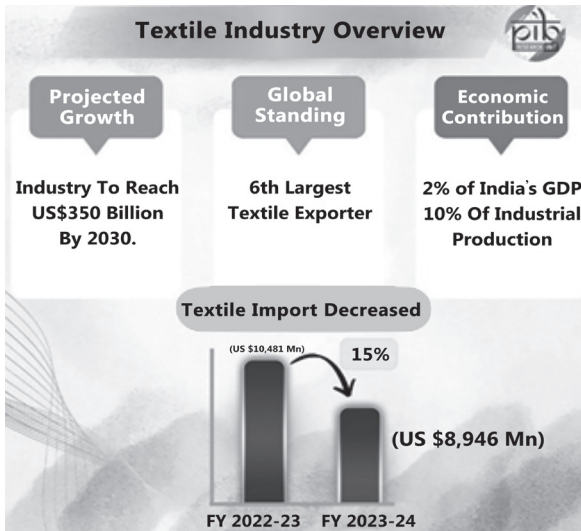
Key Details

- Administrative ministry: Ministry of Textiles.
- **Mission period and budget:** From 2020-21 to 2025-26 with an outlay of Rs 1,480 crores.
- 4 key components of a mission:
 - **Component I: Research, Innovation, and Development:** Encourages technical textile R&D and solicits ideas for creating novel materials and procedures.
 - **Component II: Promotion and Market Development:** Through international partnerships and market promotion, this component seeks to boost the adoption of technology textiles in India.
 - **Component III: Export Promotion:** Utilising a specialised export council, this component aims to increase technical textile exports.
 - **Component IV: Education, Training, and Skill Development:** Encourages internships in prestigious institutions and enterprises, as well as technical textiles education and skill development.
- Since its inception, **₹517 crore has been set out for the National Technical Textiles Mission (NTTM).**
- Under NTTM, **168 research projects totalling around ₹509 crore have been approved.**
- **Initiatives under the National Technical Textiles Mission (NTTM):**
 - **Grant for Internship Support for Technical Textiles (GIST 2.0):** GIST 2.0 provides experiential learning opportunities in technical textiles, **bridging the gap between industry and academia.** It encourages indigenous creativity, backs the Made in India campaign, and equips young people to propel the textile industry’s expansion.
 - **Grant for Research & Entrepreneurship across Aspiring Innovators in Technical Textiles (GREAT) Scheme:** Funding is available through the initiative **to assist in converting prototypes into technologies and goods that may be sold.** Eight entrepreneurs have received ₹50 lakh apiece so far for their ideas in protective, industrial, and medicinal textiles. Furthermore, ₹6.5 crore was given to three educational institutions, including IIT Indore and NIT Patna, to launch specialised programs in sports textiles, geotextiles, and geosynthetics.
 - **Skill Development Programs:** Organisations such as SITRA (South India Textiles Research Association), NITRA (Northern India Textile Research Association), and SASMIRA (South Ahmedabad Silk Mill and Industrial Research Association) have developed **12 industry-focused courses that offer targeted skill development in areas such as medical, protective, mobile, and agricultural textiles.**

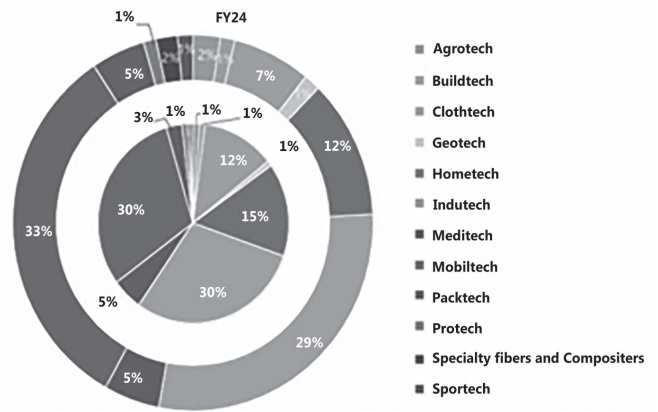
Indian textile industry

- With a 3.9% proportion of worldwide textile exports, India ranks sixth among all textile exporters.
- It makes up over 2% of the GDP of the nation.
- By 2030, the industry is **expected to reach US\$350 billion**, further solidifying India’s place in the world economy.
- **3.5 crore jobs** are anticipated to be created by this expansion.

What are technical textiles?



Technical Textile Import Share Comparison



- Instead of being designed for aesthetics, **technical textiles are made for certain purposes and performance.**
- These textiles are made to satisfy the requirements of a number of industries, including **safety, healthcare, farming, construction, and automobiles.**
- They are found in items like building materials, safety gear, medical equipment, and automobile parts that help protect people, enhance machinery, and address real-world issues.

NTTM Key Highlights

- **Research Areas Supported:** Carbon fiber, aramid fiber, nylon fiber, composites, geotextiles, agro-textiles, medical textiles, mobile textiles, sports textiles, and biodegradable textiles.
- **Quality Control Orders (QCOs):** 68 QCOs issued across various segments (20 Geo-tech, 12 Protective Textiles, 20 Agro Textiles, 6 Medical Textiles, 9 Ropes & Cordages, 1 Indutech textiles).
- **Export Promotion:** The Synthetic & Rayon Textiles Export Promotion Council (SRTEPC) (now MATEXIL) assigned to promote technical textiles exports.
- **BIS Standards:** Over 600 standards developed for technical textiles, including 200+ since NTTM's launch.
- **Academic Support:** 38 proposals approved worth ₹191 crore for lab upgrades and faculty training in technical textiles.

Conclusion

India is well on its path to becoming a world leader in technological textiles. This vision is being paved by innovative research and technology, as well as initiatives like GIST 2.0. India is poised to dominate the global technical textiles market with sustained innovation and hard work, boosting economic expansion and global competitiveness.

ELECTRONICS COMPONENT MANUFACTURING SCHEME

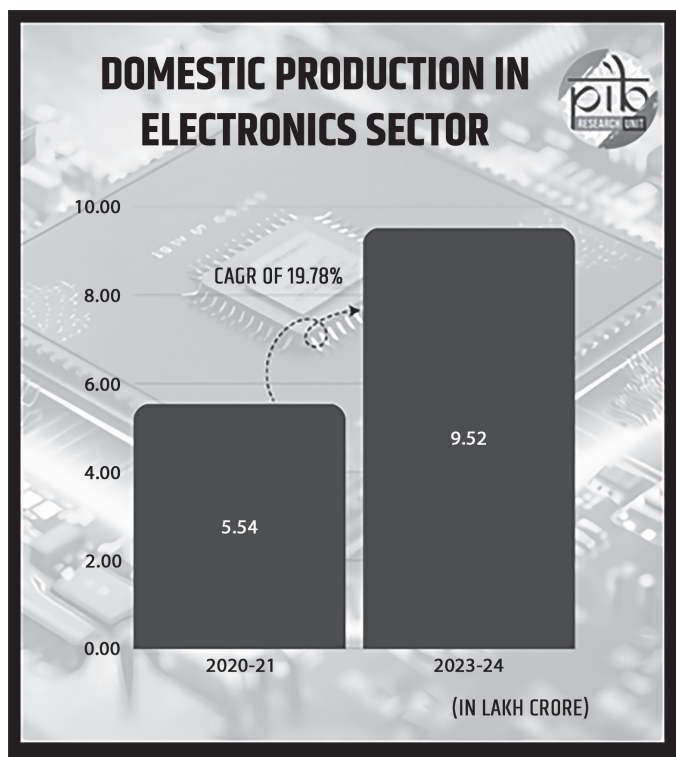
Why in News: Recently, the Union Cabinet chaired by the Prime Minister Shri Narendra Modi approved the **Electronics Component Manufacturing Scheme with a funding of Rs.22,919 crore to make India Atmanirbhar in the electronics supply chain.**

Salient features of the Scheme

- Administrative ministry: **Ministry of Electronics and Information Technology (MeitY).**
- In order for Indian manufacturers to gain technological capabilities and realise economies of scale, the programme offers them unique incentives designed to help them overcome certain limitations for different types of components and sub-assemblies.
- This programme aims to create a strong component ecosystem by **integrating Indian companies with Global Value Chains (GVCs), attracting major domestic and foreign investments in the electronics component manufacturing ecosystem, and developing capacity and capabilities.**
- The following are the target segments that the programme covers and the types of incentives that are provided:
 - **Turnover-related incentive:** multi-layer printed circuit boards (PCB), mobile enclosures, IT hardware products, Li-ion cells for digital applications (apart from storage and mobility), display module sub-assembly, camera module sub-assembly, non-surface mount devices (non-SMD) passive components for electronic applications, electro-mechanicals for electronic applications,
 - **Hybrid incentives:** Flexible PCB, SMD passive components, supply chain ecology, high-density interconnect (HDI), modified semi-additive process (MSAP), and capital equipment for the production of electronics.
 - **Capex incentive:** Parts and components used in the production of bare components (B) and sub-assemblies (A) capital goods utilised in the production of electronics, including their components and sub-assemblies
- The programme lasts for six (6) years, including a one-year gestation phase.

- A portion of the incentive is paid out in response to the accomplishment of employment goals. All applicants, including those who manufacture capital equipment and component parts, will be required to create jobs.
- Key Benefits: Over the course of its implementation, the initiative aims to draw in Rs. 59,350 crore in investment, produce Rs. 4,56,500 crore, and create 91,600 new direct jobs in addition to numerous indirect jobs.

Electronics sector of India



- Electronics is one of the **highest-traded and fastest-growing industries globally**, and since electronics permeates all sectors of the economy, it has economic and strategic importance.
- The electronics manufacturing industry has grown significantly over the past ten years because of a number of GoI efforts.
- At a compound annual growth rate (CAGR) of **more than 17%**, the domestic manufacturing of electronic goods grew from Rs. 1.90 lakh crore in FY 2014–15 to Rs. 9.52 lakh crore in FY 2023–24.
- Additionally, at a compound annual growth rate (CAGR) of **almost 20%**, electronic goods exports rose from Rs. 0.38 lakh crore in FY 2014–15 to Rs. 2.41 lakh crore in FY 2023–24.
- **Exports of smartphones exceeded ₹2 lakh crore** in the most recent fiscal year, with ₹1.5 lakh crore coming from iPhone sales alone. With a CAGR of over 17% for production and over 20% for exports, electronics production has increased fivefold and exports more than sixfold over the last ten years.

Management System (ITMS) has been put into place and is being watched over by ICCCs, which enhances traffic management, enforces traffic laws, and shortens travel times.

- **Education:** 41 digital libraries and 9,433 smart classrooms have been created.
- **Health:** 152 health ATMs have been established, and 172 e-health clinics and centres (without designated beds) have been created.
- **Adjusting to New Needs:** Initiatives like “Cycles4Change” and “Streets4People” were started to encourage open areas for active living in the aftermath of the COVID-19 epidemic. Initiatives like the “Placemaking Marathons” and the “Nurturing Neighbourhoods Challenge” targeted underprivileged populations to guarantee equitable access to public areas. Other challenges, such as “EatSmart Cities” and “Transport4All”, are designed to help public transit startups and enhance food hygiene in smart cities.

Conclusion

The Smart Cities Mission has significantly advanced the development of Indian cities. By means of intelligent technology, environmentally friendly solutions, and proactive community engagement, the mission has improved public safety, mobility, infrastructure, healthcare, and water supply.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements regarding Smart Cities Mission (SCM):

1. The mission was launched by the Ministry of Housing and Urban Affairs.
2. Recently, 100% of projects under SCM have been successfully completed, reflecting significant progress in reshaping urban landscapes across India.

Which of the statements given above is/are correct?

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

Answer: (a)

10 YEARS OF MUDRA YOJANA

Why in News: The Pradhan Mantri MUDRA Yojana (PMMY), launched on 8th April 2015 by Prime Minister Shri Narendra Modi, recently completed 10 glorious years of empowering small and micro-entrepreneurs across India.

New changes in the scheme

- **Tarun Plus:** Those who have previously taken out and

successfully repaid loans under the Tarun category are eligible to get funding ranging from ₹10 lakh to ₹20 lakh under the recently introduced loan category.

- **Credit Guarantee Fund for Micro Units (CGFMU):** These improved loans will be guaranteed by the CGFMU.

Key achievements under the scheme

- **Scheme coverage:** “More than 52 crore MUDRA loan accounts of aspiring entrepreneurs have received more than Rs. 33.65 lakh crore in sanctioned funds.”
- **Marginalised groups in society:** Since 2015, MUDRA loans of Rs. 11.58 lakh crores have been approved for a number of marginalised groups, including OBCs, Scheduled Tribes, and Scheduled Castes.
- **Fuelling Women’s Entrepreneurship:** Nearly 68% of the total MUDRA loan accounts have been sanctioned to women. A total of ₹8.49 lakh crore was disbursed under the Shishu category, ₹ 4.90 lakh crore under Kishor, and ₹0.85 lakh crore under the Tarun category.
- **Minority Borrowers:** The disbursements amounted to ₹1.25 lakh crore under Shishu, ₹1.32 lakh crore under Kishor, and ₹ 0.50 lakh crore under Tarun.

Key Features of PMMY:

- **Administrative Ministry:** Ministry of Finance
- **Parent organisation:** Small Industries Development Bank of India (SIDBI)
- PMMY offers simple, collateral-free loans up to ₹10 lakh for non-corporate and non-farm income-generating ventures with the goal of promoting financial inclusion.
- MUDRA loans will now be available in four categories: “Shishu”, “Kishor”, “Tarun”, and the recently established “Tarun Plus” category, which denotes the borrowers’ finance requirements and stage of growth or development: -
 - **Shishu:** covering loans up to Rs. 50,000.
 - **Kishor:** covering loans above Rs. 50,000 and up to Rs. 5 lakhs.
 - **Tarun:** covering loans above Rs. 5 lakh and up to Rs. 10 lakhs.
 - **Tarun Plus:** Rs. 10 lakh and up to Rs. 20 lakhs.
- **Loans cover term financing and working capital needs** across manufacturing, trading and service sectors, including activities allied to agriculture like poultry, dairy, beekeeping, etc.
- In order to get loans under PMMY, a **Credit Guarantee Fund for Micro Units (CGFMU)** was created in 2016.

Conclusion

The government’s commitment to “Banking the Unbanked”, “Securing the Unsecured”, and “Funding the Unfunded”, as well as to promoting financial inclusion and encouraging entrepreneurial dreams, is reaffirmed as India commemorates ten wonderful years of PMMY.

EXPECTED QUESTIONS FOR UPSC CSE**Prelims MCQ**

Q. Consider the following statements regarding MUDRA Yojana:

1. The scheme is administered by the Ministry of Finance.
2. Recently, the scheme completed 10 glorious years of empowering small and micro-entrepreneurs across India.

3. Under this scheme the borrower can avail collateral-free loans.

How many of the statements given above is/are correct?

- (a) Only one (b) Only two
(c) All three (d) None

Answer: (c)

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INDIAN MUNICIPAL BOND MARKET: ICRA REPORT

Why in News: Recently, Investment Information and Credit Rating Agency (ICRA) published a report on the rising growth of the Indian municipal bond market.

Municipal bonds, often known as “munis”, are **financial instruments that local governments issue** to fund capital projects like roads and schools as well as their ongoing operations. Their **varied risk levels** and **tax-exempt status** make them a popular investment choice. These bonds give investors a means to support their communities while perhaps making a profit, and they are a significant source of revenue for local governments.

The municipal bond market in India has **witnessed traction recently**, especially since FY2018, driven primarily by fiscal incentives from the Government of India (GoI). While the total amount raised has been just over **Rs. 2,600 crore since FY2018**, it is **significantly higher than the last such traction witnessed during FY1998-FY2005**, when less than Rs. 1,000 crore was raised.

Reasons for rising issuance of municipal bonds:

- **Incentives for issuing municipal bonds:** The Government of India provides **Rs. 13 crore for every Rs. 100 crore of bond issues** up to a **maximum of Rs. 26 crore**.
- **National municipal finance portal:** Centralised information database for ULBs – **cityfinance.in**, launched by the Ministry of Housing and Urban Affairs, evaluates and rewards municipal bodies across countries on the basis of their financial health, thus **helping investors to make informed choices** regarding municipal bonds.
- **Structured payment mechanism:** It led to **reduced risk and improved yields** of municipal bonds as well as leading to higher ratings.
- **Foreign participation:** In 2019, **SEBI permitted foreign portfolio investors to invest in municipal bonds**.
- **Information database and repository on municipal bonds:** **Launched by SEBI** to make investors aware of various regulations, circulars, guidance notes, and statistics regarding municipal debt securities.
- **Promoting retail participation:** **SEBI reduced the face value of bonds** to **Rs. 10,000** from **Rs. 1 lakh** to boost retail participation.

Key Deterrents:

- **State/central government grants:** A grant-based approach towards financing urban infrastructure with a **large dependence of ULBs on state government grants** leads to a lesser preference for municipal bonds.
- **Fewer numbers of investors:** **Illiquidity and lack of a secondary market** lower investors interest in municipal bonds.
- **Increased compliance burdens to adhere to listing norms of municipal bonds** discourage ULBs from issuing them in the first place.
- **Credit rating of ULBs:** The weak credit profile of most ULBs restricts their access to capital markets, as **only 12% of municipalities in India are rated in the AA/A category**, while other municipalities coming under the **non-investment category**.
- **Lack of insolvency procedure:** There is **no specific statute governing the insolvency of ULBs**, which adds to the uncertainty and risk for investors.
- **Issuance of bonds:** **Irregular issuances** with bunching in some years and no issuances in some.
- **Own revenues:** The own revenue base of ULBs **remains low**, with high dependence on transfers from state governments **affecting the repayment capacity of ULBs**.
- **Poor auditing compliance:** Information systems remain weak in most ULBs with **instances of data inconsistency, absence of audited financial statements, low disclosures**, etc. reduces investor confidence.
- **Lack of professionalism:** Most ULBs lack a track record and ability to design and execute large and complex projects in a timely manner within budgeted costs.

Recent Issuances

- A total of **~Rs. 2660 crore** from **17 municipal corporations** has been mobilised through the bond market since FY2018.
- Of these 17 bonds, **seven were rated at the AA+ level** and **10 were rated at AA** by various rating agencies in India.
- With an **incentive of Rs. 13 crore per Rs. 100 crore bond** and with the capping of **Rs. 26 crore incentive**, overall issuances are limited to **Rs. 200 crore** from a municipal corporation.

Future Outlook

- **More than five ULBs are in advanced states** and are

likely to issue municipal bonds in the near term, with five more in various stages of preparation amounting to more than ~Rs. 1500 crore in FY2025/FY2026.

- **Special purpose vehicle:** For the ULBs with low credit quality, state governments are likely to issue **pooled municipal bonds**, wherein a special purpose vehicle is created to raise funds from capital markets by pooling the requirements of participating ULBs.

UN WORLD WATER DEVELOPMENT REPORT 2025

Why in News: Recently, the UN World Water Development Report, 2025, focusing on 'Mountains and glaciers – Water Towers', was released.

As the 'water towers' of the world, mountains are an essential source of freshwater. The United Nations World Water Development Report 2025: Mountains and glaciers – Water towers offers solutions to help us simultaneously mitigate and adapt to rapid changes in our frozen water resources.

