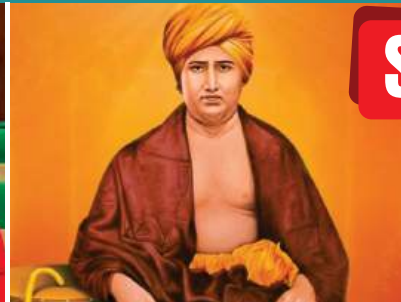


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ARTICLE 356: PRESIDENT'S RULE

Why in News: Recently, President's Rule was imposed in Manipur following the resignation of the Chief Minister. Consequently, the state assembly was placed under suspended animation.

Understanding Article 356

Article 356 of the Indian Constitution provides for the imposition of President's Rule in a state in case of a breakdown of the constitutional machinery.

Key Provisions

- Article 356 empowers the President to assume control of a state's executive and legislative functions if he/she is convinced that the state government is unable to function in accordance with the provisions of the Constitution.
- The President can act either on the recommendation of the Governor or on his/her own initiative.
- **During President's Rule:**
 - The state executive authority is exercised by the Governor on behalf of the President.
 - The state legislature is either dissolved or suspended, and Parliament assumes the authority to legislate on the state's behalf.
 - The powers of the High Court remain unaffected.
- *The initial period of President's Rule is six months, extendable up to a maximum of three years with parliamentary approval every six months.*
- **Beyond one year, it can be extended only if:**
 - A national emergency is in operation, or
 - The Election Commission certifies that elections to the state assembly cannot be conducted.

Historical Background

- Article 356 draws inspiration from **Section 93 of the Government of India Act, 1935**, which allowed British authorities to assume control of provincial governance if needed.
- Under British rule, this provision was intended to maintain ultimate control over the provinces while providing limited autonomy.

Instances of President's Rule in India

- Since 1950, **President's Rule has been imposed around 134 times** across different states and Union Territories.

- The most frequent instances have been in **Manipur and Uttar Pradesh (10 times each)**.
- Punjab and Jammu & Kashmir have seen prolonged periods under President's Rule, exceeding **10 and 12 years**, respectively.
- Puducherry was placed under President's Rule in 2021 after the Congress government failed a confidence vote.

Judicial Scrutiny: S.R. Bommai Case (1994)

A landmark Supreme Court ruling in the **S.R. Bommai v. Union of India (1994)** case established important guidelines for the use of Article 356:

- **Judicial Review:** The proclamation of President's Rule can be challenged in court on grounds of malafide intentions, misuse, or arbitrariness.
- **Parliamentary Approval:** The President's proclamation must be ratified by both Houses of Parliament within two months.
- **Governor's Role:** The Governor's recommendation is not immune from judicial scrutiny.
- **Restoration of State Government:** If the proclamation is not approved, the dismissed government is automatically reinstated.

Sarkaria Commission Report (1983) on Article 356**Observations:**

- The language of Article 356 is vague and should not be misused for minor breaches of constitutional norms.
- The provision should be invoked only in cases of **genuine constitutional breakdown**, not for political reasons.
- Misuse of Article 356 could weaken India's democratic structure.

Recommendations

1. **Last-Resort Measure:** President's Rule should be used only when all alternative measures fail.
2. **Prior Warning:** The Centre should give a state government clear warnings before invoking Article 356.
3. **Consideration of State's Response:** The explanations provided by the state government should be evaluated carefully before imposing President's Rule.
4. **Political Stability:** In cases of political crises, efforts should be made to form a stable government before dissolving the legislature.

Machhi Singh v. State of Punjab (1983) – Guidelines for “Rarest of Rare” Cases

The Court elaborated on the **Bachan Singh** case and provided **five criteria** for determining “rarest of rare” cases:

1. **Manner of commission** – If the crime is extremely brutal, gruesome, or shocking.
2. **Motive** – If the crime was committed for **selfish or political motives**.
3. **Anti-social or socially abhorrent nature** – If the victim was a **child, woman, or person from a vulnerable section of society**.
4. **Magnitude of the crime** – If multiple people were killed or harmed.
5. **Personality of the offender** – Whether the convict is a **threat to society**.

Capital Punishment (Death Penalty)

- It is the **execution of a convict** as punishment for a serious crime.
 - The **sentence ordering capital punishment** is called a **death sentence**, and its **enforcement is called execution**.

Methods of Execution Used Globally

- Beheading
- Hanging
- Lethal injection
- Shooting

Global Scenario

- In 2023, the **highest number of executions** occurred in **China, Iran, Saudi Arabia, Somalia, and the USA**.
- By the **end of 2023**, **112 countries** had **abolished the death penalty** in law.