Key highlights of the report

- **Service economy:** Mountain regions provide high-value products such as **medicinal plants, timber and other forest products, unique mountain livestock** and speciality agriculture products.
 - Mountains supply more surface runoff per unit area than lowlands, **providing 55–60% of global annual freshwater flows.**
 - **Water supply of key rivers:** Rivers like the **Amu Darya, Colorado, Nile, Euphrates, Indus, Tigris, and Senegal** are dependent on mountain waters for **more than 70% to 90% of their flow.**
 - **Impact of Global Warming:** The effects of global warming include **increased permafrost thawing, decreased snow cover, accelerated glacier melt, increased intense rainfall events,** and increased natural hazards.
 - **Anthropogenic impact:** **Dust,** combustion-related soot deposits including **black carbon,** and **microbial and algal growth** on snow and glacier surfaces are becoming more common due to increased frequency and intensity of dust storms, air pollution and wildfires. They can accelerate melt rates by **decreasing surface albedo.**
 - **Geographical constraints:** The remoteness of mountain communities, difficult terrain and heightened exposure to natural hazards often leads to **higher costs for financing, development and maintenance of water supply and sanitation systems, drainage networks and other essential water infrastructure.**
 - **Urbanization:** Rapid and unplanned urbanization in mountain regions is also placing **pressure on fragile mountain ecosystems,** affecting water availability, quality and security.
 - **Disasters:** Natural hazards such as **landslides,**
- **earthquakes, floods, GLOFs and avalanches can damage the water supply and sanitation infrastructure, and disrupt access to water, sanitation and hygiene services.**
 - **Marginalized communities:** Rising natural hazards in Such hazards increase the vulnerability of already vulnerable and often marginalized mountain communities, and **destabilize some of their wealth-generating sectors, including agriculture, tourism and biodiversity.**
 - **Hydropower sector:** The construction and presence of **dams and reservoirs, transmission lines and substations** can have a significant **negative impact on fragile mountain ecosystems.**
 - **Glacial Lake Outburst Floods:** The total area and number of glacial lakes have increased significantly since the 1990s as glaciers have receded, thus creating new hotspots of potentially dangerous glacial lake outburst flood (GLOF) hazards and risks.
 - **Industrial activities:** Remote mountain areas can be difficult to regulate, resulting in **uncontrolled water withdrawals and discharges, including pollutants.**
 - **Agriculture:** The Himalayan region's alpine glaciers are melting at a startling rate, often faster than the world average. **Long-term food, water, energy, and livelihood security in the Hindu Kush Himalayan area are predicted to be threatened by decreased water flows and more frequent droughts.**

Key facts

- **Regional coverage:** Mountain regions cover around 33 million km² – or **24% of the global land surface, excluding Antarctica.**
- **Population covered:** **More than 1.1 billion people** (around 15% of the world's population) reside in mountain regions – nearly doubling from just over 575 million in 1975. **Most of which (91%) concentrated in developing countries.**
- **Global glaciers are expected to recede and lose between 26 and 41 percent of their total mass by 2100 compared to 2015.**
- It is predicted that Mount Kenya and the Rwenzori Mountains will lose their glaciers by 2030, while Mount Kilimanjaro will lose its glaciers by 2040.

Key recommendation of the report

- **Agriculture:** **Terrace farming** can be adapted to local slope conditions. Its numerous benefits include **reducing surface water runoff, promoting water conservation, reducing soil erosion, stabilizing slopes, enhancing habitat and biodiversity production, and sustaining cultural heritage.**
- **Monitoring of region:** **Feasibility studies** for controlled

releases from glacial lakes, river basin management, **monitoring temporal changes in glaciers, and establishing GLOF risk reduction and early warning systems** in glaciated river basins.

- **Circular economy:** Circular economy to **promote water-use reduction, recycling of used water and reuse of water resources** so as to reduce pressure on mountain ecosystems. Use of environmentally sound technologies such as the **use of less-polluting technologies, better resource management and efficient waste recycling.**
- **Role of local communities:** Fostering dialogue and inclusion of local communities to apply the best available **practices adapted to local contexts in the mountain regions.**
- **International efforts:** **Transboundary collaboration, regional dialogue, international policy frameworks for water governance and treaties and conventions** can be relevant enablers to promote cooperation and implementation at the mountain region scale.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements regarding the World Water Development Report, 2025:

1. It was published by the World Economic Forum.
2. The report focuses on mountains and glaciers in its latest edition.

Which of the statements given above is/are correct?

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

Answer: (b)

WORLD HAPPINESS REPORT, 2025

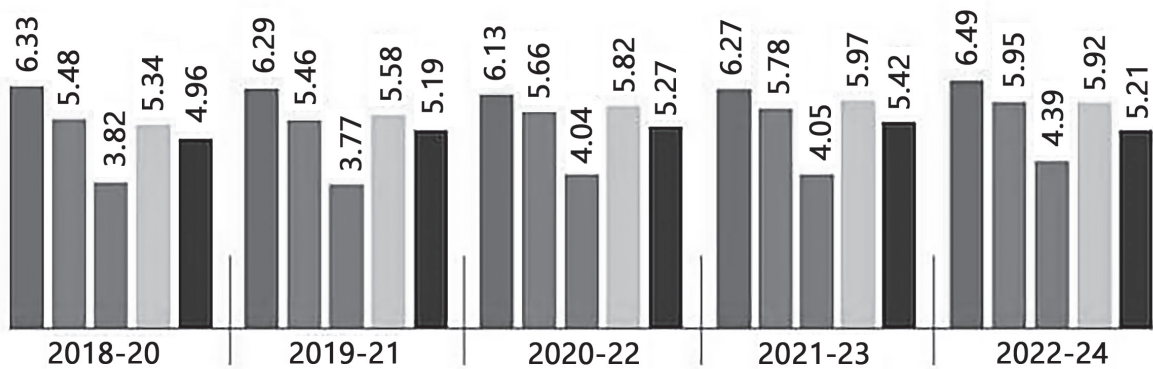
Why in News: Recently, the Wellbeing Research Centre at the **University of Oxford**, in partnership with the **UN Sustainable Development Solutions Network**, published the World Happiness Report, 2025.

Key Details

- **Finland** has been named the **world's happiest nation for the eighth consecutive year.**
- Other Nordic countries, such as **Sweden, Iceland, and Denmark**, all held onto their **top spots**, underscoring their excellent standards of living and robust social support networks.
- The rankings are **derived from individuals' self-reported assessments of their lives.**
- The World Happiness Report has been identifying the happiest nations in the world since 2002 using statistical research.
- Researchers examined extensive **data from 143 countries over the previous three years**, tracking performance in six specific areas: Gross Domestic Product per capita, Social support, Healthy life expectancy, Freedom to make your own decisions, General population generosity, and Perceptions of levels of internal and external corruption in order to identify the happiest nation in the world.
- **India ranked 118th on the happiness index**, while neighbouring Pakistan stood at 109th.
- Even though the top 20 was dominated by European countries, there were some noticeable changes. **Mexico (10th)** and **Costa Rica (6th)** had their **maiden appearances in the top 10.**
- The **United States, however, fell to its lowest-ever rating of 24th.**
- In a similar vein, the **UK ranked 23rd, its lowest ranking score since 2017.**
- **Afghanistan (ranked 147th)** continues to be the **world's unhappiest country for the fourth year in a row.** Living circumstances were especially terrible, according to Afghan women.
- Zimbabwe (143rd), Malawi (144th), Lebanon (145th), and Sierra Leone (146th) are among the other nations near the bottom.
- Researchers found that **basic lifestyle characteristics, such as sharing meals, having a reliable support system, and household size, are important for overall happiness, even more so than economic and health concerns.**
- According to the survey, for example, the **happiest households are those with four to five members in Mexico and Europe.** Another important component that came to light was the notion of kindness: countries where people anticipate lost wallets to be returned tend to have happier citizens.
- **India and World Happiness Report, 2025**
 - **India ranked 118th** on the World Happiness Index among 147 countries.
 - India's **score improved from 4.054 (2021-23) to 4.389 (2022-24).**
 - India **ranked below** its neighbour **Pakistan (109)** and **Nepal (92).**
 - **Strength:** Strong family structures and community bonds leading to high social support.
 - **Weakness:** Limited individual choice satisfaction leading to low perceived freedom.

REPORT CARD Scores of BRICS countries (out of 10)

■ Brazil ■ Russia ■ India ■ China ■ South Africa



HOW THE NEIGHBOURS FARED



Countries	Happiness score (2022-24)	Change in happiness score from 2006-10 to 2022-24
Nepal	5.31	0.71
Pakistan	4.77	-0.37
INDIA	4.39	-0.58
Sri Lanka	3.89	-0.38
Bangladesh	3.85	-0.92

EXPECTED QUESTION FOR UPSC CSE

Prelim MCQ

Q. Consider the following statements regarding World Happiness Report, 2025:

1. It was launched by the University of Oxford, in partnership with the UN Sustainable Development Solutions Network.
2. In the latest edition India ranked below BRICS member countries.

Which of the statements given above is/are correct?

- (a) 1 only (b) 2 only
 (c) Both 1 and 2 (d) Neither 1 nor 2

Answer: (c)

STATE OF THE WORLD'S PLANT GENETIC RESOURCES: FAO

Why in the News: The Food and Agriculture Organisation recently issued its **third edition** of a report on the **Status of Plant Genetic Resources for Food and Agriculture Worldwide**.

Key highlights of the report

- **Source of data:** Information from **128 nations**, as well as **four regional and 13 international research centres**, served as the main source of data for this report on the state of the conservation, management, and sustainable use of plant genetic resources for food and agriculture (PGRFA).

Plant species diversity

- Despite the cultivation of 6,000 plant species, **60% of worldwide agricultural production is largely dependent on just nine crops**, putting the diversity of plant genetic resources for food and agriculture in jeopardy.
- These nine crops were **rice, sugarcane, oil palm fruit, maize, soybeans, wheat, sugar beet, potatoes, and cassava**.
- Nine of the 18 sub-regions that were surveyed had diversity that was more concerning, with **at least 18% of Farmers's Varieties/Landraces (FV/LR) being classified as threatened**.
- The **biggest percentage of threatened diversity** is found in **Southern Africa**, followed by the **Caribbean and Western Asia**.
- **Australia, New Zealand, and Southern Asia** had the **least vulnerable landraces** and the most diverse sorts of farmers.

- The survey also revealed that **FV/LR was grown on over 35 million hectares across 51 nations during the reporting period (2011–2022)**, which is equal to 44% of the total crop area of reported sites within areas of high diversity.

In-situ conservation of plant variety

- The report also mentioned the status of in-situ (on-farm) conservation and found that **42% of the taxa (groupings of plant species) surveyed were vulnerable at the species or varietal level.**
- **Over 50% of recorded FV/LRs across five agroecological zones were deemed threatened**, conservation measures were also necessary in India to stop extensive genetic on-farm erosion.

Ex-situ conservation of plant variety

- Regarding ex situ conservation, it was discovered that numerous problems that obstruct the successful and efficient conservation of PGRFA still exist and require attention, even with the advancements made in the last ten years.
- In many countries, **ex situ conservation still lacks the necessary political and financial support**, which frequently leads to **limited or sporadic funding, a shortage of adequately qualified staff, and inadequate infrastructure and logistics.**

Indian initiatives on conserving plant varieties

- The report also highlighted how the **Indian Agriculture Ministry's 2016 initiative to "create seed hubs for increasing indigenous production of pulses"** has helped smallholder farmers have easier access to high-quality seeds of new (less than ten-year-old) high-yielding varieties (HYVs) of pulse crops.
- The **production of pulses increased from 14.76 million tonnes in 2007 and 2008 to 24.42 million tonnes in 2020 and 2021** as a result of this project.

Climate change: a threat to crop diversity

- The paper pointed out that **several nations reported a gap in evaluating the effects of disasters on agricultural diversification, despite the fact that the frequency and intensity of unpredictable extreme weather occurrences had been increasing.**
- Many nations noted a **vacuum in evaluating the effects of disasters on crop diversity**, despite the fact that repercussions on the agricultural sector following emergencies are frequently calculated in terms of financial and nutritional losses.

PRELIMS SPECIAL

- The Food and Agriculture Organisation (FAO) is a **specialized agency of the United Nations.**
- FAO leads international efforts to **eliminate hunger.**

- It is the oldest permanent agency of the UN.
- It was established in **October 1945.**
- FAO aims to **improve agricultural productivity, improve nutrition, raise the standard of living and contribute to global economic growth.**
- Member countries: 195 members – 194 countries and the European Union.
- Headquarters: Rome, Italy.
- **Publications:** The State of Food Security and Nutrition in the World report (SOFI), The State of the World's Forests report (SOFO), The State of Agricultural Commodity Markets report (SOCO), The State of World Fisheries and Aquaculture report (SOFIA).

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following questions regarding the Food and Agriculture Organisation (FAO):

1. FAO is the specialized agency of the United Nations.
2. Its headquarters is located in Rome, Italy.
3. It releases the State of Food Security and Nutrition in the World report.

How many of the above given statements are correct?

- (a) Only one (b) Only two
(c) All three (d) None

Answer: (c)

LEVELS AND TRENDS IN CHILD MORTALITY REPORT

Why in News: Recently, the UN inter-agency group for child mortality estimation has released a report titled 'Levels and trends in child mortality.'

Key highlights of the report

- Due to decades of investment and cooperation by governments, communities, and partners, the **worldwide under-five mortality rate has decreased by 52% since 2000.**
- The **number of countries with higher-than-expected mortality for girls has declined from 22 in 2000 to 9 in 2023.**
- Investments in high-quality maternal, newborn, and child health care, such as **skilled birth attendance, neonatal care, and access to early diagnosis and treatment for common childhood infections**, have allowed countries and regions to achieve low or significantly reduced child mortality rates.

- A significant part has also been played by preventative actions to lower risk factors, such as **increasing routine vaccinations, enhancing water and sanitation, and guaranteeing proper nutrition.**
- **However,** the United Nations Inter-agency Group for Child Mortality Estimation (UN IGME) estimates for this year also clearly show that **millions of children continue to die from avoidable causes** and that progress is faltering.
- An estimated **4.8 million children**, including 2.3 million newborns, **passed away before turning five in 2023.** In addition to early infancy, 2.1 million children, adolescents, and young people between the ages of 5 and 24 also died.
- These fatalities are **not unavoidable.** They arise from **disparities in access to protection, nourishment, and medical care, particularly in the most vulnerable and underprivileged environments.**
- It is well known that preventing avoidable child deaths is possible, but **persistent investment, strong national commitment, and reliable data systems are necessary for success.**
- An estimated **30 million youngsters may pass away before turning five by 2030** if attention is not refocused; these are lives that can and should be saved.
- A remarkable accomplishment that represents **decades of consistent investment and cooperation by governments, donors, health professionals, communities, and families,** the global under-five mortality rate was half of what it was in 2000 in 2023.
- Although the overall decrease in mortality among children under five is positive, **not all age groups have seen the same level of progress.**
- While **newborn fatalities have decreased by 44% since 2000, deaths among children ages 1 to 59 months have decreased by 58%.**
- The **first 28 days of life accounted for about half of all under-five mortality in 2023,** highlighting the babies' increased susceptibility and the necessity of more funding for focused interventions during this crucial time.
- **Inequality by region**
 - Despite improvements in worldwide averages, **many children's realities are influenced by their birthplace and circumstances.**
 - The average **child born in sub-Saharan Africa** has an **18-fold higher risk of dying before turning five than a youngster born in Australia or New Zealand.**
 - The **country with the greatest mortality rate** has an **80-fold higher risk of under-five deaths than the one with the lowest.**
- The **risk of death is considerably higher for children born to women with the least amount of education, those from the poorest households, and those who live in rural areas.**
- **Conflict and fragility** exacerbate these disparities: **In 2023, just 25% of live births occurred in countries categorised as fragile and conflict-affected, but nearly 50% of all deaths among children under five occurred in these countries.**
- **Data Gaps: Without better data, millions of children risk being overlooked,** and efforts to reduce mortality will be hindered by uncertainty and delay, especially in the highest-mortality countries where data systems are weakest.
- A confluence of escalating challenges, including **crises, violence, economic instability, brittle health systems, and declining donor support,** puts the progress accomplished at danger of stagnation or even reversal.
- Millions of babies and young children will continue to perish from causes that we can avoid and treat unless these issues are resolved with swift action.
- The way forward is obvious; all that is required to reach the most vulnerable children is **political will and financial support.**
- **Report recommendations**
 - By **focusing activities and interventions based on subnational data or estimations,** progress can be further expedited.
 - Subnational differences within nations necessitate **customised methods,** including **well-funded maternal, neonatal, and child health initiatives** that target the most at-risk.
 - **Humanitarian organisations must keep fighting for the most disadvantaged, and donors must maintain and grow their contributions.**

Conclusion

The mortality rate has historically decreased, demonstrating the effectiveness of coordinated efforts by all parties involved. **It is up to us to decide how mortality will develop in the future. If the world is to fulfil every child's right to life, it must not only continue its efforts but also step them up.**

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements regarding the Levels and Trends in Child Mortality Report:

1. The report was released by the UN inter-agency group for child mortality estimation.
2. According to the report, the worldwide under-five mortality rate has increased by 52% since 2000.

Which of the statements given above is /are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Answer: (a)

EDUCATION AND NUTRITION: LEARN TO EAT WELL REPORT: UNESCO

Why in News: Recently, UNESCO published the Education and Nutrition: Learn to Eat Well Report.

Key highlights of the report

Eat well, learn well:

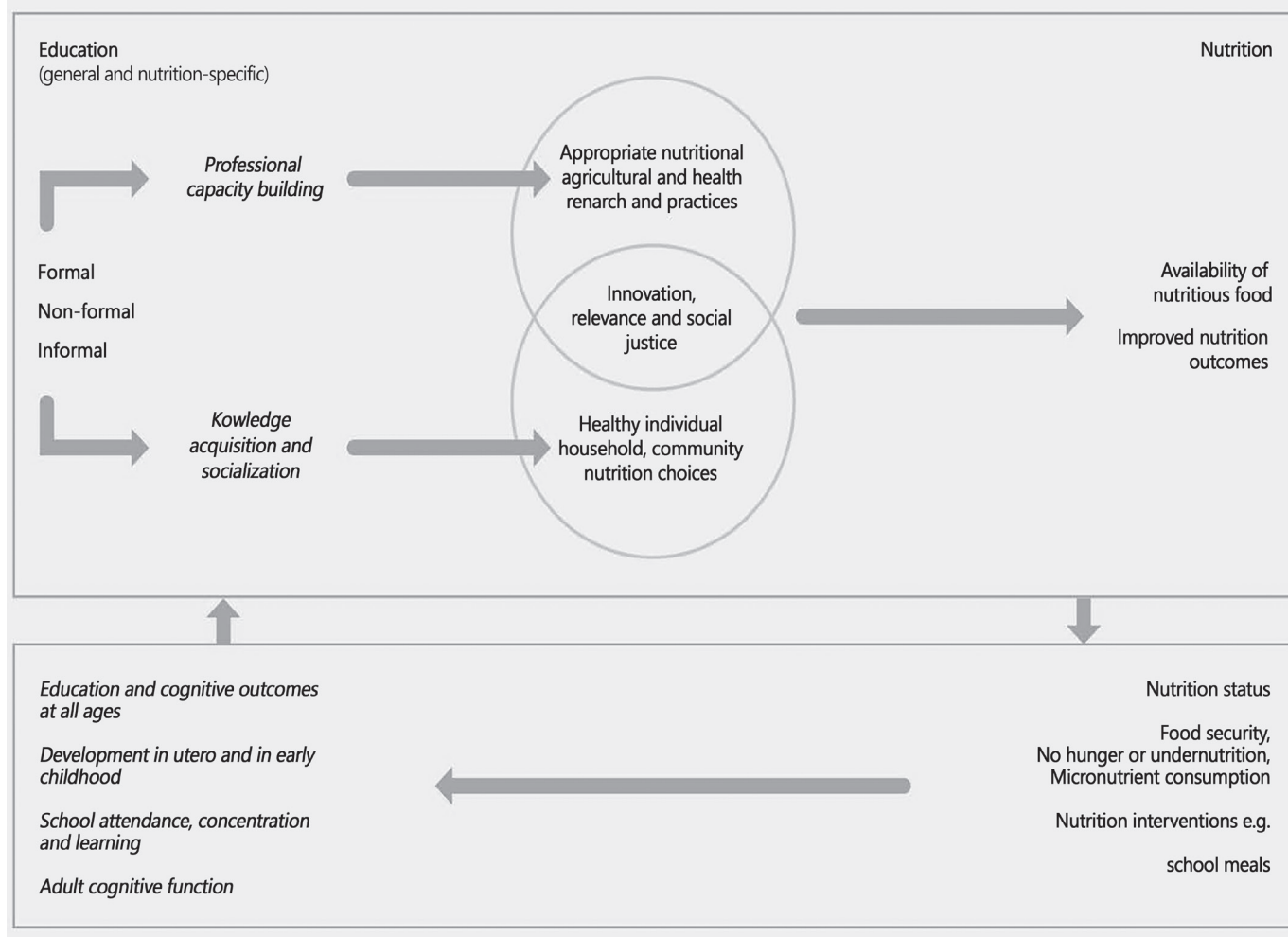
- **Early childhood nutrition:** Adequate nutrition, including breastfeeding, supports optimal brain development and improves cognitive functions and other life outcomes.

- Universal access to nutritional school meals improves school attendance and learning outcomes.
- Food insecurity and cognitive outcomes: Food insecure university students were less likely to concentrate, perform well academically. Food insecure adults are more likely to experience faster cognitive decline.

Learn well; eat well:

- **Educated mothers and child nutrition:** In low- and middle-income countries, children of mothers with at least secondary education are less likely to be stunted, underweight and wasted than children of less educated mothers.
- **Public campaign about healthy eating:** The LiveLighter campaign in Australia and the Save Food campaign in the United States increased public awareness of health challenges and food waste. C40 cities are working to shift consumption patterns by promoting healthier food options in schools, hospitals and public spaces.
- **Role of schools:** Many high-income countries integrate nutrition into subjects like science and home economics and involve parents. Japan's Shokuku approach emphasizes the cultural and sustainability aspects of food.

Nutrition and education can be highly complementary



Challenges

- **Training of the health professionals:** In 2022, only 14% of countries adequately covered the topic of feeding infants & young children in the pre-service curriculum of medical doctors, nurses and midwives and other professionals.
- **Early childhood nutrition:** Childhood stunting caused by chronic malnutrition lowers cognitive ability, education attainment and mathematics test scores in adolescence.
- **School meal quality received insufficient attention:** Only 93 out of 187 countries have legislation, compulsory standards or guidance on school food and beverages. Globally, 27% of school meal programmes do not employ nutritionists to advise on their design and implementation

Report recommendations

- **Nutrition outcomes** of school-age children and adolescents need to be monitored to better understand interlinkages with education.
- **Nutrition education for pregnant women:** Nutrition education targeted around early life nutrition outcomes focusing on combating maternal and child undernutrition, supplementation during pregnancy, exclusive breastfeeding during the first six months, and interactive reproductive health education can be productive and help to increase knowledge & improved dietary practices amongst pregnant women.
- **Healthy eating awareness campaigns:** Effective public awareness campaigns aimed at promoting the use of nutrition warnings in decision-making for food choices to increase the awareness among the public.

- **Experiential learning:** To promote healthy, sustainable eating habits, nutritional education programs should strike a balance between theoretical knowledge and experiential learning, such as via cooking and gardening.
- **Role of media:** Create evidence-based campaigns that include nutrition education in communications through digital platforms and the media to raise awareness of food safety and nutrition issues.
- **Nutrition education in school:** Integrate nutrition education, developed with adequate nutrition expertise, into school feeding programmes to foster lifelong healthy and environmentally sustainable habits.
- **Build professional capacity:** Integrate comprehensive nutrition curricula into medical, nursing and community health worker training to address gaps in nutrition knowledge and practice.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Recently, the 'Education & Nutrition: Learn to Eat Well Report' was published by?


- (a) UNESCO
- (b) WEF
- (c) IMF
- (d) WHO


Answer: (a)


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Editorial Analysis of Indian Express

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PERSONALITIES IN NEWS

JYOTIRAO GOVINDRAO PHULE

Why in News: Prime Minister paid tributes to Mahatma Phule on his birth anniversary and hailed him as a true servant of humanity.

Jyotirao Govindrao Phule

- **Early Life and Education**

- Born in 1827 in Poona, Maharashtra.
- Belonged to the Mali (gardener) caste.
- The family was originally from the Satara district.
- Primary education was interrupted due to family responsibilities.
- Enrolled in the Scottish Mission's High School, Poona (1841), where he met lifelong Brahmin friends like Sadashiv Ballal Govande.
- He was influenced by Thomas Paine's *The Rights of Man*.



- **Social Reforms**

- **Challenged the Caste System**
 - ◆ Advocated for the rights of Shudras and Ati-Shudras (untouchables).
 - ◆ Opened schools for lower castes and girls, emphasising education as liberation.
- **Education for Women and Marginalised Groups**
 - ◆ Educated his wife, Savitribai Phule, and founded the first girls' school in Pune (August 1848).
 - ◆ Established three girls' schools by 1852 and indigenous schools for Mahars and Mangs (lower castes).
 - ◆ Highlighted Brahmin dominance in education and administration in a memorial to the Hunter Commission (1882).
- **Support for Widows and Orphans**
 - ◆ Founded the first Hindu-run orphanage (1873) to protect widows and their children.
 - ◆ Adopted a Brahmin widow's son, Yashwant, as his heir.

- **Literary Contributions**

- **Slavery (1873):** Critiqued Brahmin hegemony and caste oppression; dedicated to American abolitionists.
- **Sarvajanik Satya Dharma Pustak (1891):** Promoted equality, unity, and rejection of idolatry/Vedas.
- **Satsar (1885):** Criticised Brahma Samaj and Prarthana Samaj for elitism.

- **Political Involvement**

- **Poona Municipality:** As a nominated member (1876), he opposed wasteful spending.
- Criticised liquor license expansion for exploiting the poor.
- Addressed the Duke of Connaught (1888), urging attention to rural poverty and untouchables' plight.

PRELIMS SPECIAL

Satyashodhak Samaj

- **Founder:** Jyotiba Phule
- **Founded:** September 24, 1873, in Maharashtra.
- **Objective:** Combat caste-based discrimination, empower marginalised communities (especially Shudras), and promote social reform.
- **Key Philosophy:** Oppose Brahmanical supremacy and the Chaturvarna system and advocate for equality, education, and rational thought.
- **Prominent Leaders**
 - Jyotirao Phule
 - Krishnarao Bhalekar
 - Narayan Meghaji Lokhande
 - Vishram Ramji Cholay
 - Ramayya Vyankayya Ayyavaru
- **Geographic Spread:** Primarily active in Pune, Bombay (Mumbai), and neighbouring villages.

DR. BHIM RAO AMBEDKAR

Why in News: The celebrations of the 135th Ambedkar Jayanti were organised on April 14, 2025, by Dr. Ambedkar Foundation (DAF), on behalf of the Union Ministry of Social Justice and Empowerment.

About Dr. Ambedkar: Bhimrao Ramji Ambedkar (14 April 1891 – 6 December 1956), popularly known as Babasaheb, was an Indian jurist, economist, politician and social reformer who chaired the Drafting Committee of the Constituent Assembly and was India's First Minister for Law and Justice.



• **Early Life**

- Dr. Bhim Rao Ambedkar was born on 14 April 1891, he was the 14th and last child of his parents.
- He was the son of Subedar Ramji Maloji Sakpal. His father was a Subedar in the British Army. His father was a follower of Sant Kabir and was also a well-read person.
- Bhim Rao Ambedkar got his early education in Bombay. Since his school days, he realised with intense shock what it was to be an untouchable in India.

• **Education**

- Dr. Ambedkar completed his graduation at Elphinston College, Bombay, for which he was getting a scholarship from His Highness Sayajirao Gaikwad of Baroda.
- After his graduation, he had to join Baroda Sansthan according to the bond.
- 1913 is the year when Dr. Ambedkar was selected as a scholar to go to USA for higher studies. This was the turning point of his educational career.
- He got his M.A. and Ph.D. degrees from Columbia University in 1915 and 1916, respectively.
- He then left for London for further studies. He was admitted to the Gray's Inn for Law and also allowed to prepare for the D.Sc. at the London School of Economics and Political Science.
- He was called back to India by the Dewan of Baroda. Later, he got his Bar-at-Law and D.Sc. degree also.
- He studied for some time at Bonn University in Germany.

• **Intellectual Work**

- In 1916, he read an essay on 'Castes in India — their Mechanism, Genesis, and Development'.
- In 1916, he wrote his thesis, 'National dividend for India — A Historic and Analytical Study' and got his Ph.D. Degree.
- This was published after eight years under the title "Evolution of Provincial Finance in British India."
- In 1921, he wrote his thesis. "Provincial Decentralisation of Imperial Finance in British India," and got his M.Sc. Degree from the London University.
- In 1923, he submitted his thesis — "Problem of Rupee its Origin and Solution", for the D.Sc. Degree.
- He published his book, Who were Shudras?

- In 1955, he published his book titled Thoughts on Linguistic States.
- **Social and Reform Works**
 - After coming back from England in 1924, he started an Association for the Welfare of the depressed classes, with Sir Chimanlal Setalvad as the President and Dr. Ambedkar as the Chairman.
 - ◆ To spread education, improve economic conditions and represent the grievances of the depressed classes were the immediate objects of the Association.
 - He started the Bahiskrit Bharat newspaper in 1927, to address the cause of the depressed classes in view of the new reform.
 - In 1936, he addressed the Bombay Presidency Mahar Conference and advocated the renunciation of Hinduism.
 - On August 15, 1936, he formed the Independent Labour Party to safeguard the interests of the depressed classes, which mostly formed the labour population.
- **Political Journey**
 - In 1942, he was appointed to the Executive Council of the Governor General of India as a Labour member.
 - In 1946, he was elected to the Constituent Assembly from Bengal.
 - After Independence, in 1947, he was appointed as the Minister of Law and Justice in Nehru's first cabinet.
 - In 1951, he resigned his ministership, expressing his differences on the Kashmir issue, India's Foreign Policy and Nehru's Policy towards the Hindu Code Bill.
 - He played a significant role in the formation of the Reserve Bank of India. The Central Bank was formed on the concept presented by him to the Hilton Young Commission.
- **Being a Buddhist**
 - On 14th October 1956, he embraced Buddhism in a historic ceremony in Nagpur and died on 6th December 1956.
 - He was conferred with the title of "Bodhisattva" by the Buddhist monks at "Jagatik Buddhism Council" in 1954 in Kathmandu, Nepal.
 - The special thing is that Dr Ambedkar was conferred with the title of Bodhisattva while he was alive.
 - Dr. B.R. Ambedkar's death anniversary is observed as Mahaparinirvan Diwas across the country.

DR K KASTURIRANGAN

Why in News: Recently, Dr. Kasturirangan, the man behind ISRO's various successful missions, a renowned scientist, educationist, and environmentalist, passed away at the age of 84.

Early life

- Dr K. Kasturirangan was born in 1940, Kerala.
- He did his graduation in physics from Mumbai University and later on earned a PhD in experimental high-energy astronomy from the Physical Research Laboratory, Ahmedabad.



Notable contributions of K. Kasturirangan

Space sector

- During his initial years in ISRO, he worked on several key projects of ISRO, such as INSAT, IRS-1A, IRS-1B, and Bhaskara I & II.
- He was chairman of ISRO from 1994 to 2003.
- Under his leadership ISRO witnessed the operationalisation of the Polar Satellite Launch Vehicle (PSLV) and the successful flight test of the Geosynchronous Satellite Launch Vehicle (GSLV).
- He also played a key role in conceptualising India’s first space-based high-energy astronomy observatory.

Environment

- In 2013 he headed the High Level Working Group on Protection of Western Ghats.
- The committee recommended that 37% of the total area of the Western Ghats be considered under ecologically sensitive areas.
- The committee also recommended banning highly polluting industries in ecologically sensitive areas.
- The committee also made various recommendations in favour of the farmers, like excluding inhabited areas and plantations that come under ecologically sensitive areas.

Education

- Dr K Kasturirangan also headed the committee for the New Education Policy, which presented the Draft New Education Policy, 2020, which eventually became the New Education Policy, 2020.
- By replacing the 34-year-old NEP of 1986, it focuses on bridging gaps in quality, equity, and access to education at all levels.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements regarding renowned scientist Dr Krishnaswamy Kasturirangan:

1. He was chairman of ISRO from 1994 to 2003.
2. He headed the High Level Working Group on Protection of Western Ghats.
3. He was chairman of the Draft New Education Policy, 2020 Committee.

How many of the statements given above are correct?

- (a) Only one (b) Only two
(c) All three (d) None

Answer: (c)

MATA KARMA

Why in News: Recently, the Department of Posts has issued a commemorative postage stamp in honour of Mata Karma to mark her 1009th birth anniversary.

Key Details:

- Mata Karma is renowned for her steadfast devotion to Lord Krishna and her ceaseless efforts to uplift underprivileged groups and promote social harmony.
- She sought Lord Krishna’s blessings in the holy city of Puri during her devotional journey.
- The influence of Mata Karma goes beyond her religious fervour.
- As a social reformer, she questioned the strict social norms of her era and empowered women.
- Her teachings placed a strong emphasis on virtues that still hold sway in modern society, such as compassion, selfless service, and spiritual purity.
- Her life inspires future generations to overcome social differences and promote equality and unity.
- Her legacy transcends geographical borders, signifying the strength of service and the universality of faith.
- We learn from Mata Karma’s life that service and devotion are intertwined, and that genuine faith manifests itself in promoting social harmony and uplifting others.



ARTICLE FROM YOJANA (APRIL 2025)

ENHANCING SKILLS FOR INDIA'S EXPORTS

Introduction

India stands at a critical juncture, where embracing an export-led growth strategy can significantly reshape its economic destiny. Leveraging digital skills, increasing industrial capacity, and becoming a reliable partner in global value chains (GVCs) can transform India into a leading export powerhouse. To achieve the \$20 trillion economic target, focused efforts must be made in:

- Green and space technology
- High-value manufacturing
- Infrastructure improvements
- Empowerment of MSMEs

Current Trends in Global and Indian Exports

(i) Global Trade Scenario: - Global merchandise trade growth slowed to 2% in the previous year.

(ii) India's Export Performance:

- **Non-petroleum exports rose by 7%, driven by:**
 - Chemicals
 - Electronics
 - Engineering products
 - Pharmaceuticals
- Electronics exports grew from USD 11 billion (FY21) to USD 26 billion (FY25).
- Textile exports also rebounded with a 7.6% increase (Ministry of Finance, 2025).
- **Supportive factors include:**
 - Incentive-based policies
 - Improved regulatory frameworks

Lessons from Global Examples

- Countries like China, South Korea, and Vietnam highlight the positive impact of export-led growth on economic prosperity.
- **India needs to:**
 - Move beyond its services and capital-intensive dependence.
 - Leverage its labour force
 - Attract multinational corporations (MNCs)
 - Generate over 200 million high-quality jobs

Why Export-Led India is the Future

(i) Employment Generation and Inclusive Development

- Export industries create jobs, addressing underemployment.
- PLI schemes spurred smartphone manufacturing and job creation.
- Export-oriented growth promotes industrialisation in Tier 2 & Tier 3 cities, especially in: Tamil Nadu, Karnataka, and Uttar Pradesh

(ii) Technological and Competitive Advantage

- **Participation in global value chains enables:** Technology transfer, Higher productivity, and international competitiveness

(iii) Geopolitical Soft Power

- **Enhancing exports boosts economic diplomacy and bilateral ties, especially with:** ASEAN & USA.
- Emerging sectors like renewables and green energy can lead the global energy transition.

Challenges to India's Export Growth

(i) Infrastructure and Logistics Constraints

- High logistics costs
- Inadequate trade infrastructure
- Despite PM Gati Shakti, India's logistics cost-to-GDP remains high.
- **Issues include:**
 - Port congestion
 - Container shortages
 - Poor last-mile connectivity

(ii) Export Portfolio Limitations

- **Over-dependence on:**
 - IT services
 - Petroleum products
 - Gems and jewellery
- Green energy exports remain underdeveloped.
- Lack of value-added exports in agriculture and textiles.

(iii) Global and Domestic Trade Barriers

- **Protectionism, taxation, and geopolitical disruptions** (e.g., Russia-Ukraine war)

- **New challenges from:**
 - Carbon tariffs
 - Environmental norms in developed countries

(iv) Constraints Faced by MSMEs

- Limited access to export credit
- Complex financial rules
- Lack of awareness about export schemes
- High compliance costs due to non-tariff barriers (NTBs)
- US Customs rejected 3,925 Indian shipments over 5 years due to sanitary and phytosanitary issues.

Government Initiatives to Boost Exports

(i) Export Promotion Mission (Rs 2,250 crore)

- Enhance access to export finance
- Eliminate NTBs
- Address structural and sectoral bottlenecks

(ii) BharatTradeNet and Digital Reforms

- **A unified digital platform for:** Trade documentation and financial transactions
- Inspired by systems in **Singapore** and **EU**
- Real-time monitoring for **cost reduction and transparency**

(iii) Infrastructure Development

- **Focus on:**
 - Air cargo improvements
 - Geospatial data integration
 - **Aim:** Lower trade-related costs and improve global competitiveness

(iv) Skill Development and Digital Empowerment

- **Recalibrated Skill India Mission (2025) targeting:**
 - Employment generation
 - Export-readiness
 - Support for manufacturing & digital sectors

Strategies for Enhancing Export Growth & Competitiveness

(i) Trade Infrastructure and Supply Chain Strengthening

- PM Gati Shakti, Bharatmala, and Sagarmala to improve multi-modal connectivity
- **Adoption of:**
 - AI-based customs systems
 - Export hubs near ports

(ii) High-Value Manufacturing & Technology Exports

- **Diversify beyond traditional commodities by promoting:**
 - Electronics
 - Solar equipment
 - Electric vehicles (EVs)
- Tap into global demand for green technologies

(iii) Leveraging Trade Agreements

- **Expand markets through:**
 - India-Australia ECTA
 - India-UAE CEPA
- Explore non-traditional markets: Latin America, Africa, Oceania

(iv) Empowering MSMEs

- MSMEs contribute over 45% of India's exports
- **Integrate:**
 - TIES with RAMP
 - Low-interest export finance
 - Global access via GeM
- Promote automation, robotics, AI for quality and cost efficiency

(v) Expanding Production Linked Incentives (PLI)

- Cover emerging sectors like precision machinery
- Merge Digital India with smart manufacturing clusters
- **Support joint ventures with MNCs for:**
 - FDI
 - Technology access

Future Competitiveness through Innovation and R&D

(i) Investment in Technological Advancements

- **Rs 20,000 crore allocated for:**
 - AI
 - Semiconductors
 - Geospatial technologies
- **Goals:**
 - Equip youth with future-ready skills
 - Support innovation ecosystems

(ii) Reforming Regulatory & Quality Frameworks

- Establish domestic testing & certification systems
- Sign Mutual Recognition Agreements (MRAs) with trading partners
- Partner Quality Council of India (QCI) with export councils

(iii) Tapping into Digital Trade & E-Commerce

- Promote cross-border digital payments
- Integrate Indian sellers into global platforms
- Leverage Open Network for Digital Commerce (ONDC)

(iv) Building the "Brand India"

- **Global awareness campaigns to promote:**
 - Indian goods and services
 - Quality and authenticity

Expanding Skilled Workforce and Service Exports

- **Train Indian professionals in sectors like:**
 - Healthcare
 - IT
 - Construction
- **Collaborate with countries facing:**
 - Labour shortages
 - Ageing populations
- Align skill development with host country needs

Conclusion

India’s path to becoming a global export leader rest on a multi-pronged strategy: Technological adoption, export diversification, regulatory reform and human capital development. Future success will hinge on: Consistent policy execution, Digitalisation, Green growth practices and strategic global partnerships. By aligning all stakeholders — government, industry, and civil society — India can drive inclusive, sustainable, and resilient export-led economic development.