Arguments Against the Death Penalty

1. **Cruel and Inhumane** – It is the most **extreme, irreversible, and degrading** form of punishment.
2. **Risk of Executing Innocents** – **Judicial errors** can never be entirely eliminated, and wrongful executions are **irrevocable**.
3. **No Proven Deterrent Effect** – There is **no conclusive evidence** that the death penalty is more effective at **preventing crime** than life imprisonment.
4. **Unfair Legal Systems** – In some countries, **mandatory death sentences** prevent judges from considering **mitigating circumstances**.
5. **Discriminatory Use** – Marginalized groups, such as the **poor, racial minorities, and disadvantaged communities**, are disproportionately affected.
6. **Political Manipulation** – Some governments use the **death penalty to silence political opponents** or suppress dissent.

Arguments in Favor of the Death Penalty

1. **Retribution** – It serves as **just punishment** for the most **heinous crimes**.
2. **Deterrence** – The **threat of execution** may discourage criminals from committing **serious offences**.
3. **Prevention of Recidivism** – Execution **eliminates any risk** of repeat offences by dangerous criminals.
4. **Closure for Victims’ Families** – The **finality** of the death penalty can provide **justice and emotional closure**.
5. **Moral Balance** – Society must uphold **ethical standards**, ensuring that the **worst crimes receive the most severe punishment**.

Way Forward

Judicial Reform and Public Engagement

- **Review sentencing policies** to balance **legal standards and public expectations**.
- Ensure **comprehensive judicial reviews** involving **experts on deterrence and rehabilitation**.
- Promote **transparent discussions** among **policymakers, legal experts, and community leaders**.

Balanced Approach to Capital Punishment

- Carefully evaluate the **moral, ethical, and practical implications** of the death penalty versus life imprisonment.
- Address **concerns of fairness, wrongful convictions, and impact on society**.
- Foster **continuous discussions** to develop a system that **ensures justice while safeguarding human rights**.

Conclusion

With an average of **86 reported rapes per day in India**, society must move beyond the **immediate demand for capital punishment** and focus on **long-term solutions**. A **comprehensive approach** involving **cultural change, social awareness, and education** is essential to address **violence against women** and ensure **lasting justice**.

EXPECTED QUESTION FOR UPSC CSE

Descriptive Question

- Q. Examine how the death penalty serves as a necessary tool for retribution and deterrence with concerns over its irrevocable nature, potential for error, and inherent biases within justice systems. [10 marks] [150 words]

ARTICLE 22 AND GROUNDS OF ARREST

Why in News: The Supreme Court has ruled that investigating agencies must inform an arrested individual about the grounds of their arrest while taking them into custody. Failure to comply with this constitutional requirement would render the arrest illegal.

Key Details: Vihaan Kumar vs. State of Haryana

- The Supreme Court, in this case, reaffirmed that **Article 22(1) of the Indian Constitution** mandates that an arrested person must be informed of the reasons for their arrest.
- The Court held that informing the accused about the grounds of arrest is **not a mere formality but a mandatory constitutional requirement**. If this requirement is not met, the arrest becomes illegal.
- Declaring the arrest of a man by Haryana police illegal due to non-compliance, the Court emphasized that **Article 22 is a fundamental right** enshrined in **Part III of the Constitution**.
- Additionally, the Court ruled that the arrested person's **friends, relatives, or nominated contacts** must also be informed about the grounds of arrest, as per **Section 50A of the Code of Criminal Procedure (CrPC)**.
- The ruling also highlighted that when an arrested person is presented before a **Judicial Magistrate for remand**, the **Magistrate must ascertain whether Article 22(1) has been complied with**.
- If a violation of Article 22(1) is established, courts must order the **immediate release of the accused**. Such violations also provide a **valid ground for granting bail**, even in cases where statutory restrictions exist.

Key Judicial Precedents on Grounds of Arrest

Several landmark judgments have shaped the interpretation and enforcement of Article 22:

1. Maneka Gandhi v. Union of India (1978)

- Though primarily known for expanding **Article 21 (Right to Life and Personal Liberty)**, this case also impacted the interpretation of **procedural fairness** under Article 22.
- The Supreme Court held that **any law affecting personal liberty must pass the test of reasonableness**, ensuring that arrest and detention procedures align with **natural justice**.

2. A.K. Kraipak v. Union of India (1969)

- The case dealt with the **legality of preventive detention orders**.
- It emphasized that detention must meet **the test of reasonableness** and cannot violate **fundamental rights** under the Constitution.

3. D.K. Basu v. State of West Bengal (1997)

- This case established crucial **guidelines to prevent custodial torture**.
- The Supreme Court ruled that the arrested person must be **informed of the grounds of arrest** and that their **family or a friend must also be notified**.

4. Joginder Kumar v. State of Uttar Pradesh (1994)

- The Court reinforced that any **arrest without a warrant** requires that the arrested individual must be **informed promptly about the grounds of arrest**.

- The case also emphasized the importance of **judicial oversight** to prevent **arbitrary detentions**.

Understanding Article 22 of the Indian Constitution

Article 22 provides **constitutional safeguards** to protect individuals against arbitrary arrest and detention. It applies in cases of both **ordinary detention** (for violating regular laws) and **preventive detention** (where a person is detained without trial to prevent them from committing a crime in the future).