A DECADE OF TRANSFORMATION AND THE ROAD AHEAD: SKILL INDIA MISSION AND THE FUTURE OF SKILLING

Introduction

The Skill India Mission, launched in 2015, marked a pivotal shift in India’s approach to human capital development. It aimed to address the mismatch between the skill sets of the youth and industry demands. Over the past decade, it has transformed into a holistic, inclusive, and technology-driven ecosystem, aligning India’s workforce with national goals and global opportunities. According to the Ministry of Skill Development and Entrepreneurship (MSDE), more than 5 crore individuals have been trained under various schemes since 2015. This massive upskilling push, embedded within the broader framework of Atmanirbhar Bharat and Viksit Bharat @2047, reflects India’s aspiration to emerge as the “Skill Capital of the World.”

Building a Robust Skilling Framework

(i) Institutional Reforms

- **Ministry of Skill Development & Entrepreneurship (MSDE):** Created in 2014 to consolidate 20+ fragmented skill programmes.
- **National Skill Development Mission (NSDM):** Launched in 2015 to operationalize skill training in a structured, scalable, and sustainable manner.

(ii) Policy Integration

- **National Education Policy (NEP) 2020:**
 - Emphasizes vocational integration from Grade 6.
 - Promotes multidisciplinary learning, with credit-based skill learning.

- **National Credit Framework (NCrF), 2023:**
 - Facilitates mobility between formal education and skill tracks.
 - Introduced Academic Bank of Credits (ABC) and academic equivalency for ITI students.

Industry Linkages and Apprenticeship Expansion

(i) Strengthening Industry Connect

- 100+ industry consultations led to revised curricula in line with market needs.
- **Introduction of:**
 - Dual System of Training (DST) in ITIs.
 - Flexi MoUs to enable customized training.

(ii) Revamping Apprenticeship Ecosystem

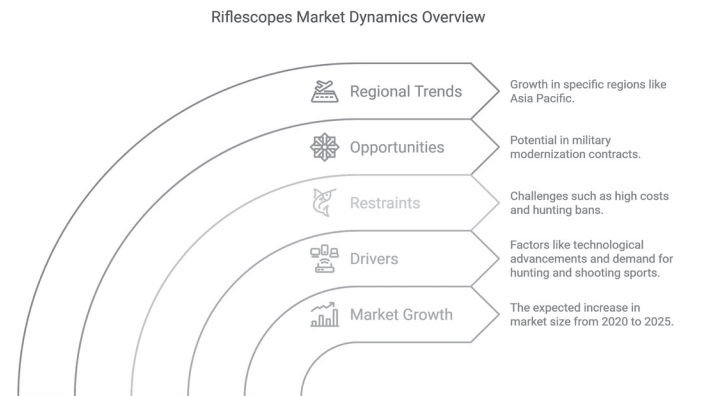
- **National Apprenticeship Promotion Scheme (NAPS):**
 - Over 42 lakh apprentices trained across 50,000+ establishments.
 - Direct Benefit Transfer (DBT) ensures transparency.

(iii) Accelerated Employment Development Programme (AEDP)

- Fast-tracks skilling in high-growth sectors.
- Industry partners: Samsung, Dassault, IBM, Microsoft have co-developed specialized modules.

Embracing Technology and Digital Skilling

(i) Skill India Digital Hub (SIDH)



- AI/VR-powered learning, career mapping.
- Digital Skill Card with portable credentials.
- Real-time analytics on skill uptake and employability.

(ii) Focus Areas

- **Skilling in emerging domains:**
 - Artificial Intelligence (AI)
 - Internet of Things (IoT)
 - Electric Vehicles (EVs)
 - Renewable Energy (Green Hydrogen)
- Partnership with Google, Microsoft, NVIDIA for AI skilling access.

#ViksitBharatBudget2025

MSMEs RUNNING IN 6TH GEAR NOW!

MSMEs contribute **45% of exports**, creating 7.5 crore jobs!

National Manufacturing Mission: Small to big industries, sabko boost!

Increased credit guarantee cover for MSMEs



IMPACT

This budget empowers startups & MSMEs with better financial backing, fostering innovation & economic growth!

UNION BUDGET 2025-26

Making Makhana A Global Superfood

Makhana board will be established in Bihar



Focus on **production, processing, value addition, and marketing of Makhana**



Impact

Empowering Farmers, Expanding Global Exports

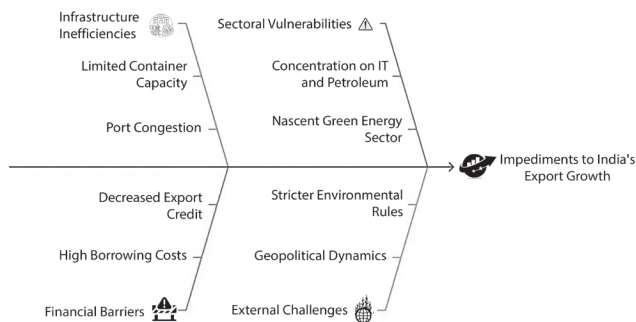
Internationalisation of Skilling

(i) Global Workforce Demand

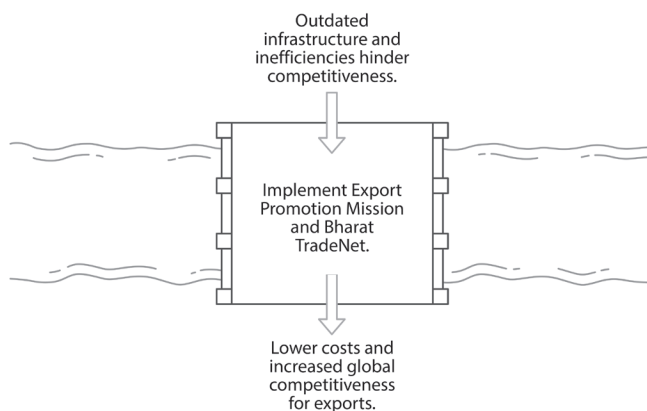
- 3.7 million jobs identified across 16 countries (2023 study).
- **Focus countries:** Japan, Germany, UAE, Israel, Australia

(ii) Infrastructure for Global Mobility

- **30 Skill India International Centres (SIICs)** : Offer certification, foreign language training, and soft skills.
- India's WorldSkills rank improved from **39th (2011)** to **13th (2024)**, showcasing competitiveness.



Enhancing India's Export Competitiveness through Infrastructure Improvement



Inclusive Financing and Scheme Convergence

(i) Budgetary Commitment

- ₹18,800 crore allocated in Union Budget 2024-25.
- Upgradation of 1,000 ITIs and five National Centres of Excellence.

(ii) Innovative Financing Tools

- **Skill Loans:** Affordable access to vocational courses.
- **Skill Impact Bonds (SIBs):** Outcome-based funding.
- **Skill Vouchers:** Learner-centric, demand-driven training.

(iii) Scheme Integration

- 38 Central + 133 State schemes integrated on SIDH for convergence.
- Unified monitoring eliminates duplication and enhances transparency.

Revival of Traditional and Rural Skills

(i) PM Vishwakarma Scheme

- Supports 18 traditional trades (e.g., carpentry, blacksmithing).
- Provides toolkits, loans, and training to artisans.

(ii) Craftsmen Training Scheme (CTS)

- **Integration of heritage crafts like:**
 - Basohli Painting
 - Shawl Weaving
 - Hand Embroidery
 - Paper Mache
- Implemented in partnership with the Directorate of Skill Development, J&K.

(iii) Rural and Tribal Skilling

- PM-JANMAN and Van Dhan Yojana empower tribal communities.

- Skill programmes run by NIESBUD improve value-addition and market linkages.

Data-Driven and Future-Oriented Planning

- MSDE, in collaboration with NCAER, identified sectoral skill gaps in growth areas like logistics, green economy, and digital services.
- Integration of skill-related data with MoSPI and MoLE surveys to align training supply with real-time demand. Use of AI and predictive analytics for job forecasting and curriculum design.

Key Challenges and Roadmap Ahead

Challenges	Way Forward
Fragmented delivery	Full operationalization of SIDH
Urban-rural divide	Strengthen Rural Skill Development Centres
Low post-training employability	Boost apprenticeship & on-the-job learning
Perception issues	National campaigns for aspirational skilling
Certification mismatch	Global benchmarking of NSQF

Policy Recommendations

- **Skilling as a Fundamental Right:** Consider inclusion in a concurrent list.
- **Link with MSMEs & Gig Economy:** Skilling must feed the growing informal and platform-based employment.
- **Skill University Expansion:** Focus on outcome-based, industry-driven curricula.

Conclusion

Over the last decade, Skill India Mission has evolved into a comprehensive ecosystem that fuses education, technology, industry, and inclusion. It has not only empowered over 5 crore youth but also laid a resilient foundation for Viksit Bharat @2047. As India aspires to be a global skill hub, the coming decade must be marked by: Deeper digital integration, Global certifications, and Massive upskilling in AI, Green Tech, and global trades.

ARTICLE FROM KURUKSHETRA (APRIL 2025)

STRENGTHENING RURAL INDIA: THE POWER OF CAPACITY BUILDING IN PANCHAYATS

Introduction

The decentralization of governance through the 73rd Constitutional Amendment empowered **Panchayati Raj Institutions (PRIs)** as grassroots democratic bodies. However, effective devolution requires more than structural reforms—it demands continuous capacity building. This article explores how targeted training, leadership development, institutional collaborations, and innovative schemes like the Revamped **Rashtriya Gram Swaraj Abhiyan (RGSA)** have strengthened the capacity of PRIs, enabling them to align with **Sustainable Development Goals (SDGs)** and bridge the governance gap in rural India.

Importance of Capacity Building in PRIs

Dimension	Relevance
Democratic Participation	Informed citizens and representatives ensure responsive governance.
Administrative Efficiency	Well-trained PRIs streamline planning, budgeting, and execution.
Accountability & Transparency	Enhances local accountability mechanisms and reduces leakages.
Convergence with SDGs	Skilled PRIs ensure localization of targets like SDG 3, 5, 6, 11 & 16.
Social Equity	Promotes inclusion of women, SC/ST, and marginalised groups in governance.

Institutional Framework for Capacity Building

(i) Rajiv Gandhi Panchayat Sashaktikaran Abhiyan (RGPSA): (2012-2016)

- **Focus:** Infrastructure, training, and e-enablement.
- Trained **11.19 million participants** (2014–2018).

(ii) Capacity Building-Panchayat Sashaktikaran Abhiyan (CB-PSA):

- Carried forward the RGPSA with a greater focus on grassroots delivery mechanisms.

(iii) Rashtriya Gram Swaraj Abhiyan (RGSA): (2018–2022)

- Introduced training support for **Elected Representatives (ERs)** and functionaries.

Background and Context

(i) Constitutional Foundation

- The **73rd Constitutional Amendment Act, 1993** institutionalized PRIs under Part IX (Articles 243 to 243-O).
- **Article 243G and the 11th Schedule** assign 29 functional areas to PRIs for planning and implementing schemes for economic development and social justice.

(ii) Need for Capacity Building

- Empowerment without *awareness, skills, and resources* limits the efficacy of PRIs.
- Effective functioning requires technical, managerial, fiscal, and participatory governance capabilities.

- Focused on **aspirational districts** and **Panchayat Resource Centres (PRCs)**.
- Trained **14.24 million participants** between 2018-22.

Revamped RGSA (2022–2026): A Paradigm Shift

Rashtriya Gram Swaraj Abhiyan (RGSA)

- Cabinet approves continuation of revamped Centrally Sponsored Scheme of **Rashtriya Gram Swaraj Abhiyan (RGSA)**
- Total financial outlay of the scheme is **Rs.5911 crore**
- Will help **2.78 lakh** Rural Local Bodies to achieve Sustainable Development Goals



(i) Objectives:

- Enable PRIs to function as effective institutions of local governance.
- Ensure alignment with SDGs through **localization and data-based planning**.

Institutional Ecosystem for Capacity Delivery

Institution	Role
MoPR	Policy framework and funding under RGSA
NIRD&PR (Hyderabad)	Apex national training institution
SIRDs (State Institutes)	Customized state-level trainings
Panchayat Resource Centres	Local-level knowledge sharing and technical hubs
LINE Departments	Provide sectoral training (e.g., water, health, agriculture)

Challenges in Capacity Building

- (i) **Heterogeneity Across States** – Varied levels of PRI evolution and decentralization.
- (ii) **Low Literacy Among Representatives** – Especially women and SC/ST ERs.
- (iii) **Inadequate Infrastructure** – In many Panchayats and SIRD/PRCs.
- (iv) **Limited Tech Adoption** – Low digital literacy hinders use of tools like e-GramSwaraj.
- (v) **Poor Convergence** – With line departments and centrally sponsored schemes.

Roadmap Ahead: Recommendations

- (i) **Localization of SDGs:** Train PRIs on decentralized data management and result-based planning.
- (ii) **Technology Integration:** Scale e-learning platforms, mobile apps, and vernacular content for remote Panchayats.

(ii) Core Strategies:

- **Continuous Capacity Building** using annual training calendars.
- **Digitization** through e-GramSwaraj and Mission Antyodaya dashboards.
- Focus on **inclusion**, particularly of women and SC/ST representatives.

Leadership & Management Development: Transforming Grassroots Governance

(i) Leadership Development Programs (MDPs)

- **Rolled out by MoPR in collaboration with:**
 - IIMs (Ahmedabad, Rohtak, Shillong, Amritsar, Jammu, Bodh Gaya)
 - IIT Dhanbad
 - IRMA (Anand)
- **Focus areas:**
 - Leadership & Team Building
 - Project Management
 - Financial & Rural Innovation
 - Change Management

(ii) Tailored Learning Models

- Modules are **customizable to state/UT needs**, enabling contextual governance.
- First MDP held at IIM Ahmedabad in **January 2024** marks institutional convergence.

(iii) Gender Sensitization: Mandatory modules on gender equity, safety audits, and leadership roles for women.

(iv) Performance-linked Incentives: Link capacity building to performance-based grant systems (like 15th FC).

(v) Youth & Innovation Hubs: Promote Rural Governance Labs and Innovation Cells in PRCs.

Conclusion

The spirit of the 73rd Amendment lies in empowering communities to govern themselves. However, this ideal can only be realized through structured, continuous, and inclusive capacity building. Initiatives like RGSA and MDPs are pivotal in creating responsive, responsible, and innovative Panchayats. With adequate training, institutional collaboration, and technology, PRIs can truly become agents of change, driving India’s rural transformation and ensuring that no one is left behind in the journey towards Viksit Bharat @2047.

THE PANCHAYATI RAJ SYSTEM: EMPOWERING WOMEN'S LEADERSHIP IN RURAL INDIA

Introduction: Legacy of Women's Leadership in India

This article explores the transformative impact of the Panchayati Raj system on women's leadership in rural India, tracing its roots from ancient traditions to modern constitutional provisions. It also highlights government initiatives, empirical outcomes, and the path forward toward achieving gender-inclusive grassroots governance under the vision of Viksit Bharat @2047.

- **Cultural Roots:** Ancient Indian texts and the Vedic period glorified women's wisdom and leadership (Gargi, Maitreyi).
- **Historical Icons:** Leaders like Ahilyabai Holkar, Rani Lakshmbai, and Rani Durgavati embodied political acumen and valor.
- **Philosophical Foundation:** "यन्न नार्यस्तु पूज्यन्ते रमन्ते तन्न देवताः। (Divinity dwells where women are respected) – underscores India's foundational respect for women.
- **Contemporary Relevance:** From symbolic reverence to real political participation—India's journey toward gender parity in governance.

Constitutional Framework & Milestones

(i) 73rd Constitutional Amendment Act, 1993

- **Legal Foundation:** Institutionalized the three-tier Panchayati Raj system under Part IX of the Constitution.
- **Article 243D:** Mandates 1/3rd reservation of seats for women in Panchayats and chairperson posts.
- **Schedule XI:** Lists 29 subjects under Panchayat jurisdiction—key for women-centric development.

(ii) State-level Innovations

- **50% Reservation:** 21 States and 2 UTs have extended reservation beyond the constitutional minimum.
- **Open Category Successes:** Women winning unreserved seats reflect growing public acceptance.

Transformational Government Initiatives

(i) Rashtriya Gram Swaraj Abhiyan (RGSA)

- **Training Impact:** 23.14 lakh elected women trained from 2022-25.
- **Modules:** Focus on decision-making, financial literacy, legal awareness, and leadership.

A Women-Friendly Panchayat is one that ensures:

- Equal opportunities for women in all sectors
- Zero crimes against women and girls
- 100% institutional deliveries for maternal health and safety
- Active participation of women in socio-political and economic activities

National workshop of Women Elected Representatives of PRIS
4th and 5th March, 2025
Vigyan Bhawan, New Delhi

Who can participate?

All **Women voters** from Gram Panchayat can participate in the **Mahila Sabha**

Ensures Women Participation from :

- Marginalized communities
- Disabled, Elderly and Economically Weaker
- Member of Self-Help Groups

(ii) Sashakt Panchayat-Netri Abhiyan

- **Launched:** March 2024 on International Women's Day.
- **Key Features:**
 - Experiential learning-based training modules.

- Focus on participatory planning, digital tools, and grievance redressal.
- Model “Adarsh Mahila-Hitashi Panchayats” to serve as scalable examples.

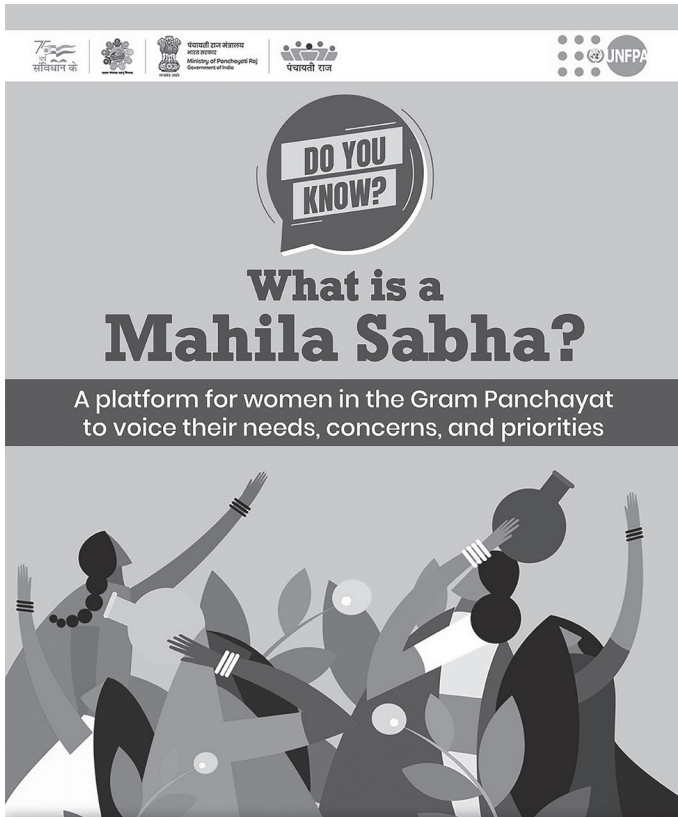
(iii) Gender-Based Violence Prevention Primer

- **Purpose:** Educate Panchayat officials on tackling GBV and promoting a safe environment for women.
- **Outcome:** Empowering representatives to play a proactive role in social justice.

(iv) SVAMITVA Scheme

- **Objective:** Provide property rights via drone-based mapping.
- **Women Inclusion:** Promotes joint/single ownership by women.
- **Scale:** 65 lakh property cards issued as of January 2025.

(v) Gram Sabha & Mahila Sabha



- **Participation Norms:**
 - **Gram Sabha:** 30% women participation required.
 - **Mahila Sabha:** Minimum 10% of women voters; now mandatory in many states.
- **Outcome:** Institutional space for women-centric discussion in rural governance.

Impact Assessment: Towards Gender-Inclusive Panchayats

(i) Increasing Women’s Participation

- **Representation:** ~46% of 31.5 lakh PRI representatives are women.

- **Policy Integration:** Women-centric GDPDs rose from 1% (2023-24) to 4.57% (2024-25); target 5% by 2025-26.

(ii) Recognition & Best Practices

- **National Panchayat Awards 2024:**
 - 45 Panchayats awarded; ~40% women-led.
 - Emphasis on SDG-aligned governance, innovation, and community engagement.



(iii) Institutional Support Mechanisms

- **Advisory Committee on Proxy Representation (2023):**
 - Chaired by Shri Sushil Kumar.
 - Aimed at eliminating “Sarpanch Pati” culture.
 - Recommendations to strengthen legal safeguards and behavioral change.

Challenges to Effective Women’s Leadership

Challenges	Details
Proxy Representation	“Pradhan Pati” syndrome limits women’s autonomy.
Capacity Gaps	Lack of training, digital access, and awareness among first-time elected women.
Patriarchal Norms	Social resistance and limited mobility in certain regions.
Underutilized Policy Space	Only ~5% GDPDs are gender-focused, showing scope for greater integration.
Intersectional Issues	Marginalized caste and tribal women face double disadvantage.

The Road Ahead: Viksit Bharat @2047

(i) Legislative & Policy Support

- **Full implementation of Nari Shakti Vandan Adhiniyam:** linking local governance experience to State/National politics.
- Gender budgeting in PRIs to institutionalize women-focused programs.

(ii) Digital Governance and Skilling

- Expansion of e-Gram Swaraj for transparency.
- Integrate digital literacy and AI-driven tools for PRI women.

(iii) Women-Centric GDPs

- Mandate gender-disaggregated data collection and planning.

- Increase resource allocation for women's health, entrepreneurship, and education.

(iv) Socio-Cultural Reforms

- Campaigns to dismantle stereotypes around female leadership.
- Encourage male allies to support gender-equal governance.

Conclusion

The Panchayati Raj system has not only brought governance closer to people but has also unlocked leadership potential among rural women. From symbolic reservation to real transformation, India's journey is a testament to the enduring spirit of Nari Shakti. With sustained institutional support, behavioral change, and capacity building, women leaders in Panchayats will emerge as torchbearers of Viksit Bharat @2047—an inclusive, empowered, and equitable India.



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ARTICLES FROM DOWN TO EARTH (APRIL 2025)

DTE : SAFETY IN CIRCULARITY

Introduction

- With an **annual freshwater availability of less than 1,700 cubic meters**, India is considered “water stressed” and **ranks 132nd in the world in terms of per capita water availability**.
- India’s surface water supply decreased by **73% per person** between 1950 and 2024.

Current scenario

- India might face “water scarcity” if no action is taken regarding this issue, as the nation’s yearly water availability could drop below 1,000 m³ per person.
- Cities such as Delhi, Mumbai, Pune, Hyderabad, and Chennai are experiencing an unprecedented shortage of water and are confronting a water management situation.

Sewage water in India

- The Central Pollution Control Board (CPCB) estimates that **sewage production in urban areas of India reached 72,368 mld in 2020–21, while the capacity for sewage treatment stood at 31,841 mld**.
- Although the operational capacity is 26,869 mld, just 28% (20,236 mld) of the overall urban sewage produced was treated. Consequently, **72% of the wastewater was discharged untreated into water bodies or onto land**.
- Based on projections of urban populations, **wastewater production is anticipated to increase by 75–80% within the next 25 years**, totalling approximately 0.13 million mld.
- If this trend continues, an extra 0.8 billion cubic meters (bcm) of wastewater will be generated each year.

PRELIMS SPECIAL

Composite Water Management Index

- It is published by **NITI Aayog**
- With an average improvement of +5.2 points, the water management scores of 80% of the states assessed in 2017–19 have improved.
- 16 Indian states, however, still receive scores below 50 out of 100, placing them in the low-performing category.
- These 16 states account for **48% of India’s population, 35% of its economic output, and 40% of its agricultural output**.

Evolution of national policies and programmes

- **The National Urban Sanitation Policy of 2008** promotes the recycling and reuse of wastewater. As per the policy, a minimum of 20% of a city’s water source should be derived from processed wastewater.
- **The 2010 Service-Level Benchmark Framework** encourages the reuse of wastewater in cities.
- **The Jawaharlal Nehru National Urban Renewal Mission, launched in 2012**, promotes the recycling of treated water and mandates that all wastewater in 63 cities must be processed.
- **Guide on Sewage and Wastewater Treatment Systems:** This guide offers technological alternatives and standards for the quality of treated sewage for designated activities.
- **Namami Gange, 2014:** The initiative encompasses programmes for the treatment of sewage and industrial discharge, focusing on encouraging the reuse of treated wastewater.
- **AMRUT, 2015:** The Atal Mission for Urban Transformation and Rejuvenation promotes the recycling of wastewater.
- **Power Tariff Policy, 2016:** It requires thermal power stations to utilize treated sewage water within 50 kilometres of sewage treatment facilities.
- **National Faecal Sludge and Septage Management Policy, 2017:** The policy emphasises utilising FSSM to ensure complete access to safe sanitation.
- **CPCB Guidelines, 2019:** The Central Pollution Control Board released guidelines for the utilization of treated wastewater in irrigation.
- **Swachh Bharat Mission 2.0, 2021:** Its goal is to guarantee that no untreated wastewater is released into the environment and suggests using recycled water as extensively as possible, with a minimum of 20%.
- **AMRUT 2.0, 2021:** The mission requires all cities with populations exceeding 0.01 million to recycle wastewater to satisfy 20% of the city’s water requirements and 40% of the industrial water needs at the state level.
- **CPCB national draft guidelines:** The guidelines highlight sectoral prioritization along with specific standards.

Case study: Delhi

- The Draft Water Policy, 2016
- The primary objective of the action plan is to revitalise parks, lakes, and water bodies so that treated wastewater

can replenish groundwater and supplement the water supply.

- Out of 3,033 MLD, it generates roughly 2,587 MLD of treated wastewater.
- The treated sewage water is used for horticulture, thermal power plants, and lake recharge.

Conclusion

India is overstressed, as evidenced by global water availability standards. Reusing treated wastewater can solve the problem of its safe disposal while increasing the amount of water available.

EXPECTED QUESTIONS FOR UPSC CSE

Mains Questions

Q. India is inching closer to becoming a water-scarce country. In this context, evaluate the role of wastewater reuse and circular water economy in ensuring sustainable urban water management. Also discuss the policy initiatives taken by the government in this regard. [250 words] [15 marks]

FOOD SECURITY AND DIVERSIFICATION OF AGRICULTURE

Introduction

By 2047, India's total food demand is anticipated to surpass twice the existing demand, while the need for nutrient-dense foods, such as horticultural and animal products, is predicted to grow three to four times.

Forecasts concerning the present agrifood system

- By the year 2047, the anticipated demand for fruits is expected to rise to 233 million tonnes at an annual rate of 3 per cent, while the demand for vegetables is forecasted to reach 365 million tonnes at an annual rate of 2.3 per cent.
- Likewise, the demand for pulses is expected to rise to 49 million tonnes, while the demand for edible oils and sugar is projected to grow by 50 per cent and 29 per cent, respectively.
- **Shifting dietary preferences:** The rising need for fruits, vegetables, legumes, and oilseeds resulting from evolving dietary habits and nutritional requirements.

Challenges with the current agrifood system

- **Decreasing agricultural land:** Agricultural land is projected to decrease from the current 180 million hectares (mha) to 176 mha.
- **Increasing population:** India has a vast and expanding population, exceeding 1.3 billion individuals. The growing need for food exerts substantial strain on agricultural output and food supplies.

- **Climate change and farming:** In the last fifty years, severe climate occurrences like droughts, heatwaves, and floods have diminished India's agricultural productivity growth by about 25 per cent.
- **Agricultural Productivity:** The agricultural sector in India is marked by low productivity resulting from various issues like small landholdings, insufficient irrigation infrastructure, absence of modern farming practices, and restricted access to credit and technology.
- **Water Shortage:** Farming in India relies significantly on monsoon precipitation. Nonetheless, rainfall trends are becoming more erratic, resulting in water shortages in certain areas leading to poor agricultural produce.
- **Land Degradation and Soil Health:** Agricultural productivity is threatened by land degradation, which results from factors such as erosion, excessive use of chemical fertilizers, and poor land management practices.
- **Storage and Distribution:** Poor storage facilities and insufficient cold chain systems lead to significant food losses and waste.
- **Poverty and Inequality:** Numerous individuals, especially in rural regions and underserved communities, find it difficult to regularly obtain and afford healthy food.

Way Forward

- **Diversifying agriculture:** reallocating resources from conventional staples to a variety of more nutritious commodities to guarantee food security.
- **Sustainable Farming Methods:** Encourage sustainable agricultural approaches like organic farming, agroforestry, and integrated pest control. These methods improve soil fertility, lower chemical usage, and save water, resulting in greater productivity and resilience.
- **Irrigation and Water Management:** Enhance irrigation systems by increasing availability of dependable irrigation facilities, encouraging water-saving technologies such as drip irrigation, and applying techniques for water harvesting and conservation.
- **Research and Technology:** Creating high-yield crop types, seeds resistant to drought and pests, and cutting-edge agricultural methods. Promote the use of contemporary technologies such as precision agriculture, remote sensing, and digital farming tools to enhance resource utilization and boost productivity.
- **Climate Change Adaptation:** Employ crop diversification, crop rotation, and agroecological practices. Establish early alert systems for severe weather occurrences and assist farmers in implementing climate-adaptive practices.
- **Storage and Cold Chain Facilities:** Investing in

contemporary storage units, cold chain systems, and transport networks will aid in minimizing food losses and waste.

- **Enhancing Food Distribution Networks:** Improve the effectiveness of food distribution systems via improved logistics, supply chain coordination, and market connections.

Conclusion

To guarantee food security in India, a comprehensive strategy is needed that involves enhancing agricultural

output, diversifying crops to emphasize nutrient-rich foods, upgrading infrastructure, and boosting awareness.

EXPECTED QUESTIONS FOR UPSC CSE

Mains Questions

- Q. Discuss the importance of agricultural diversification in ensuring food security in India. Suggest measures to promote crop diversification in the face of climate change and depleting natural resources.

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THE HINDU

ARTICLE FROM EPW

(APRIL 2025)

DIGNITY, NOT DOLES, FOR FRONT-LINE WORKERS

Introduction: Front-line workers like ASHAs, anganwadi workers and mid-day meal helpers, predominantly women from marginalised castes, are critical to public health and nutrition but remain undervalued and underpaid. They demand dignified wages, formal recognition, and better working conditions.

Key Challenges Faced by Front-line Workers

- **Systemic Exploitation and Lack of Recognition**
 - **Informal Classification:** Workers are labelled as “volunteers” or “activists” instead of formal employees, enabling the state to evade minimum wage laws and labour protections.
 - **Disproportionate Workload**
 - ◆ ASHAs, initially intended to work 2–3 hours daily, now labour 10–12 hours without commensurate pay.
 - ◆ Responsibilities include critical public health tasks (e.g. maternal and child health, nutrition programs).
- **Stagnant and Inadequate Wages**
 - **Funding Cuts:** Central budgets for Integrated Child Development Services (ICDS) and mid-day meal programs fell by 40% in real terms over the past decade.
 - **Fiscal Conflicts:** The Union government withheld ₹636 crore (77% of owed funds) from Kerala under the National Health Mission (2023–24) due to political disagreements, forcing states to self-fund.

Structural and Ideological Issues

- **Neoliberal Policy Framework**
 - **State Withdrawal:** Shift from public welfare to individual/community responsibility, framing care work as altruistic to justify low pay.
 - **Caste-Patriarchal Exploitation:** The labour of marginalised women is treated as an extension of unpaid domestic work, perpetuating social hierarchies.
- **Cash Transfers:** Governments prioritise short-term cash transfers (targeted at women) for electoral gains over job creation or formalising employment.

Way Forward: Recommendations

- **Formal Recognition:** Classify front-line workers as employees to ensure minimum wages, fixed hours, and retirement benefits.
- **Budgetary Reallocation:** Increase funding for social sector schemes (e.g. ICDS, mid-day meals) and ensure timely central-state fund transfers.
- **Gender - and Caste-Sensitive Policies:** Address systemic biases that devalue labour from marginalised communities.
- **Political Commitment:** Prioritise sustainable job creation over tokenistic welfare measures.

Conclusion

There is an urgent need to reimagine India’s welfare architecture by centring dignity and equity for front-line workers. Failure to address these issues risks perpetuating a cycle of exploitation that undermines public health and social progress.

CONSERVATION AND GREENING

Introduction: India’s aggregate forest and tree cover has increased over the last decade, but the quality and ecological benefits of these gains are uneven, with critical ecosystems degrading and governance challenges persisting.

National Forest Cover Trends

- **Decadal Change (2013–2023)**
 - **Overall Increase:** Forest cover rose from 698,712.36 km² to 715,342.61 km².
 - Tree cover (outside recorded forests) added 20,747.34 km².
 - An increase of 440.47 km² in forest cover inside the recorded forest area (RFA)/greenwash (GW).
 - An increase of 16,189.78 km² outside RFA/GW.
- **Quality Concerns**
 - Many gains are in low-density or plantation forests, which provide fewer ecosystem services than very dense natural forests.
 - Degradation of high-value categories (e.g. very dense forests, mangroves) outweighs net increases.

Regional and Altitudinal Variations

- **North-Eastern Region**

- **High Coverage, Net Decline:** The region holds 67% of its area under forest and tree cover (174,394.70 km²) but saw a loss of 327.30 km².
- **Altitude-Zone Patterns:** Gains at lower zones (0–1,000 m), losses at higher elevations (>1,000 m), raising concerns for montane biodiversity.
- **State-Level Gainers and Losers**
 - **Maximum Gains Inside RFA/GW:** Mizoram, Odisha, Karnataka, West Bengal, Jharkhand.
 - **Maximum Losses Inside RFA/GW:** Tripura, Telangana, Assam, Andhra Pradesh, Gujarat.
 - **Maximum Gains Outside RFA/GW:** Gujarat, Bihar, Kerala, Uttar Pradesh, Assam.
 - **Maximum Losses Outside RFA/GW:** Madhya Pradesh, Rajasthan, Andhra Pradesh, Arunachal Pradesh, Maharashtra.

Ecosystem-Specific Findings

- **Western Ghats Eco-Sensitive Areas (WGESA)**
 - **Area & Cover:** WGESA spans around 60,285.61 km². Forest cover is 44,043.99 km², around 73% of the area.
 - **Change in Canopy Density**
 - ◆ **Very dense forests:** Increased by 3,465.12 km².
 - ◆ **Moderately dense:** Decreased by 1,043.23 km².
 - ◆ **Open forests:** Decreased by 2,480.11 km².
- **Mangroves**
 - **Decadal Change:** Net gain of 296.33 km² since 2013, but a 7.43 km² loss since 2021.
 - **State Variations**
 - ◆ **Gujarat:** Decreased by 36.39 km².
 - ◆ **Andhra Pradesh:** Increased by 13.01 km².
 - ◆ **Maharashtra:** Increased by 12.39 km².
 - **Drivers of Loss**
 - ◆ Aquaculture and agriculture conversion
 - ◆ Erosion

Carbon Stock and Sequestration

- **Total Carbon Stock:** Estimated at 7,285.5 million tonnes (mt) in 2023, an increase of 81.5 mt since 2021. Annual increase of around 40.75 mt (149.42 mt CO₂e).

- **Global Comparison (GFRA 2020)**
 - India ranked third in net positive forest area change (0.38%).
 - Globally, 662.08 Gt total forest carbon with major pools in soil and biomass.
- **Potential for Density Upgradation:** Around 92,989 km² of degraded land could sequester an additional 636.50 mt of carbon, though land-use specifics are unclear.

Policy and Governance Implications

- **Forest (Conservation) Rules, 2022**
 - It contravenes the Forest Rights Act (2006) by enabling the Displacement of tribal communities for protected areas, compensatory afforestation on acquired lands, and infrastructure and ecotourism projects in forests.
 - Facilitate private commercial plantations, undermining community-based governance.
- **Historical Shift:** 42nd Constitutional Amendment (1976) moved forests to the concurrent list, centralising decision-making and eroding local gram sabha autonomy.

Way Forward: Recommendations

- **Mixed Gains:** Quantitative increases mask losses in ecologically critical, dense forests and traditional landscapes.
- **Ecosystem Prioritisation:** Conservation efforts should focus on very dense forests, mangroves, and high-altitude zones where degradation is pronounced.
- **Policy Reform:** Align conservation rules with the Forest Rights Act to safeguard tribal rights and promote bottom-up stewardship.
- **Data Transparency:** Future India State of Forest Report (ISFR) reports should clarify land-use contexts for degraded lands and carbon potential estimates.

Conclusion

While India's forest cover has expanded in area, the ecological integrity and equitable governance of these landscapes remain under stress. Continuous monitoring, community empowerment, and nuanced policymaking are essential to translate quantitative gains into real ecological benefits.

QUICK REVISION

IMPORTANT DAYS IN APRIL 2025

Date	Day	Significance / Remark / Detail
2 April	World Autism Awareness Day	<ul style="list-style-type: none"> The United Nations General Assembly designated 2 April as World Autism Awareness Day (WAAD) in 2007. The UN has worked to promote the full realisation of human rights and fundamental freedoms for autistic individuals, ensuring their equal participation in society. 2025 Theme: Advancing Neurodiversity and the UN Sustainable Development Goals (SDGs).
4 April	International Day for Mine Awareness and Assistance in Mine Action	<ul style="list-style-type: none"> 2025 Theme: Safe Futures Start Here On 8 December 2005, the General Assembly declared that 4 April of each year shall be observed as the International Day for Mine Awareness and Assistance in Mine Action.
5 April	National Maritime Day	<ul style="list-style-type: none"> To highlight the role of the shipping industry by diffusion of knowledge, organise the services of seafarers, finalise welfare and training projects for seafarers, etc.
5 April	International Day of Conscience	<ul style="list-style-type: none"> The day is observed on April 5th to commemorate the value of human conscience and celebrate the aspiration for a better world.
6 April	International Day of Sport for Development and Peace	<ul style="list-style-type: none"> 2025 Theme: Levelling the Playing Field: Sport for Social Inclusion The International Day of Sport for Development and Peace (IDSDP) is annually celebrated on 6 April to recognise the power of sport in fostering positive change, bridging barriers, and transcending boundaries.
7 April	World Health Day	<ul style="list-style-type: none"> It is celebrated annually and each year draws attention to a specific health topic of concern to people all over the world. The date of 7 April marks the anniversary of the founding of the WHO in 1948.
12 April	International Day of Human Space Flight	<ul style="list-style-type: none"> The UN General Assembly declared 12 April as the International Day of Human Space Flight to celebrate each year at the international level the beginning of the space era for mankind, reaffirming the important contribution of space science and technology in achieving sustainable development goals and increasing the well-being of States and peoples, as well as ensuring the realization of their aspiration to maintain outer space for peaceful purposes. 12 April 1961 was the date of the first human space flight, carried out by Yuri Gagarin, a Soviet citizen.
14 April	World Chagas Disease Day	<ul style="list-style-type: none"> The World Chagas Disease Day was celebrated for the first time in 2020. Chagas disease, also known as silent or silenced disease, affects mainly poor people without access to health care or people without a political voice. The disease progresses slowly and often shows an asymptomatic clinical course. Without treatment, Chagas disease can lead to severe cardiac and digestive alterations and become fatal.