1. Protection Against Arbitrary Arrest

- No person can be **arrested or detained** without being **informed of the reasons for their detention**.
- This safeguard ensures **transparency and fairness** in the legal process.

2. Right to be Presented Before a Magistrate

- An arrested person must be **produced before the nearest magistrate within 24 hours** of their arrest.
- This provision prevents **wrongful and prolonged detention without judicial oversight**.

3. Right to Legal Representation

- An arrested person has the **right to consult and be defended by a legal practitioner of their choice**.
- This guarantees that individuals can exercise their **right to fair representation** before a court.

4. Right to be Informed of Grounds of Arrest

- The arrested person must be **explicitly told why they are being detained**.
- This information must also be **communicated to a relative or friend**, as per **Section 50A of the CrPC**.

5. Provisions on Preventive Detention

- Unlike regular arrests, **preventive detention allows authorities to detain individuals without immediate trial** if they believe the person poses a threat to public order or national security.
- **Safeguards for preventive detention include:**
 - **Detainee must be informed of the reasons for their detention.**
 - **An advisory board must review the detention** within three months.
 - If the board disapproves of the detention, the individual must be **immediately released**.

6. Exceptions Under Emergency Provisions

- During a **national emergency**, certain restrictions may be placed on Article 22 rights.
- The government may modify detention rules **for reasons of national security or public safety**.

The Supreme Court's recent ruling reinforces the **constitutional protection** against illegal arrests. Article 22 plays a crucial role in safeguarding personal liberty by ensuring that individuals are **aware of the reasons for their detention** and have access to **legal recourse**. While preventive detention remains a controversial power, it is subject to **strict judicial scrutiny** to prevent misuse.

The judicial interpretation of Article 22, backed by landmark judgments, has strengthened the **rule of law** in India. Ensuring proper compliance with Article 22 is vital in maintaining **citizens' rights**, preventing **custodial abuse**, and upholding **democratic principles**.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Which of the following rights are guaranteed to an arrested person under Article 22 of the Indian Constitution?

1. Right to be informed of the grounds of arrest.
2. Right to consult and be defended by a legal practitioner.
3. Right to be produced before the nearest magistrate within 24 hours of arrest.
4. Right to free legal aid.

Select the correct answer from the code below:

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

Answer: (c)

AD-HOC JUDGES

Why in News: Recently, the Supreme Court (SC) of India suggested that retired judges should be temporarily appointed as **ad hoc judges** in High Courts to reduce the large number of pending criminal cases.

About Ad Hoc Judges in HC

- **Constitutional Provision and Appointment**
 - **Article 224A of the Indian Constitution** allows the Chief Justice of a High Court to request retired HC judges to perform the duties of a judge again, with the permission of the President of India.
 - Such appointees are entitled to **allowances as determined by the President's order** and have all the jurisdiction, powers and privileges of a Judge of that High Court. However, they are not considered regular judges of the High Court.

How are Ad Hoc Judges Appointed?

The **detailed process** for appointing ad hoc judges is given in a government document called the **1998 Memorandum of Procedure (MOP)**. The process is as follows:

1. A retired judge agrees to take up the position.
2. The Chief Justice of the concerned High Court (CJHC) recommends the judge's name and duration of appointment to the State's Chief Minister (CM).
3. The CM forwards this recommendation to the Union Law Minister.
4. The Law Minister consults with the Chief Justice of India (CJI).
5. The CJI's advice is sent to the Prime Minister (PM).
6. The PM advises the President of India.
7. The President gives final approval for the appointment.

When Can an Ad Hoc Judge Be Appointed?

The Supreme Court has set **specific conditions** under which ad hoc judges can be appointed. These were laid out in a **2021 case called Lok Prahari v. Union of India**.

Conditions Set by the Supreme Court

1. **Ad hoc appointments should happen only if at least 20% of High Court judge posts remain unfilled.**
 - Example: If a High Court has 100 judge positions but **less than 80 judges are working**, ad hoc judges can be appointed.
2. **There must be a backlog of old pending cases.**
 - If **more than 10% of pending cases** are **over 5 years old**, ad hoc judges can be appointed.
3. **Ad hoc appointments should not replace regular appointments.**
 - The **process of hiring permanent judges must be ongoing**.
 - Ad hoc appointments should only **help with urgent backlog issues**, not replace permanent hiring.
4. **Each High Court Chief Justice must maintain a "panel" of retired judges.**
 - This list should include **judges who are about to retire and those already retired**.
 - This makes it easier to appoint them quickly when needed.
5. **Ad hoc judges should be appointed for 2–3 years.**
 - A High Court can appoint **2 to 5 ad hoc judges** at a time.
6. **Periodic Review**
 - The **appointment process should be reviewed from time to time** to check if it is working effectively.