18 April	World Heritage Day	<ul style="list-style-type: none"> To create public awareness about world heritage sites and art heritage and highlight universal value of cultural property and heritage .
21 April	World Creativity and Innovation Day	<ul style="list-style-type: none"> The United Nations designated 21 April as World Creativity and Innovation Day to raise awareness of the role of creativity and innovation in all aspects of human development.
22 April	International Mother Earth Day	<ul style="list-style-type: none"> The United Nations General Assembly proclaimed 22 April as International Mother Earth Day through a resolution adopted in 2009. The Day recognises the Earth and its ecosystems as humanity’s common home and the need to protect her to enhance people’s livelihoods, counteract climate change, and stop the collapse of biodiversity.
23 April	World Book and Copyright Day	<ul style="list-style-type: none"> Every year, on 23 April, UNESCO celebrates World Book and Copyright Day to recognise the power of books as a bridge between generations and across cultures. This date holds immense symbolism in world literature, marking the death of several renowned authors, including William Shakespeare, Miguel de Cervantes and Inca Garcilaso de la Vega.
23 April	English Language Day	<ul style="list-style-type: none"> English Language Day at the United Nations is celebrated on the 23rd of April — the date traditionally observed as both the birthday and date of death of William Shakespeare. At the United Nations, English is one of the two working languages, along with French.
24 April - 30 April	World Immunisation Week	<ul style="list-style-type: none"> World Immunisation Week, celebrated in the last week of April, aims to highlight the collective action needed and to promote the use of vaccines to protect people of all ages against disease. The ultimate goal of World Immunization Week is for more people – and their communities – to be protected from vaccine-preventable diseases.
25 April	World Malaria Day	<ul style="list-style-type: none"> World Malaria Day is an occasion to highlight the need for continued investment and sustained political commitment for malaria prevention and control. It was instituted by WHO Member States during the World Health Assembly of 2007.
25 April	International Delegate’s Day	<ul style="list-style-type: none"> In order to raise awareness of the role of the representatives and delegates of the Member States to the United Nations, the United Nations General Assembly and the United Nations Security Council have proclaimed April 25th as International Delegate’s Day. The observance of the day marks the anniversary of the first day of the San Francisco Conference, also known as the United Nations Conference on International Organisations.
26 April	World Intellectual Property Day	<ul style="list-style-type: none"> World Intellectual Property Day offers a unique opportunity to join with others around the globe to consider how intellectual property (IP) helps the global arts scene to flourish and enables the technological innovation that drives human progress. In 2000, WIPO’s member states designated April 26 – the day on which the WIPO Convention came into force in 1970 – as World IP Day with the aim of increasing general understanding of IP.
29 April	World Dance Day	<ul style="list-style-type: none"> To celebrate the art form and revel in its universality, to cross all political cultural and ethnic barriers and bring people together.

IMPORTANT EVENTS/SUMMITS/CONFERENCES IN APRIL 2025

	Event/Summit/ Conference	Details
1.	BIMSTEC Summit	<ul style="list-style-type: none"> The 6th BIMSTEC (Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation) Summit was held in Thailand. The summit enhanced the regional development and economic progress of the member countries, focusing on the Bay of Bengal region's growth and collaboration.
2.	11th BRICS Environment Ministers' Meeting	<ul style="list-style-type: none"> India played a leading role at the 11th BRICS Environment Ministers' Meeting held in Brasilia, Brazil, calling for stronger climate cooperation among BRICS nations. India emphasised the urgency of advancing the 2030 Climate Agenda through collective leadership and climate finance, specifically highlighting the "Baku to Belem Roadmap" to mobilise USD 1.3 trillion to support Nationally Determined Contributions (NDCs).
3.	International Standards of Accounting and Reporting (ISAR)	<ul style="list-style-type: none"> India has been unanimously elected to the United Nations Intergovernmental Working Group of Experts on International Standards of Accounting and Reporting (ISAR) for the 2025–2027 term. ISAR, which operates under the United Nations Conference on Trade and Development (UNCTAD), is responsible for advancing global accounting standards and corporate disclosure practices.
4.	Global Technology Summit (GTS) 2025	<ul style="list-style-type: none"> The 9th edition of the Global Technology Summit (GTS) was held in New Delhi from April 10 to 12, 2025, marking a crucial event in India's global dialogue on geo-technology. It was co-hosted by the Ministry of External Affairs and Carnegie India
5.	STREE Summit 2025	<ul style="list-style-type: none"> The Hyderabad City Security Council (HCSC) hosted the second edition of the STREE Summit on April 15, 2025. The summit is designed to provide a platform for shared learning, fostering collaboration and actionable solutions to improve women's safety while promoting gender equality.
6.	Conclave on Buddhism	<ul style="list-style-type: none"> A two-day conclave titled 'Buddha Dhamma and the Culture of Northeast India' was held in Namsai, Arunachal Pradesh. Organised by: International Buddhist Confederation (IBC) in collaboration with the Ministry of Culture.
7.	11th BRICS Labour & Employment Ministers' Meeting	<ul style="list-style-type: none"> The 11th BRICS Labour & Employment Ministers' Meeting, held on April 25, 2025, in Brasilia under Brazil's leadership, focused on two critical themes: Artificial Intelligence (AI) and its effect on employment, and the impact of climate change on the workforce. Theme: Strengthening the Cooperation of the Global South for More Inclusive and Sustainable Governance
8.	Fire Safety Week 2025	<ul style="list-style-type: none"> To emphasise the critical importance of fire safety in healthcare settings, the Union Health Department has rolled out Fire Safety Week (April 21–25, 2025) in collaboration with states, UTs, and central ministries.

AWARDS AND PRIZES IN APRIL 2025

	Award	Awarded to	Details
1.	Ugadi Award	MyNaa Swamy	<ul style="list-style-type: none"> The Ugadi Award is one of the most prestigious recognitions conferred by the Andhra Pradesh government to individuals who have made significant contributions in various fields.

2.	Gold Mercury Award for Peace and Sustainability	Dalai Lama	<ul style="list-style-type: none"> Tibetan spiritual leader the Dalai Lama has been honoured with the Gold Mercury Award for Peace and Sustainability. The award was presented by Gold Mercury International, a globally recognised think tank dedicated to promoting peace, governance, and sustainable development.
3.	Uttar Pradesh Anmol Ratan Award	Nikhil Singhal	<ul style="list-style-type: none"> Nikhil Singhal, a distinguished media strategist, Founder of Vigor Media Worldwide, and President of the Noida High Rise Federation, has been honoured with the prestigious Uttar Pradesh Anmol Ratan Award.
4.	National Youth Award	Akarsh Shroff	<ul style="list-style-type: none"> YuvaSpark Founder Akarsh Shroff Conferred with National Youth Award for Transforming Early Education in India. The National Youth Award, instituted by the Ministry of Youth Affairs and Sports, is conferred annually to individuals under 30 years of age who have shown exemplary commitment to national development and social service.
5.	Mithra Vibhushana	Narendra Modi	<ul style="list-style-type: none"> Prime Minister Narendra Modi was awarded Sri Lanka's highest civilian award, the Mithra Vibhushana, recognising his contribution to strengthening the longstanding historical ties and friendly relations between India and Sri Lanka. The award was presented by the Sri Lankan President.
6.	Fred Darrington Award	Sudarsan Pattnaik	<ul style="list-style-type: none"> Sudarsan Pattnaik, the renowned Indian sand sculptor, has won the inaugural Fred Darrington Award for Excellence in Art and Culture. He was recognised for his exceptional sand sculpture of Lord Ganesha, which stands 10 feet tall and carries the message of World Peace.
7.	City Key of Honour'	Droupadi Murmu	<ul style="list-style-type: none"> President of India, Droupadi Murmu, was honoured with the 'City Key of Honour' by the Mayor of Lisbon. It marks a significant milestone in the diplomatic relationship between India and Portugal, especially as both nations celebrate 50 years of bilateral relations.
8.	National Maritime Varuna Award	Rajesh Unni	<ul style="list-style-type: none"> The National Maritime Varuna Award is India's top individual accolade in the maritime sector, recognising exceptional contributions to the country's maritime development. Rajesh Unni, the founder of Synergy Marine Group, was honoured with this prestigious award during the 62nd National Maritime Day.
9.	SKOCH Award	UP Police Investigation Portal	<ul style="list-style-type: none"> The Uttar Pradesh Police's digital initiative—Investigation, Prosecution and Conviction Portal—has been honoured with the prestigious SKOCH Award in the "Police & Safety" category, reflecting its transformative role in the justice system.
10.	Breakthrough Prize 2025	-	<ul style="list-style-type: none"> The 2025 Breakthrough Prizes — often referred to as the Oscars of Science — recognised remarkable achievements across Life Sciences, Mathematics, and Physics. The 11th edition of the ceremony took place on April 5, 2025, in Santa Monica, California.
11.	UIDAI Awards	Meghalaya	<ul style="list-style-type: none"> Meghalaya has been recognised by the Unique Identification Authority of India (UIDAI) as the best-performing state in two categories: mandatory biometric updates of children and verification of adult Aadhaar enrolment.

12.	Prime Minister's Award for Excellence in Public Administration	Poshan Tracker Application	<ul style="list-style-type: none"> During the 17th Civil Services Day celebrations in New Delhi, the PoshanTracker Application developed by the Ministry of Women and Child Development received the prestigious Prime Minister's Award for Excellence in Public Administration.
13.	Laureus World Sports Awards	-	<ul style="list-style-type: none"> Mondo Duplantis, the 25-year-old Swedish-American pole vaulter, was named Laureus World Sportsman of the Year. Simone Biles was honoured with the Laureus World Sportswoman of the Year Award. World Team of the Year: Real Madrid
14.	Udyog Vikas Award	National Industrial Corridor Development Corporation (NICDC)	<ul style="list-style-type: none"> The National Industrial Corridor Development Corporation (NICDC) received the Udyog Vikas Award at a prestigious event organised by Janmabhumi Daily in Kerala.
15.	Companion of the Order of Fiji	Madhusudan Sai	<ul style="list-style-type: none"> Madhusudan Sai, a prominent humanitarian, was recently honored by Fiji with the 'Companion of the Order of Fiji' for his exceptional contributions to healthcare and social welfare.

TERMS IN NEWS: APRIL 2025

	Term	Meaning and Details
1.	Hands-off Protests	<ul style="list-style-type: none"> More than 150 groups, including civil rights organisations, labour unions, LGBTQ+ advocates, veterans, and election activists, organised the "Hands Off!" protests in more than 1,200 locations in all 50 states of the USA. They were protesting Donald Trump's administrative policies.
2.	Lapu-Lapu Day	<ul style="list-style-type: none"> Lapu-Lapu Day is observed on the anniversary of the Battle of Mactan, fought in 1521. In this battle, the chieftain (or Datu) of the Mactan island, Lapulapu, defeated Spanish forces under Ferdinand Magellan.

OBITUARIES IN APRIL 2025

	PERSON	IMPORTANT INFORMATION
1.	Manoj Kumar	<ul style="list-style-type: none"> Manoj Kumar carved a niche for himself in Bollywood with his nationalist-themed films. His portrayal of self-sacrificing, patriotic characters earned him the title of 'Bharat Kumar'. He was awarded the Dadasaheb Phalke Award in 2015.
2.	Dadi Ratan Mohini	<ul style="list-style-type: none"> She was the spiritual head of the Brahma Kumaris. She was a guiding force of the world-renowned spiritual organisation and served as its chief administrator since 2021.
3.	Kumudini Lakhia	<ul style="list-style-type: none"> She was a trailblazing Kathak exponent who challenged convention and reshaped the classical dance form. She was known for questioning the traditional dependence of Kathak on narrative (katha) and literary content (sahitya), she introduced abstraction, ensemble choreography, and contemporary themes into the dance. Award: Padma Vibhushan for year 2025 for her contribution in the field of Art.
4.	Pope Francis	<ul style="list-style-type: none"> He was the first Latin American and Jesuit pope. At the age of 76, he was elected following the unprecedented resignation of Pope Benedict XVI. Pope Francis leaves behind a legacy that was marked by reform, compassion, controversy, and an unwavering commitment to social justice.

5.	K. Kasturirangan	<ul style="list-style-type: none"> • Dr. Kasturirangan served as the fifth Chairman of ISRO from 1994 to 2003, concurrently holding the position of Secretary, Department of Space, for over nine years. • As Project Director, he led India’s first two experimental earth observation satellites, BHASKARA-I and BHASKARA-II. • Under his guidance, ISRO launched its first operational remote sensing satellite, IRS-1A, which became the cornerstone of India’s Earth observation program. • He chaired the drafting committee for the National Education Policy 2020 (NEP 2020). • He authored the landmark Kasturirangan Committee Report on the Western Ghats in 2013, identifying over 59,940 sq. km across six Indian states, Karnataka, Gujarat, Goa, Tamil Nadu, Kerala, and Maharashtra as ecologically sensitive zones.
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APRIL 2025 - DAILY MCQs FROM THE HINDU & INDIAN EXPRESS

DAILY MCQS PRACTICE

Q.1 Consider the following with reference to 'The Paris Climate Agreement':

1. The agreement replaced the Kyoto Protocol as the primary global climate treaty.
2. The United Nations Framework Convention on Climate Change (UNFCCC) is the governing body that oversees the implementation of the Paris Agreement.
3. The agreement is legally binding on all signatory countries, requiring them to meet their nationally determined contributions (NDCs).
4. The agreement provides financial and technological support to developing countries for climate action.

How many of the above is/are correct?

- (a) Only one (b) Only two
(c) Only three (d) All four

Q.2 Consider the following statements:

1. The International Criminal Court (ICC) can initiate an investigation only if a case is referred by the United Nations Security Council.
2. Only countries that are parties to the Rome Statute fall under the jurisdiction of the ICC.

Which of the statements given above is/are correct?

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

Q.3 The World Happiness Report is published by ...

- (a) UNESCO (b) University of Oxford
(c) United Nations (d) Deloitte Consulting

Q.4 Consider the following statements regarding GLP-1 receptor agonists (GLP-1 RAs):

1. These are a new class of medicines that mimic a hormone that regulates appetite and blood sugar levels.
2. They can be used to manage diabetes and obesity.

Which of the statements above is/are correct?

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

Q.5 Consider the following statements:

1. COP30 will be hosted in Belém, Brazil, in November 2025 as part of the UN Climate Change Conference.
2. This will be the first time a COP summit is held in South America.

Which of the statements given above is/are not correct?

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

Q.6 Consider the following with reference to the Indian Ocean Region in the context of 'The Sagarmanthan: The Great Oceans Dialogue':

1. The Sagarmanthan 2024 summit was held in New Delhi.
2. The key focus of the Sagarmanthan 2024 summit was about the blue economy and maritime logistics.
3. Only the developed ocean countries participated in the event.

How many of the above is/are correct?

- (a) Only one (b) Only two
(c) All three (d) None

Q.7 Consider the following statements regarding Collegium system in India:

1. The Collegium system is responsible for the appointment and transfer of judges to the Supreme Court and High Courts in the country.
2. 44th Constitution Amendment Act introduced the collegium system to protect the independent nature of judiciary.

Which of the statements above is/are NOT correct?

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

Q.8 Consider the following statements:

1. The details of the process of impeachment of the Judges of the Supreme Court of India are given in the Judges (Inquiry) Act, 1968.
2. The motion to impeach a Judge of the Supreme Court of India cannot be rejected by the Speaker of the Lok Sabha as per the Judges (Inquiry) Act 1968.
3. If the motion for the impeachment of a Judge is taken up for voting, the law requires the motion to be backed by each House of the Parliament and supported by a majority of the total membership of that House and by not less than two-thirds of the total members of that House present and voting.

How many of the above statements are correct?

- (a) Only one (b) Only two
(c) All three (d) None

Q.9 Which of the following statements are correct in respect of powers and responsibilities of the Chief Justice of a High Court:

1. The Chief Justice of a High Court is the head of the judiciary in the state and has the authority to allocate cases to different judges of the High Court.
2. The Chief Justice of a High Court is responsible for advising the Governor on judicial matters.
3. The Chief Justice of a High Court can recommend the appointment of additional judges in consultation with the Governor of the state.

Select the answer using the code given below:

- (a) 1 and 2 only (b) 2 and 3 only
(c) 1 and 3 only (d) 1, 2 and 3

Q.10 Consider the following statements:

1. Tuberculosis primarily affects the respiratory system but can also infect other organs such as the bones and brain.
2. Multi-Drug-Resistant Tuberculosis (MDR-TB) is resistant to both Rifampicin and Isoniazid.

Which of the statements given above is/are correct?

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

Q.11 Consider the following states in India:

1. Tripura 2. Meghalaya
3. Mizoram 4. Nagaland

How many of the above states are under the Inner Line Permit (ILP) regime?

- (a) Only one (b) Only two
(c) Only three (d) All four

Q.12 If you travel by road from Byrnihat to Wayanad, what is the minimum number of States within India through which you can travel, including the origin and the destination?

- (a) 5 (b) 6
(c) 7 (d) 8

Q.13 Which of the following statements are correct in respect of Sustainable Development Goals (SDGs):

1. The SDGs were adopted by the United Nations in 2015 as part of the 2030 Agenda for Sustainable Development.
2. There are a total of 20 SDGs covering various aspects of social, economic, and environmental development.
3. The Paris Agreement, adopted in 2015, plays a significant role in achieving SDG 13.

Select the answer using the code given below:

- (a) 1 and 2 only (b) 2 and 3 only
(c) 1 and 3 only (d) 1, 2 and 3

Q. 14 Which organization is responsible for publishing the Food Waste Index Report 2024?

- (a) Food and Agriculture Organization (FAO)
(b) World Health Organization (WHO)
(c) United Nations Environment Programme (UNEP)
(d) World Food Programme (WFP)

Q.15 Consider the following statements regarding Tuberculosis (TB):

1. Tuberculosis (TB) is a bacterial disease that primarily affects the lungs.
2. Government launched the Nikshay Poshan Yojana to provide nutritional support to TB patients.

Which of the statements above is/are correct?

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

Q.16 VARUNA bilateral naval exercise is conducted between India and ...

- (a) USA (b) UK
(c) Russia (d) France

Q.17 Consider the following statements regarding Gold Monetisation Scheme (GMS):

1. Depositors earn interest on their gold deposits, calculated based on the weight and tenure of the gold.
2. The minimum deposit period under the scheme is 5 years, with no flexibility for premature withdrawal.

Which of the statements above is/are correct?

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

Q.18 Which of the following countries are India's top 3 crude oil sources?

- (a) Russia, Iran, Venezuela
(b) Saudi Arabia, Iraq, UAE
(c) USA, Nigeria, Oman
(d) Russia, Iraq, Saudi Arabia

Q.19 Which of the following statements are correct in respect of Lok Sabha:

1. The Speaker of the Lok Sabha is elected by its members.
2. A Money Bill can only be introduced in the Lok Sabha.
3. The dissolution of the Lok Sabha automatically leads to the dissolution of the Rajya Sabha

Select the answer using the code given below:

- (a) 1 and 2 only (b) 2 and 3 only
(c) 1 and 3 only (d) 1, 2 and 3

Q.20 The development of Chabahar Port helps India counter which major infrastructure project of China?

- (a) China-Pakistan Economic Corridor (CPEC)
(b) Belt and Road Initiative (BRI)
(c) String of Pearls Strategy
(d) Asian Infrastructure Investment Bank (AIIB)

Q.21 Which of the following statements are correct in respect of Non-Performing Assets (NPA):

1. An asset is classified as NPA if the borrower fails to repay interest or principal for a period of 90 days or more.
2. NPAs only include loans given to corporate entities and do not apply to individual loans.

3. The Provisioning Coverage Ratio (PCR) measures the extent to which a bank has provided funds to cover its NPAs.

Select the answer using the code given below:

- (a) 1 and 2 only (b) 2 and 3 only
(c) 1 and 3 only (d) 1, 2 and 3

Q.22 Consider the following with reference to the structure of GST in India:

1. GST is a dual tax structure, with levies by both the Centre and the States.
2. The GST Council decisions to modify tax rates and exemptions are legally binding.
3. The GST Network (GSTN) is a private-owned entity that manages the IT infrastructure for GST implementation.

How many of the above is/are correct?

- (a) Only one (b) Only two
(c) All three (d) None

Q.23 An adjournment in the context of the Indian Parliament refers to:

- (a) The termination of a parliamentary session by the President.
(b) The dissolution of the Lower House of Parliament.
(c) A break in a parliamentary sitting, which may resume later.
(d) The conclusion of Budget Session in Parliament.