Judgments on Essential Religious Practices

- 1954 - *The Commissioner, Hindu Religious Endowments, Madras v. Shri Lakshmindar Tirtha Swamiyar of Shri Shirur Mutt*
 - The Court held that determining **essential parts of a religion** should be based on the **doctrines and tenets of that religion** itself.
- 1997 - *Sri Adi Visheshwara of Kashi Vishwanath Temple, Varanasi & Ors. v. State of UP & Ors.*
 - The Court distinguished between **religious and secular functions** of a temple.
 - It ruled that **secular aspects** of religious institutions could be **regulated by law**, as they were not intrinsic to religious practice.
- 2004 - *Commissioner of Police v. Acharya Jagadisharananda Avadhuta*
 - The Court applied the **Essential Religious Practices (ERP) test** to determine if the **Tandava Dance** was a fundamental practice of the **Ananda Marga faith**.
 - It ruled that if removing a practice **fundamentally alters the religion**, it is essential. Otherwise, it is not.
- 2017 - *Shayara Bano v. Union of India*
 - The Supreme Court **rejected Triple Talaq** as an **essential Islamic practice** and denied it constitutional protection under **Article 25**.
 - The Court ruled that **Triple Talaq contradicted the Quran** and was therefore not a fundamental religious practice.

Essential Religious Practices (ERP) Doctrine

- The **Supreme Court of India** developed the **Essential Religious Practices (ERP) test** to define the relationship between **religion and the Constitution**.
- Doctrine Overview:**
 - If a religious practice is **crucial to a specific religion**, the **government cannot interfere** with it.
 - This principle evolved into the **“essential test of religious practice.”**

Approaches to the ERP Doctrine:

- Religion-Based Approach:**
 - The **religion itself** determines what is **essential**, based on **sacred texts, doctrines, and traditions**.
- Judicial Interpretation Approach:**
 - The **courts act as cultural arbiters**, distinguishing between **essential religious practices** and **secular activities** within religion.
 - Non-essential, **secular aspects** can be regulated by the state.

Significance: The doctrine helps maintain a **balance between religious freedom (Article 25) and constitutional governance**, preventing misuse of religion in secular matters.

Expected Question for UPSC CSE

Descriptive Question

- Q. What do you understand about the doctrine of “Essential Religious Practice”? Explain in context to various Supreme Court judgements on the doctrine. [15 marks] [250 words]

INDIA'S GOT LATENT CONTROVERSY

Why in News: Recently, YouTube influencers came under police investigation for making obscene remarks on a show, sparking debates on **freedom of expression, morality, and legal limits on obscenity**.

Key Details

- Obscenity** is a complex issue that intersects with **morality, freedom of speech, societal values, and legal frameworks**.
- Definitions of **obscenity** vary across **cultures and legal systems**, leading to debates on **censorship, artistic freedom, and public decency**.

Legal Provisions on Obscenity in India

Section 296 of Bharatiya Nyaya Sanhita (BNS)

- Criminalizes **obscene acts** and the **uttering of obscene words or songs in public places**.
- The act must **cause annoyance to others**, covering **both visual and verbal obscenity**.
- Punishment:**
 - Fine up to ₹1,000,
 - Imprisonment up to 3 months, or
 - Both.
- Aim:** To **maintain public decorum** and **prevent disturbances in public spaces**.

Section 67 of the Information Technology (IT) Act, 2000

- Deals with **publishing or transmitting obscene material in electronic form**.
- Punishment:**
 - First conviction:** Up to 3 years of imprisonment and a fine of ₹5 lakh.
 - Subsequent conviction:** Up to 5 years of imprisonment and a fine of ₹10 lakh.

Judiciary's Stand on Obscenity

Ranjit D. Udeshi v. State of Maharashtra (1965)

- Sex and nudity alone do not constitute obscenity** in literature and art.
- The **work should be assessed as a whole**, considering both **obscene and non-obscene elements**.

- A **public benefit argument** can be used as a **defense against obscenity charges**.

Samaresh Bose v. Amal Mitra (1985)

- The **definition of obscenity** depends on **readers' perceptions and changing moral standards**.
- **Obscenity is different from vulgarity** and should be judged accordingly.

Aveek Sarkar v. State of West Bengal (2014)

- Courts should consider **current community norms** while evaluating obscenity.
- The **sensitivity and tolerance levels of an ordinary, reasonable person** should be the benchmark.

XXX v. State of Kerala (2023)

- The Kerala High Court ruled that **sex and nudity should not always be linked**.
- A **woman's nude upper body should not automatically be considered obscene or sexually explicit**.

Ethical Issues Surrounding Obscenity

Freedom of Expression vs. Public Morality

- **Balancing individual rights with societal norms** is a key ethical challenge.
- While **freedom of speech is a fundamental right**, it must be **restricted in cases involving sexually explicit or offensive content**.

Impact on Society and Vulnerable Groups

- **Concerns over the normalization of violence, misogyny, and exploitation** in obscene content.
- Such content may **influence young minds and affect social behavior**.

Gender and Exploitation Issues

- Obscenity often involves the **objectification of women and minorities**.
- **Unregulated content** can reinforce **stereotypes and gender biases**.

Legal and Ethical Censorship

- **Who decides what is obscene?** This creates conflicts over **copyright versus artistic freedom**.
- **Potential misuse of obscenity laws** to suppress dissent or creative expression.

Psychological and Ethical Consequences

- **Unregulated exposure** to obscene content may **desensitize individuals** to vulgarity, violence, and exploitation.

Way Forward

Clear and Contextual Definition of Obscenity

- **Obscenity laws should be clearly defined** to **differentiate between artistic freedom, free speech, and harmful content**.

Ethical Content Regulation Without Over-Censorship

- Establish **independent regulatory bodies** and encourage **self-regulation** to ensure fair content assessment.

Digital Literacy and Awareness

- **Educate people, especially youth**, about **responsible content consumption** and its **psychological impact**.
- **Introduce digital literacy programs** in school curriculums.

Ethical Industry Practices

- Content creators and platforms must **uphold ethical responsibility** in content production and dissemination.

Conclusion

The **'India's Got Latent'** controversy highlights the **ongoing debate between freedom of speech and public morality**. While **obscenity laws aim to maintain societal order**, they **must not be misused** to suppress creativity or individual expression. A **balanced approach that respects artistic freedom while protecting public sensibilities** is crucial in shaping a **fair and ethical media environment**.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

- Q. Recently Section 67 of the Information Technology Act, 2000 was in the news. It is related to:
- Internet shutdown during communal riots
 - Punishment for publishing or transmitting obscene material in electronic form
 - Establishment of a regulatory body for fair assessment of content.
 - None of the above

(b) Answer

Descriptive Question

- Q. Discuss the legal framework governing obscenity in India with reference to key judicial pronouncements. [10 marks] [150 words]

MARITAL RAPE

Why in News: The Chhattisgarh High Court has ruled that a husband **cannot be charged with rape or unnatural sex** under Indian law.

Key Details of the Ruling

- A **single-judge bench** of the High Court held that, as per Indian law, the concept of "consent" in marital intercourse **has no legal standing**, even when it involves acts considered unnatural.

- The ruling came in response to a case filed on **December 11, 2017**, where a woman alleged that her husband had subjected her to **unnatural sex against her will**.

Split Verdict (Delhi High Court)

In May 2022, the Delhi High Court delivered a split verdict on the criminalization of marital rape, reflecting the ongoing debate surrounding this issue in India.

Background

Under Indian law, as per Exception 2 to Section 375 of the Indian Penal Code (IPC), sexual intercourse by a man with his own wife, provided she is not under 18 years of age, is not considered rape. This legal provision has been challenged on the grounds that it violates women’s fundamental rights to equality, freedom, and protection from sexual violence.

The Delhi High Court’s Split Verdict

The Delhi High Court’s division bench delivered a split verdict on the issue:

- **Justice Rajiv Shakdher:** Held that the marital rape exception violates Article 14 (right to equality) and Article 21 (right to life and personal liberty) of the Indian Constitution. He opined that a husband’s forcible sexual intercourse with his wife

should be considered rape, emphasizing that marriage does not imply irrevocable consent to sexual acts.

- **Justice C. Hari Shankar:** Upheld the constitutionality of the marital rape exception, reasoning that any change to this provision should be addressed by the legislature rather than the judiciary.

Current Status

Due to the conflicting opinions, the matter has been escalated to the Supreme Court of India for a definitive ruling. As of now, marital rape remains non-criminalized under Indian law, except in cases where the wife is under 18 years of age.

Understanding Marital Rape

What is Marital Rape?

- Marital rape, also known as **spousal rape**, refers to a situation where one spouse (typically the husband) engages in **sexual intercourse without the other spouse’s consent**.
- **Key aspect:** The lack of consent is the most crucial element, and it does not necessarily involve **physical violence**. Marital rape is widely recognized as a form of **domestic violence and sexual abuse** in many countries.