Q.24 Consider the following offices under Government of India:

1. Central Vigilance Commissioner
2. Chairperson and Members of the National Human Rights Commission
3. Lokpal
4. CBI Director

The Leader of Opposition in the Lok Sabha is a member of selection committees of how many of the above offices?

- (a) Only one (b) Only two
(c) Only three (d) All four

Q.25 Consider the following statements regarding Fentanyl:

1. It is a potent synthetic opioid drug significantly more potent than morphine.

2. It is approved as a powerful anti-histamine, used for the treatment of allergies.

Which of the statements above is/are correct?

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

Q.26 Which of the following space agencies operated Gaia Space Telescope?

- (a) NASA (b) Roscosmos
(c) ESA (d) JAXA

Q.27 Consider the following with reference to the Kalaripayattu:

1. Kalaripayattu is a traditional martial art form that originated in Kerala.
2. It is known for its use of weapons such as swords, spears, and daggers.
3. It is exclusively performed by men, and women are not allowed to train in this martial art.

How many of the above is/are correct?

- (a) Only one (b) Only two
(c) All three (d) None

Q.28 Which of the following are correct in respect of the conditions that are considered valid grounds for termination of pregnancy up to 24 weeks under the Medical Termination of Pregnancy Act, 2021:

1. Survivors of sexual assault or rape
2. Women with fetal abnormalities confirmed by a Medical Board
3. Married women only

Select the answer using the code given below:

- (a) 1 and 2 only (b) 2 and 3 only
(c) 1 and 3 only (d) 1, 2 and 3

Q.29 Consider the following with reference to the to the passage of bills in the Lok Sabha:

1. A Minister or a Private Member can introduce an Ordinary Bill.
2. The Rajya Sabha must pass an Ordinary Bill within 14 days, failing which it is deemed passed.
3. The President can return an Ordinary Bill for reconsideration by Parliament.

How many of the above is/are correct?

- (a) Only one (b) Only two
(c) All three (d) None

Q.30 Consider the following with reference to earthquakes:

1. The Earthquakes occur only along tectonic plate boundaries.
2. The Richter scale measures the intensity of an earthquake.
3. Surface waves are responsible for most of the destruction during an earthquake.

How many of the above is/are correct?

- (a) Only one (b) Only two
(c) All three (d) None

Q.31 Consider the following statements:

1. The constitution mandates all the Supreme Court judges to make a public declaration of their assets periodically.
2. The RTI Act has pushed government officials to annually declare their assets to their respective cadre controlling authorities.

Which of the statements above is/are correct?

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

Q.32 Consider the following statements regarding earthquakes:

1. Earthquakes are primarily caused by the sudden release of energy in the Earth's crust, creating seismic waves.
2. Earthquakes occur exclusively at tectonic plate boundaries, making it easy to predict their location and timing.

Which of the statements above is/are correct?

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

Q.33 Consider the following statements regarding Green Credit Programme (GCP):

1. The GCP incentivizes environmentally positive actions by generating tradable green credits for activities like afforestation and water conservation.
2. The application of green credits is limited for offsetting industrial carbon emissions and is not linked to other ecological restoration activities.

Which of the statements above is/are correct?

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

Q.34 Madhavpur fair and festival is held in ...

- (a) Maharashtra (b) Uttar Pradesh
(c) Telangana (d) Gujarat

Q.35 Which of the following statements are incorrect in respect of High Courts in India:

1. Every state in India has its own separate High Court.
2. High Courts in India are established under Article 214 of the Indian Constitution.
3. A High Court judge can be removed from office by the Governor of the respective state.

Select the answer using the code given below:

- (a) 1 and 2 only (b) 2 and 3 only
(c) 1 and 3 only (d) 1, 2 and 3

Q.36 Consider the following with reference to 'The Chief Justice of India':

1. The term of the Chief Justice of India is fixed at 5 years.
2. The Chief Justice of India is appointed under Article 124 of the Indian Constitution.
3. The appointment of the CJI follows the principle of seniority, meaning the senior-most judge of the Supreme Court is usually appointed.
4. The Chief Justice of India can be removed from office by the President at any time.

How many of the above is/are correct?

- (a) Only one (b) Only two
(c) Only three (d) All four

Q.37 Consider the following statements regarding El Niño and La Niña:

1. El Niño and La Niña are opposite phases of a larger phenomenon called the Southern Oscillation.
2. During an El Niño event, the surface waters in the eastern tropical Pacific Ocean become warmer than normal.
3. La Niña leads to cooler than normal sea surface temperatures in the equatorial Pacific, enhancing monsoon activity in India.

How many of the above statements are correct?

- (a) Only one (b) Only two
(c) All three (d) None

Q.38 Consider the following statements regarding the Public Accounts Committee (PAC):

1. The Committee is constituted by Parliament each year for examination of accounts showing the appropriation of sums granted by Parliament for expenditure of Government of India.
2. The committee consists of 30 members elected by Lok Sabha every year from amongst its members.

Which of the statements above is/are correct?

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

Q.39 Which of the following statements are correct in respect of 15th Finance Commission's devolution exercise:

1. The Commission introduced demographic performance alongside population performance in the devolution process.
2. The population component of the devolution exercise was based only on the 1971 census data.
3. Demographic performance aims to balance states with higher populations and poor demographic outcomes with those having lower populations and better outcomes.

Select the answer using the code given below:

- (a) 1 and 2 only (b) 2 and 3 only
(c) 1 and 3 only (d) 1, 2 and 3

Q.40 What is the main purpose of the ASER report?

- (a) To assess the quality of healthcare services in India
(b) To evaluate the literacy rate of Indian citizens
(c) To assess the learning outcomes and enrollment status of children in rural India
(d) To assess urban infrastructure development in India

Q.41 Consider the following dynasties in India:

1. Maurya 2. Shunga
3. Gupta 4. Pala

Which of the above were the major royal patrons of the Mahabodhi Temple?

- (a) 1 and 2 only (b) 1, 2 and 3 only
(c) 2, 3 and 4 only (d) 1, 2, 3 and 4

Q.42 Arrange the given planets in decreasing order based on the number of moons orbiting them: Jupiter, Saturn, Uranus, Neptune.

- (a) Jupiter – Saturn – Uranus – Neptune
- (b) Saturn – Jupiter – Uranus – Neptune
- (c) Saturn – Jupiter – Neptune – Uranus
- (d) Jupiter – Saturn – Neptune – Uranus

Q.43 Consider the following with reference to the entities exempted under the Digital Personal Data Protection Act, 2023

1. Government agencies handling matters of national security.
2. Private corporations that collect data for internal business use.
3. Law enforcement agencies investigating criminal offenses.

How many of the above is/are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Q.44 Consider the following with reference to the reasons that bottom trawling by Indian fishermen a major issue for Sri Lanka:

1. It damages the marine ecosystem and depletes fish stocks.
2. It violates Sri Lankan territorial waters, leading to diplomatic tensions.
3. It causes loss of livelihood for Sri Lankan fishermen.
4. It leads to arresting and detaining fishermen who cross the maritime boundary.

How many of the above is/are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Q.45 Which of the following statements are correct in respect of significance of regulatory reforms in international trade:

1. They help reduce bottlenecks that slow down cross-border trade.
2. They have no impact on digital services trade.
3. They encourage smoother business operations and economic growth.

Select the answer using the code given below:

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 & 3

Q.46 Consider the following with reference to the Speaker of the Lok Sabha:

1. The Speaker's decision on money bills is final.
2. The Speaker does not vacate office if they resign from their political party after election.
3. The Speaker can be removed only on grounds of misconduct or incapacity.

How many of the above is/are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Q.47 Consider the following statements regarding the Tenth Schedule of the Indian Constitution:

1. It deals with the disqualification of members of Parliament and State Legislatures on grounds of defection.
2. It was included in the Constitution by the 42nd Amendment Act of 1976.

Which of the statements above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Q.48 Consider the following statements regarding Chagos Archipelago:

1. It is a group of islands in the Indian Ocean belonging to Maldives.
2. Diego Garcia is the largest island in the archipelago.

Which of the statements above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Q.49 Consider the following statements regarding Charminar in Hyderabad:

1. It was built by Muhammad Quli Qutb Shah in 1591 to commemorate the eradication of a deadly plague in Hyderabad.
2. The monument's four grand arches and minarets symbolize the four cardinal directions or the first four caliphs of Islam and integrate Persian architectural influences.

Which of the statements above is/are correct?

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

Q.50 Consider the following statements regarding the Indian Arctic Programme:

1. India's Arctic research includes atmospheric, biological, marine and earth sciences and glaciological studies.
2. India established its Arctic research station, named Himadri in 2008.
3. National Centre for Polar and Ocean Research (NCPOR) under Ministry of Science and Technology is the nodal agency for the Indian Arctic Programme.

How many of the above statements are correct?

- (a) Only one (b) Only two
(c) All three (d) None

Q.51 Which of the following statements are correct in respect of Nehru-Liaquat Ali Pact of 1950:

1. It was an agreement between India and Pakistan to protect religious minorities in both countries.
2. It successfully resolved all minority-related concerns in the subcontinent.
3. It led to establishment of a joint Indo-Pakistan committee to address complaints.

Select the answer using the code given below:

- (a) 1 and 2 only (b) 2 and 3 only
(c) 1 and 3 only (d) 1, 2 & 3

Q.52 Consider the following with reference to the Sardar Patel's contribution to post-independence India:

1. He was the first Home Minister and Deputy Prime Minister of independent India.
2. He played a crucial role in formulating India's first Constitution.
3. He was responsible for setting up the Indian Administrative Service (IAS) and Indian Police Service (IPS).

How many of the above is/are correct?

- (a) Only one (b) Only two
(c) All three (d) None

Q.53 Consider the following:

1. Foreign Exchange Reserves
2. Trade balance
3. Foreign Investments
4. Difference in interest rate and inflation between India and USA

How many of the above are factors that determine the value of Indian Rupee against the US Dollar?

- (a) Only one (b) Only two
(c) Only three (d) All four

Q.54 What is the primary objective of the Ottawa Convention (1997)?

- (a) To regulate the production and transfer of nuclear weapons.
- (b) To establish international rules for cyber warfare.
- (c) To prohibit the use, production, stockpiling, and transfer of anti-personnel mines.
- (d) To control the global arms trade of conventional dynamite-based weapons.

Q.55 Consider the following with reference to 'The Transgender Persons (Protection of Rights) Act, 2019:

1. The Act allows a person to self-perceive their gender identity and mandates issuance of identity cards without medical examination.
2. The Act provides for the establishment of a National Council for Transgender Persons to advise on policy matters.
3. The Act includes specific provisions for reservations in education and employment.
4. The Act mandates private sector companies to meet employment quotas for transgender persons.

How many of the above is/are correct?

- (a) Only one (b) Only two
(c) Only three (d) All four

Q.56 Which of the following statements are correct in respect of the role of the Global South in peacekeeping efforts in Russia-Ukraine conflict:

1. The Global South has largely maintained neutrality in the Russia-Ukraine conflict.
2. A peacekeeping mission led by the Global South could enhance trust between both Kyiv and Moscow.
3. Nations from Africa, Asia, and Latin America lack experience in UN peacekeeping missions.

Select the answer using the code given below:

- (a) 1 and 2 only (b) 2 and 3 only
(c) 1 and 3 only (d) 1, 2 & 3

Q.57 Consider the following statements regarding Bt cotton:

1. Bt cotton is genetically modified to produce a toxin from *Bacillus thuringiensis* that protects it against certain insect pests.
2. The cultivation of Bt cotton completely eliminates the need for chemical pesticides in cotton farming.

Which of the statements above is/are is correct?

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

Q.58 Consider the following statements regarding Genetic Engineering Appraisal Committee (GEAC):

1. It is a statutory body functioning under the Ministry of Science and Technology.
2. It is responsible for appraisal of activities involving large scale use of hazardous microorganisms and recombinants in research and industrial production from the environmental angle.

Which of the statements above is/are is correct?

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

Q.59 Which of the following statements are incorrect in respect of Chairman of the Rajya Sabha:

1. The Chairman decides whether a bill is a Money Bill or not.
2. The Chairman presides over joint sittings of Parliament.
3. He can be removed from his office by a resolution passed in Rajya Sabha and agreed to by Lok Sabha.

Select the answer using the code given below:

- (a) 1 and 2 only (b) 2 and 3 only
(c) 1 and 3 only (d) 1, 2 & 3

Q.60 Consider the following with reference to the Leader of the Opposition in the Lok Sabha:

1. The Leader of the Opposition is mentioned in the Constitution of India under Article 98.
2. A party must secure at least 10% of the total strength of the Lok Sabha to be eligible for its leader to be recognized as the Leader of the Opposition.

3. There have been Lok Sabhas in which no Leader of the Opposition was recognized.

How many of the above is/are correct?

- (a) Only one (b) Only two
(c) All three (d) None

Q.61 Consider the following statements regarding Three Gorges Antarctic Eye:

1. It is a radio telescope at research station in Antarctica.
2. It is a joint project of NASA and JAXA.

Which of the statements above is/are is correct?

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

Q.62 Consider the following statements regarding the Prevention of Money Laundering Act (PMLA), 2002:

1. The Enforcement Directorate (ED) can arrest individuals without a warrant if they have material evidence suggesting involvement in money laundering.
2. Under PMLA, the burden of proof lies with the prosecution to establish that a property is linked to money laundering.

Which of the statements above is/are is correct?

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

Q.63 Which of the following statements are correct in respect of Bharatiya Vayuyan Adhiniyam, 2024:

1. It replaces the Aircraft Act, 1934.
2. It establishes the Directorate General of Civil Aviation (DGCA) for the first time.
3. It introduces provisions for regulating aircraft design.

Select the answer using the code given below:

- (a) 1 and 2 only (b) 2 and 3 only
(c) 1 and 3 only (d) 1, 2 & 3

Q.64 Consider the following with reference to the QS's World Future Skills Index:

1. India ranks second globally in terms of preparedness for AI and green skills.
2. India scored above 90 in the 'Skills Fit' category, indicating a strong ability of the workforce to meet future skill demands.

3. India ranked 26th in terms of 'Academic Readiness', reflecting moderate performance in educational preparedness.

How many of the above is / are correct?

- (a) Only one (b) Only two
(c) All three (d) None

Q.65 Article 142 of the Indian Constitution empowers the Supreme Court to...

- (a) Provide advisory opinions to the President of India on questions of law or fact.
(b) Declare laws passed by the Parliament void if they violate the basic structure of the Constitution.
(c) Pass any decree or make any order necessary for doing complete justice in any cause or matter pending before it.
(d) Exercise exclusive original jurisdiction in disputes between the Government of India and one or more States.

Q.66 Consider the following statements regarding Governor of a state in India:

1. The Governor of a state is appointed by the President of India and holds office during the pleasure of the President.
2. The qualifications for a Governor include that they must be at least 35 years old and a resident of the state where they are appointed.
3. President of India administers the oath of office to the newly appointed governors.

How many of the above statements are INCORRECT?

- (a) Only one (b) Only two
(c) All three (d) None

Q.67 Which of the following statements are correct in respect of the Common Cause v. Union of India (2018) case:

1. The Supreme Court legalised passive euthanasia in this case.
2. The judgment included clear guidelines, monitoring mechanisms, and oversight.
3. The decision failed due to lack of implementation strategies.

Select the answer using the code given below:

- (a) 1 and 2 only (b) 2 and 3 only
(c) 1 and 3 only (d) 1, 2 & 3

Q.68 Consider the following with reference to the directives under the Taj Trapezium Zone (TTZ):

1. A green belt was established around the Mathura oil refinery.
2. The judgment was based on the Varadarajan Committee's recommendations.
3. The directives lacked coordination and thus failed to achieve results.

How many of the above is / are correct?

- (a) Only one (b) Only two
(c) All three (d) None

Q.69 Consider the following statements regarding Human Papillomavirus (HPV):

1. HPV is an RNA virus that infects epithelial tissues.
2. It primarily spreads through respiratory droplets.
3. Certain types of HPV can increase the risk of developing several types of cancer, including cervical cancer.

How many of the above statements are correct?

- (a) Only one (b) Only two
(c) All three (d) None

Q.70 Consider the following:

1. Higher Inflation
2. Higher Unemployment
3. Cheaper Loans
4. Higher Liquidity

How many of the above are the likely or expected outcomes of a Repo Rate Cut?

- (a) Only one (b) Only two
(c) Only three (d) All four

Q.71 Which of the following statements are correct in respect of China's growing influence in India's neighbourhood:

1. Strengthened ties with Bangladesh following a visit by its Chief Adviser to China.
2. Renewed partnerships with Pakistan through defence cooperation agreements.
3. Diplomatic expansion into West Asia and North Africa.

Select the answer using the code given below:

- (a) 1 and 2 only (b) 2 and 3 only
(c) 1 and 3 only (d) 1, 2 & 3

Q.72 Which of the following best describes the concept of Cooperative Federalism?

- (a) Division of powers where the Centre dominates over States
- (b) Complete autonomy of States without Central interference
- (c) Collaboration between Centre and States in policy formulation and implementation
- (d) Judiciary acting as a mediator between Centre and States

Q.73 Consider the following statements regarding Jyotiba Phule:

- 1. He along with his wife Savitribai Phule, established one of the first schools for girls in India in Pune in 1848, becoming pioneers of women's education.
- 2. He established the Satyashodhak Samaj to advocate for the preservation of the Brahminical social order.

Which of the statements above is/are correct?

- (a) 1 only (b) 2 only
- (c) Both 1 and 2 (d) Neither 1 nor 2

Q.74 Which of the following is the largest land port in India?

- (a) Attari Land Port (b) Moreh Land Port
- (c) Petrapole Land Port (d) Raxaul Land Port

Q.75 Which of the following statements are correct in respect of National Investigation Agency (NIA):

- 1. The NIA was established under a law passed by the Parliament of India after the 2008 Mumbai terror attacks.
- 2. The NIA has jurisdiction to investigate offences across India, but not outside Indian territory.
- 3. The NIA can take up any case suo motu without prior approval of the state government, even in cases related to state subjects.

Select the answer using the code given below:

- (a) 1 and 2 only (b) 2 and 3 only
- (c) 1 and 3 only (d) 1, 2 & 3

Q.76 Consider the following with reference to the Monetary Policy Committee (MPC):

- 1. The Monetary Policy Committee is a statutory body constituted under the Reserve Bank of India Act, 1934.

- 2. The MPC is chaired by the Finance Minister of India.
- 3. The primary objective of the MPC is to maintain price stability while keeping in mind the objective of growth.
- 4. Each member of the MPC has one vote, and in case of a tie, the RBI Governor has a casting vote.

How many of the above is/are correct?

- (a) Only one (b) Only two
- (c) All three (d) None

Q.77 In Indian Constitution, the governor of a state has to refer a bill to president mandatorily in which one of the following cases?

- (a) If it goes against the provision of constitution and the federal structure of India.
- (b) If it brings provision which negates any of the law made by the parliament.
- (c) If it brings any changes to the 'agriculture income' or the devolution of fund from the centre to the states.
- (d) If it would diminish the High Court's powers to an extent that threatens its constitutional position.

Q.78 Consider the following statements about 'KAVACH System':

- 1. It is an indigenously developed Automatic Train Protection System (ATPS) by the Bharat Electronics Limited (BEL) in collaboration with Indian industry.
- 2. It activates the train's braking system automatically if the driver fails to control the train as per speed restrictions.

Which of the statements given above is/are correct?

- (a) 1 only (b) 2 only
- (c) Both 1 and 2 (d) Neither 1 nor 2

Q.79 Which of the following statements are correct in respect of Long-Range Glide Bomb 'Gaurav':

- 1. 'Gaurav' is an indigenously developed precision-guided bomb designed by the Defence Research and Development Organisation (DRDO).
- 2. It has a maximum range of over 100 km and can be launched from fighter aircraft.
- 3. 'Gaurav' uses satellite navigation to guide itself to the target with high accuracy.