ARGUMENTS AGAINST CRIMINALISING MARITAL RAPE	ARGUMENTS FOR CRIMINALISING MARITAL RAPE
<p>Excessive Interference in Marital Relationships</p> <ul style="list-style-type: none"> • The 172nd Law Commission Report recommended against criminalizing marital rape, arguing that such a law could lead to excessive state interference in private marital affairs. • It suggested that issues within a marriage should be addressed through civil remedies rather than criminal prosecution. <p>Potential for Misuse of the Law</p> <ul style="list-style-type: none"> • Critics argue that criminalizing marital rape could be misused by individuals seeking to settle personal scores in cases of marital discord. • There is a concern that such a law may be weaponized in divorce or maintenance disputes, leading to wrongful accusations. <p>Challenges in Proving the Crime</p> <ul style="list-style-type: none"> • One of the biggest legal challenges is the burden of proof—how can consent or lack of consent in an intimate relationship be established beyond reasonable doubt? • Unlike cases of sexual assault by strangers, marital relationships involve complexities, making it difficult to determine when and how consent was withdrawn. 	<p>Patriarchal Nature of Existing Laws</p> <ul style="list-style-type: none"> • The current legal framework is rooted in the patriarchal notion that marriage gives a husband ownership over his wife’s body, depriving her of bodily autonomy and the right to refuse intercourse. • Criminalizing marital rape is essential to recognize women as independent individuals with equal rights in a marriage. <p>Unequal Treatment of Married and Unmarried Women</p> <ul style="list-style-type: none"> • Under the law, rape is a crime when committed against an unmarried woman, but the same act within marriage is not recognized as an offense. • This differentiation violates the principle of equality under Article 14 of the Indian Constitution, as married women should have the same right to sexual autonomy as unmarried women. <p>Marital Rape Has Severe Psychological and Physical Consequences</p> <ul style="list-style-type: none"> • Survivors of marital rape experience prolonged trauma because they have to continue living with their abuser, unlike victims of stranger rape who can at least avoid their perpetrators. • Studies indicate that marital rape often leads to severe mental health issues, including depression, PTSD, and suicidal tendencies.

Impact on the Institution of Marriage

- Some argue that criminalizing marital rape could **destabilize the institution of marriage**, as it may create an atmosphere of **mistrust** between spouses.
- There is a fear that **false allegations** could lead to unnecessary criminal cases, potentially causing an **increase in divorces and legal disputes**.

Criminalizing Marital Rape Will Not Destroy the Institution of Marriage

- India already has a **Domestic Violence Act, 2005**, which allows women to file complaints against **physical and sexual abuse** in marriage.
- If laws protecting women from **domestic violence** do not threaten marriage, then **recognizing marital rape as a crime** will not either.

Concerns About 'Implied Consent' in Marriage Are Misplaced

- The argument that marriage implies **permanent consent to sexual intercourse** is outdated and **violates fundamental rights**.
- Consent is **ongoing and must be given for each act**—it cannot be **assumed automatically** just because two people are married.

Key Judicial Rulings on Marital Rape and Consent

Bombay High Court's 2023 Verdict on Minor Wives

- In **November 2023**, the **Nagpur Bench of the Bombay High Court** ruled that **consensual sex with a minor wife amounts to rape**.
- The Court rejected the argument that a minor wife's **consent** is legally valid.
- It upheld a **10-year imprisonment sentence** for a man convicted after his **minor wife accused him of rape**.

Madhya Pradesh High Court on Marital Rape

- In a **2022 ruling**, the **Madhya Pradesh High Court** held that **unnatural sex with a wife does not amount to rape**.
- The Court stated that a wife's **consent is irrelevant** in such matters.
- This ruling aligns with the broader interpretation that **marital rape is not legally recognized** under Indian law.

The key issue is not whether marital rape should be criminalized, but rather how and when it should be done, and in what form. The need of the hour is to conduct widespread public consultations, gather empirical data, and establish a structured legal framework to address the issue. Simply ignoring the problem is not a solution—marital rape is a reality that must be acknowledged and addressed through appropriate legal reforms.

EXPECTED QUESTION FOR UPSC CSE

Descriptive Question

Q. What do you understand by the term 'Marital Rape'? Discuss the arguments for and against the criminalization of marital rape in India. [15 marks] [250 words]

FREEBIES AND WELFARE

Why in News: The Supreme Court has raised concerns over the increasing trend of announcing freebies by governments and political parties, particularly before elections. **The court questioned whether such practices are creating a dependency culture, disincentivizing work, and leading to a shortage of labor in certain states like Maharashtra.**

Understanding Freebies

- **Definition:** Freebies refer to welfare goods or benefits provided **free of cost** by the government to support specific sections of the population, particularly the vulnerable and economically weaker groups.
- **Evolution in India:** Over time, freebies have become an integral part of India's **social welfare system**, with governments using them to provide relief and encourage socio-economic development.
- **Scope:** They range from **essential services** like food, healthcare, and education to **non-merit** items such as gadgets, cash incentives, or household appliances, which are sometimes used to gain electoral advantage.
- **Recent Trends:**
 - **Cash transfer schemes** have gained popularity, with political parties and state governments increasingly using them to secure voter support.
 - **Immediate relief measures** through freebies have been positioned as ways to address pressing economic and social challenges.

Types and Examples of Freebies in India

1. Food and Cash Benefits:

- Distribution of food grains and cash incentives during elections to attract voters.

2. Subsidized Food Schemes:

- **Odisha's Rs 1/kg Rice Scheme** (Naveen Patnaik) aimed at food security for the poor.

3. Health-Related Freebies:

- **Biju Swasthya Kalyan Yojana (Odisha):** Free health cards and subsidized healthcare services.

4. Educational and Mobility Support:

- **Bihar's Free Bicycle Scheme for Girls** to boost school attendance and reduce dropout rates.

5. Marriage and Gender-Specific Benefits:

- **Tamil Nadu's Eight-Gram Gold Scheme** (Jayalalithaa) for brides to support marriage expenses.
- **West Bengal's Cash Incentives for Girls** (Mamata Banerjee) combined with health insurance.

6. Subsidized Essential Services:

- **Free electricity and water schemes** (Delhi government) to reduce household financial burdens.
- **Uttar Pradesh's subsidized food grains** for low-income groups.

Positive Impacts of Freebies on Welfare

- **Crisis Response and Safety Net:**
 - Freebies play a **crucial role** in providing relief during **emergencies** (e.g., food security during COVID-19 lockdowns).
- **Human Capital Development:**
 - **Mid-day Meal Schemes** enhance **school attendance and child nutrition**, leading to better long-term socio-economic outcomes.
- **Empowerment of Marginalized Groups:**
 - **Targeted schemes** such as free bicycles for girls and **gender-specific cash incentives** help promote **education, gender equality, and financial independence**.
- **Social Inclusion and Equity:**
 - Ensures economically weaker sections **receive basic needs**, fostering a sense of inclusion and participation in society.
- **Indirect Economic Benefits:**
 - Provision of **household appliances** (such as grinders and fans) can help free up time for education, work, or skill development.

Concerns and Issues with Freebies

Fiscal Strain on Public Finances

- Excessive freebies put a **huge financial burden** on the government, diverting resources away from **long-term developmental projects**.
- Can lead to **unsustainable fiscal policies** and increase **public debt**.

Political Patronage and Electoral Manipulation

- Freebies are often used to **gain electoral advantage**, compromising **neutrality and merit-based policymaking**.
- **Short-term benefits** often take precedence over **sustainable economic growth initiatives**.

Implementation Challenges

- Freebie schemes are often **prone to corruption, inefficiencies, and mis-targeting**, leaving out those who genuinely need assistance.
- **Off-budget borrowing and poor administration** further weaken governance structures.

Ambiguity in Definition and Categorization

- Difficulty in **differentiating between essential welfare schemes** (such as healthcare and food security) and **politically motivated freebies** (such as free gadgets) complicates policy planning.

Way Forward

Strengthen Oversight and Fiscal Discipline

- Empower **financial regulatory institutions** to monitor and regulate excessive welfare spending.
- Encourage **transparent and accountable governance** in managing subsidies and public welfare funds.

Streamline and Target Welfare Schemes

- Introduce **precise targeting mechanisms** to ensure that welfare benefits **reach the genuinely needy**.
- Implement **real-time monitoring systems** to prevent misuse and ensure accountability.

Redefine and Categorize Benefits

- Develop **clear criteria** to differentiate between **essential welfare provisions** (merit goods) and **populist freebies** to optimize **resource allocation**.

Legislative and Policy Reforms

- Encourage **parliamentary debates** to ensure that welfare programs are based on **sustainable economic principles**.
- Foster **political consensus** to prevent the overuse of freebies for short-term electoral gains.

Enhance Public Awareness and Civic Engagement

- Educate citizens about the **long-term economic impact** of indiscriminate freebies.
- Promote awareness of **the benefits of targeted and sustainable social protection programs**.

Freebies have played an essential role in addressing poverty, inequality, and immediate socio-economic challenges. However, the indiscriminate distribution of freebies without proper financial planning can hamper fiscal sustainability, encourage dependency, and distort economic priorities. A balanced approach is required—where essential welfare measures are strengthened while ensuring that government resources are allocated efficiently for long-term national development.

EXPECTED QUESTION FOR UPSC CSE

Descriptive Question

Q. Critically evaluate the role of freebies in India's social welfare and electoral landscape. Discuss the policy reforms to balance the need for immediate welfare support with sustainable long-term development. [15 marks] [250 words]

APPOINTMENT OF CHIEF ELECTION COMMISSIONER AND ELECTION COMMISSIONERS

Why in News: The appointment of the new Chief Election Commissioner (CEC) has been made based on the provisions of the Chief Election Commissioner and Other Election Commissioners (Appointment, Conditions of Service and Term of Office) Act, 2023. **This marks the first instance of such an appointment under the new law.**

Key Developments

- Previously, the CEC and Election Commissioners (ECs) were appointed by the President based on recommendations from the government.
- In March 2023, the Supreme Court ruled in *Anoop Baranwal v. Union of India* that a committee consisting of the Prime Minister, the Leader of the Opposition in the Lok Sabha, and the Chief Justice of India (CJI) would oversee these appointments.
- However, the newly enacted law replaced the CJI with a Union Cabinet Minister in the Selection Committee, raising concerns about the independence of the Election Commission.
- The constitutional validity of the 2023 Act is currently under challenge in the Supreme Court.

Election Commission of India (ECI)

- The Election Commission of India (ECI) is a constitutional body responsible for ensuring free and fair elections in India.
- It oversees elections for Parliament, state legislatures, and the offices of the President and Vice President.
- Local body elections (municipalities and panchayats) are conducted by State Election Commissions.