Select the answer using the code given below:

- (a) 1 and 2 only (b) 2 and 3 only
(c) 1 and 3 only (d) 1, 2 & 3

Q.80 Consider the following statements:

1. The La Brea Tar Pits in California have yielded one of the richest collections of dire wolf fossils.
2. Dire wolves were identical to modern gray wolves in both size and genetic lineage.

Which of the statements given above is/are correct?

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

Q.81 Which of the following statements are correct in respect of Central Reserve Police Force (CRPF):

1. The CAPFs function under the administrative control of the Ministry of Home Affairs.
2. The CRPF is the largest Central Armed Police Force in India.
3. The primary role of the CRPF is to assist the State and Union Territories in maintaining law and order.

Select the answer using the code given below:

- (a) 1 and 2 only (b) 2 and 3 only
(c) 1 and 3 only (d) 1, 2 and 3

Q.82 Article 175 of the Indian Constitution mentions the power of the Governor to:

- (a) Propose a bill to the legislature
- (b) Address the House at any time during the session
- (c) Discuss matters of national importance with the legislature
- (d) Require the legislature to send a bill to him for assent

Q.83 Recently, DRDO's DEW MK-II (A) weapon was in the news. It is a:

- (a) Hypersonic cruise missile
- (b) Directed energy weapon
- (c) Advanced anti-tank missile system
- (d) Unmanned aerial combat vehicle

Q.84 Consider the following pollutants:

1. Arsenic
2. Lead
3. Nickel
4. Benzene
5. Benzopyrene
6. Ammonia

Which of the above pollutants are not monitored under National Air Quality Index?

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

Q.85 Consider the following statements regarding the Jallianwala Bagh Massacre:

1. The Jallianwala Bagh Massacre occurred in 1919 during a peaceful gathering protesting the repressive Rowlatt Act.
2. The British government promptly issued an official apology and dismissed General Dyer from service after the incident.

Which of the statements above is/are correct?

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

Q.86 Consider the following statements regarding the Montagu-Chelmsford Reforms:

1. It introduced the system of dyarchy in the provincial governments, dividing subjects into reserved and transferred lists.
2. It established a bicameral legislature at the central level, consisting of the Legislative Assembly and the Council of State.

Which of the statements above is/are correct?

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

Q.87 Consider the following with reference to the 'Index of Industrial Production (IIP)':

1. The IIP is compiled and published by the National Statistical Office (NSO), Ministry of Statistics and Programme Implementation.
2. IIP is a composite indicator that measures the growth rate of only core industries.
3. Electricity and Mining are also part of the IIP computation.
4. The base year for the current series of IIP is 2011-12.

How many of the above is/are correct?

- (a) Only one (b) Only two
(c) Only three (d) All four

Q.88 Which of the following statements are correct in respect of Retail Inflation in India:

1. Retail inflation is measured using the Consumer Price Index (CPI).
2. Retail inflation is directly targeted by the RBI under its flexible inflation targeting framework.
3. High retail inflation may lead the RBI to increase the policy repo rate.

Select the answer using the code given below:

- (a) 1 and 2 only (b) 2 and 3 only
(c) 1 and 3 only (d) 1, 2 and 3

Q.89 The Scarborough Shoal is located in ...

- (a) Yellow Sea (b) South China Sea
(c) East China Sea (d) Philippine Sea

Q.90 Consider the following statements regarding Inflation in India:

1. Headline inflation includes the prices of volatile items like food and fuel, while core inflation excludes them.
2. Core inflation is a more stable measure of underlying inflation trends because it is not affected by temporary price shocks in food and energy markets.
3. The retail inflation is based on the Consumer Price Index (combined).
4. The medium-term inflation target set by the RBI is 4+/-2 percent.

How many of the above statements are correct?

- (a) Only one (b) Only two
(c) Only three (d) All four

Q.91 Consider the following with reference to 'The Bharat Small Reactors (BSRs)':

1. Bharat Small Reactors are an upgraded version of the existing 220 MW PHWRs developed by NPCIL.
2. BSRs are proposed to be used only for export purposes.
3. Indian industry is capable of manufacturing all equipment and components required for BSRs.
4. BSRs are being designed with foreign collaboration under the India-U.S. civil nuclear deal.

How many of the above is/are correct?

- (a) Only one (b) Only two
(c) Only three (d) All four

Q.92 Consider the following statements:

1. The Article 142 of the Constitution of India empowers the Supreme Court to pass any order or decree necessary to do complete justice in any matter pending before it.
2. The powers under Article 142 can only be used by the Supreme Court to direct the enforcement of laws made by Parliament.

Which of the statements given above is/are correct?

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

Q.93 What is the primary role of the private entity in the Toll-Operate-Transfer (TOT) Model?

- (a) Designing and constructing new infrastructure projects.
- (b) Providing funding without involvement in operations or maintenance.
- (c) Operating, maintaining, and collecting tolls from existing infrastructure.
- (d) Regulating toll rates and ensuring compliance with safety standards.

Q.94 Consider the following statements regarding Type 5 Diabetes:

1. Type 5 Diabetes Mellitus is also known as MalnutritionRelated Diabetes Mellitus (MRDM).
2. It can be fully reversed by overcoming malnutrition by taking a balanced diet.

Which of the statements above is/are correct?

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

Q.95 Consider the following statements:

1. The Jain sculpture of Vardhman Mahavira in Nangunuru village dates back to the 9th Century CE.
2. The presence of brick bats and potsherds near the Mahavira sculpture suggests that the site was once a Jain basadi (monastery).

Which of the statements given above is/are correct?

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

Q.96 Which of the following statements are correct in respect of India's trade relationship with the U.S.:

1. India's exports to the U.S. have been increasing steadily in recent years.

2. The additional 26% reciprocal tariff imposed by the U.S. will impact different goods differently.
3. India's reciprocal tariff rate is calculated based on the difference between U.S. exports to India and imports from India.

Select the answer using the code given below:

- (a) 1 and 2 only (b) 2 and 3 only
(c) 1 and 3 only (d) 1, 2 and 3

Q.97 What is K2-18b, recently seen in news?

- (a) Super Earth exoplanet
- (b) Gene editing tool
- (c) Human gene linked to cancer
- (d) International Space Station Module

Q.98 Consider the following statements regarding Holkar Dynasty:

1. It was founded by Malhar Rao Holkar in the early 18th century as part of the Maratha Confederacy.
2. Under Ahilyabai Holkar's rule, the dynasty's capital was established at Indore and the city became a prominent cultural and commercial hub.

Which of the statements above is/are correct?

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

Q.99 Which of the following statements are correct in respect of the economic implications of a trade deficit:

1. A trade deficit increases the demand for foreign currency in the domestic market.
2. A trade deficit can result in a country's increased foreign debt.
3. A trade deficit is always accompanied by an increase in foreign exchange reserves.

Select the answer using the code given below:

- (a) 1 and 2 only (b) 2 and 3 only
(c) 1 and 3 only (d) 1, 2 and 3

Q.100 Which of the following is true about the exoplanet K2-18b?

- (a) K2-18b is located in the habitable zone of its host star, making it a candidate for the search for extraterrestrial life.
- (b) K2-18b was discovered by the Hubble Space Telescope in 2009.
- (c) The atmosphere of K2-18b is primarily composed of helium, with no traces of water vapor.
- (d) K2-18b is part of the Kepler space mission's K2 survey, located in the constellation of Centaurus.

Q.101 Consider the following statements regarding cloud formation:

1. Clouds form when warm, moist air rises, cools, and water vapor condenses around tiny particles.
2. Clouds form primarily through the direct freezing of water vapor into ice crystals at high altitudes.

Which of the statements above is/are correct?

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

Q.102 NISAR, a first-of-its-kind Earth observation satellite is a joint mission of ...

- (a) NASA and ESA (b) ISRO and ESA
- (c) ESA and JAXA (d) ISRO and NASA

Q.103 Consider the following with reference to biofuels in the context of decarbonisation:

1. Biofuels are derived from organic materials like plants and algae.
2. They are carbon-neutral and contribute zero carbon emissions.
3. Biofuels can be used in maritime and aviation sectors to reduce emissions.
4. Biofuels reduce carbon emissions but still contribute to other environmental impacts like land use changes and water consumption.

How many of the above is/are correct?

- (a) Only one (b) Only two
(c) Only three (d) All four

Q.104 Which of the following statements are correct in respect of green logistics initiatives in India are correct:

1. India is moving towards electric trucks and cleaner fuels in maritime shipping.
2. Air transport is the easiest sector to decarbonise due to its low reliance on refined fuels.
3. The International Maritime Organization aims to reduce global shipping emissions by 50% by 2050.

Select the answer using the code given below:

- (a) 1 and 2 only (b) 2 and 3 only
(c) 1 and 3 only (d) 1, 2 and 3

ANSWER KEY

Q1.	c	Q2.	d	Q3.	b	Q4.	c	Q5.	b
Q6.	b	Q7.	b	Q8.	b	Q9.	c	Q10.	c
Q11.	b	Q12.	c	Q13.	c	Q14.	c	Q15.	c
Q16.	d	Q17.	a	Q18.	d	Q19.	a	Q20.	a
Q21.	c	Q22.	a	Q23.	c	Q24.	d	Q25.	a
Q26.	c	Q27.	a	Q28.	a	Q29.	b	Q30.	a
Q31.	b	Q32.	a	Q33.	a	Q34.	d	Q35.	c
Q36.	b	Q37.	c	Q38.	a	Q39.	c	Q40.	c
Q41.	d	Q42.	b	Q43.	b	Q44.	d	Q45.	c
Q46.	b	Q47.	a	Q48.	b	Q49.	c	Q50.	b
Q51.	c	Q52.	b	Q53.	d	Q54.	c	Q55.	b
Q56.	a	Q57.	a	Q58.	b	Q59.	a	Q60.	b
Q61.	a	Q62.	a	Q63.	c	Q64.	b	Q65.	c
Q66.	b	Q67.	a	Q68.	b	Q69.	a	Q70.	c
Q71.	d	Q72.	c	Q73.	a	Q74.	c	Q75.	c
Q76.	c	Q77.	d	Q78.	b	Q79.	d	Q80.	a
Q81.	d	Q82.	b	Q83.	b	Q84.	d	Q85.	a
Q86.	c	Q87.	c	Q88.	d	Q89.	b	Q90.	d
Q91.	b	Q92.	a	Q93.	c	Q94.	a	Q95.	c
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Q101.	a	Q102.	d	Q103.	c	Q104.	c		



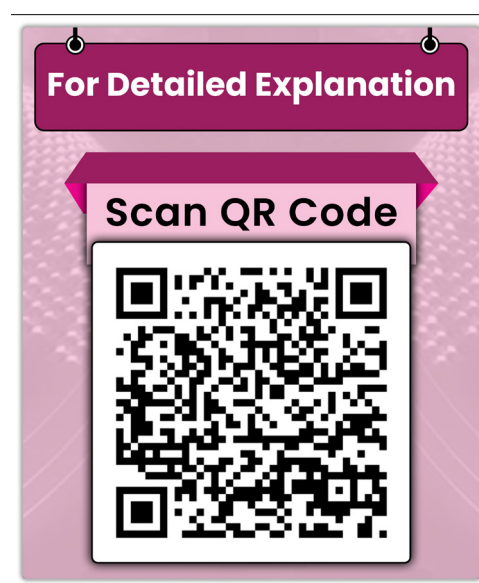
DAILY MAINS ANSWER WRITING PRACTICE

- Q1. What are the key criteria for selection of UNESCO World Heritage Sites? Discuss the significance of getting the status of a World Heritage tag for a site. (GS 1; 10 Marks; 150 words)
- Q2. Compare the global warming potential of methane and carbon dioxide. Discuss the major sources of methane emissions and the ways to mitigate methane emissions. (GS3; 15 Marks; 250 Words)

- Q3. India's Enhanced Strategic Partnership with Mauritius is pivotal to its evolving maritime strategy in the Indian Ocean Region (IOR). Comment. (GS 2; 15 Marks; 250 Words)
- Q4. Discuss the historical evolution and constitutional provisions of the Comptroller and Auditor General (CAG) of India. Critically analyse its role as the watchdog of the public purse. (GS 2; 15 Marks; 250 Words)
- Q5. Adopting synergistic approaches to address interconnected global challenges like climate change, biodiversity loss, and food insecurity will lead to sustainable development. Comment. (GS 3; 10 Marks; 150 Words)
- Q6. India's strategy for water diplomacy strikes a balance between regional cooperation and national interests. Examine some of India's water-sharing treaties with its neighbouring countries. (GS 2; 15 Marks; 250 Words)
- Q7. Discuss key aspects of U.S. Dollar's Global Dominance. How do initiatives like the internationalisation of the Indian rupee and the rise of non-traditional reserve currencies challenge the dominance of US dollar? What are the potential implications of this on the global economic order? (GS 2 and 3; 15 Marks; 250 Words)

- Q8. What are the major challenges faced by the farm sector in India during Amrit kaal? Discuss various reforms and strategies to ensure sustained and inclusive growth of the sector. (GS 3; 15 Marks; 250 Words)
- Q9. Tigers function as an umbrella species and their conservation critical for biodiversity. Comment. What are the initiatives taken by Government for tiger conservation in India? (GS3; 15 marks; 250 words)
- Q10. Indian polity is considered federal even though the term federation is not used in the constitution. In light of the above statement examine the evolution of federalism in India. (GS 2; 15 Marks; 250 Words)
- Q11. Amid US tariff threats, India-EU FTA presents a crucial economic opportunity. Discuss the potential benefits of FTA for both India and the EU and challenges associated with the Free Trade Agreement (FTA). (GS2; 15 Marks; 250 Words)
- Q12. Recently NASA's James Webb Telescope observed auroras on Neptune for the first time. What are auroras? Describe the phenomenon of occurrence of auroras in nature. (GS 1, 10 Marks, 150 Words)
- Q13. Countries and companies around the world are opening up to the idea of geoengineering owing to its potential benefits. What is geoengineering? Discuss the different geoengineering techniques along with advantages and disadvantages of geoengineering. (GS 1 and 3; 15 Marks; 250 Words)
- Q14. Indian painting styles embody India's rich artistic heritage. Discuss the major painting styles in India varying across regions. (GS1; 15 Marks; 250 Words)
- Q15. With generative AI tools replicating artistic styles, discuss the ethical implications and the balance between technological innovation and respect for intellectual property. (GS1 and 3; 10 Marks; 15 Words)
- Q16. India is set to face increased instances of heatwaves this summer. Discuss the potential impacts of heatwaves. Suggest measures to mitigate the adverse impacts of heatwaves. (GS 1 & 3; 15 Marks; 250 Words)
- Q17. The instability in the African Great Lakes region holds strategic importance for India despite posing no direct threat. Comment. (GS2; 10 Marks; 150 Words)
- Q18. Define globalisation. What are its key features and drivers? With the resurgence of protectionism in the world, discuss the advantages and challenges associated with globalisation. (GS 1; 15 Marks; 250 Words)

- Q19. The current structure of United Nations Security Council (UNSC) reflects outdated power dynamics. Comment. Discuss the potential reforms in UNSC that can make it more equitable and relevant. (GS 2; 15 Marks; 250 Words)
- Q20. The 1991 economic reforms was a perfect marriage between economic compulsions and political opportunity for India. Elaborate. Does present situation need reform 2.0? (15 marks, 250 words) (GS 3)
- Q21. Enlist the significant changes that were brought by the unfortunate terror attack of 26/11 in India? has the terror threats complicated the two front war situations of India? (15 marks, 250 words) (GS 3)
- Q22. With countries across the world mulling to keep its teenage population away from social media, explain why social media is considered as a double-edged sword. Discuss the regulatory framework for social media in India. (GS 3; 15 Marks; 250 Words)
- Q23. Arctic tundra, which has stored carbon for thousands of years, has now become a source of heat-trapping greenhouse gases (GHGs). How does the Arctic tundra store carbon? Analyse the cause of this shift in the global climate system. (GS 1 and 3; 10 Marks; 150 Words)
- Q24. Summits are cornerstones of both regional and global governance. Discuss the key outcomes of the major summits attended by India in recent time. (GS2; 15 Marks; 250 Words)

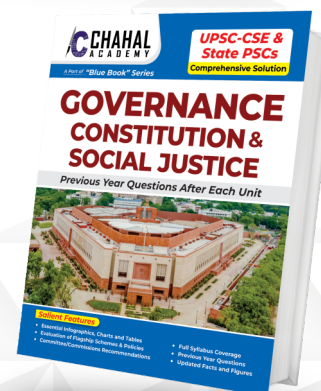
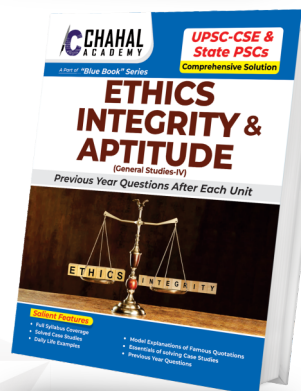
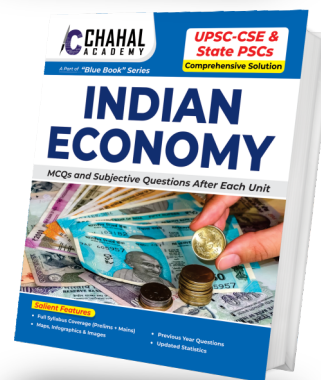
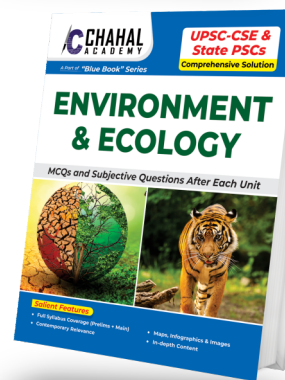
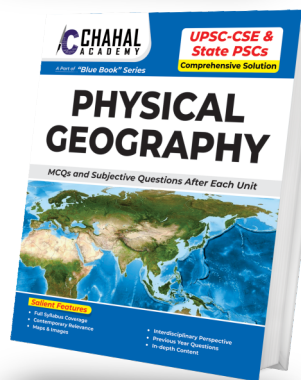
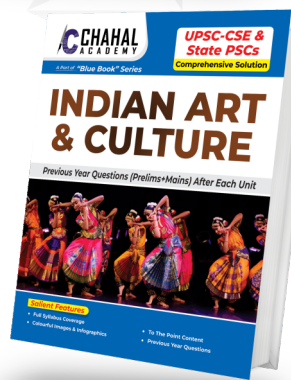
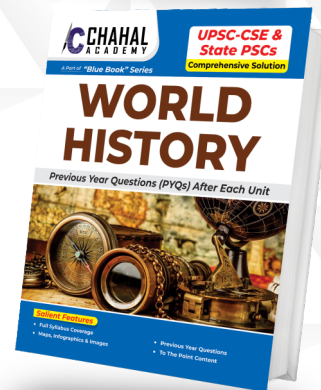
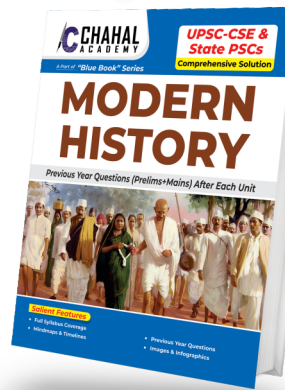
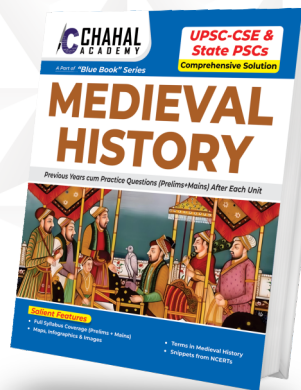
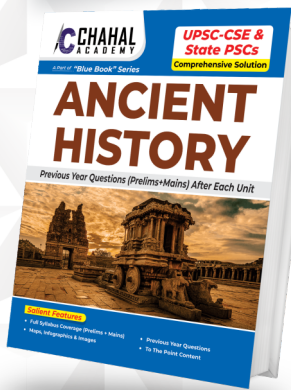


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