Constitutional Provisions Governing the ECI

- **Article 324:** Grants the ECI authority over elections to Parliament, state legislatures, and the offices of the President and Vice President.
- **Article 325:** Prohibits exclusion from electoral rolls based on religion, race, caste, or sex.
- **Article 326:** Establishes universal adult suffrage as the basis for elections.

- **Article 327 & 328:** Empower Parliament and State Legislatures to regulate elections through legislation.
- **Article 329:** Bars courts from interfering in electoral matters.

CEC and Other Election Commissioners Act, 2023: Key Features

- **Composition of the Election Commission:** The Commission will consist of a CEC and an unspecified number of ECs, as determined by the President.
- **Selection Process:**
 - The President appoints the CEC and ECs based on the recommendations of a Selection Committee.
 - The **Selection Committee** comprises the Prime Minister, a Union Cabinet Minister, and the Leader of the Opposition (or leader of the largest opposition party in the Lok Sabha).
 - A **Search Committee**, headed by the Cabinet Secretary, shortlists five candidates for the Selection Committee's consideration.
- **Eligibility Criteria:** Candidates must be persons of integrity, have expertise in election management, and have held a post equivalent to Secretary to the Government of India.
- **Term and Reappointment:**
 - The CEC and ECs serve for six years or until the age of 65, whichever is earlier.
 - Reappointment is not permitted.
 - An EC who is appointed as CEC cannot exceed a total tenure of six years.
- **Salary & Benefits:**
 - The salary, allowances, and conditions of service are equivalent to those of the Cabinet Secretary.
 - They can opt for pension and retirement benefits from their previous service.
- **Removal Process:**
 - The CEC can be removed in the same manner as a Supreme Court Judge.
 - ECs can only be removed based on the recommendation of the CEC.

Concerns and Issues with the 2023 Act

Threats to the Independence of the Election Commission

- The exclusion of the CJI from the Selection Committee has raised concerns about political influence over appointments.
- The inclusion of a Union Cabinet Minister, appointed by the government, may tilt decision-making in favor of the ruling party.

Dominance of the Government in the Selection Committee

- If a vacancy arises in the opposition slot, the government appointees can dominate the selection process, undermining bipartisan decision-making.

Potential Government Influence Through Salary Structure

- Linking the CEC and ECs’ salaries to the Cabinet Secretary instead of a Supreme Court Judge may make them more susceptible to government influence.

Limitations of Eligibility Criteria

- Restricting eligibility to senior bureaucrats excludes other competent individuals such as legal experts or those with significant experience in election law.

Past Recommendations for the Selection Process

Goswami Committee (1990)

- Recommended that the CEC be appointed by the President in consultation with the Chief Justice of India and the Leader of the Opposition.
- For ECs, it suggested the inclusion of the CEC in the consultative process.

National Commission to Review the Working of the Constitution (2002)

- Suggested a Selection Committee comprising the Prime Minister, Leader of the Opposition in both Houses, Speaker of Lok Sabha, and Deputy Chairman of Rajya Sabha.

Law Commission (2015)

- Recommended a committee consisting of the Prime Minister, Leader of Opposition, and the Chief Justice of India.

Supreme Court (2023)

- Advocated for a Selection Committee comprising the Prime Minister, Leader of the Opposition in the Lok Sabha, and the Chief Justice of India.

The appointment process of the CEC and ECs has undergone significant changes over time, with various committees and judicial rulings emphasizing the need for greater independence. The 2023 Act introduces a structured selection mechanism, but concerns remain regarding government influence, particularly with the exclusion of the Chief Justice of India from the selection process. Given the Election Commission’s crucial role in safeguarding democracy, further reforms may be required to ensure its autonomy and impartiality in the long run.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following:

1. Prime Minister
2. Leader of Opposition in Lok Saba
3. Lok Sabha Speaker
4. Chief Justice of India

How many of the above are members of the Selection Committee for the selection of Chief Election Commissioner?

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

(Answer) (b) (1 and 2 only)

Descriptive Question

Q. In light of the Supreme Court’s judgement in Anoop Baranwal v Union of India (2023), critically analyse the Chief Election Commissioner and Other Election Commissioners Act, 2023 in appointing the Chief Election Commissioner and Election Commissioners. [10 marks] [150 words]

WHIP SYSTEM IN INDIA

Why in News: Recently, the Vice President of India questioned the necessity of the whip system in the legislature, arguing that it restricts the independence of elected representatives and forces them into servility to their political parties.

Understanding the Whip System

A **whip** is a directive issued by a political party to its members in the legislature, instructing them on how to vote on a particular issue. The primary objective of the whip system is to ensure party discipline and alignment with the party leadership’s stance.

Whip System in Parliamentary Democracies

- In many countries, political parties issue whips to legislators as a means of ensuring voting cohesion within the party.
- While whips are common in parliamentary systems, adherence to them is not always mandatory.
- In India, the whip system plays a crucial role in maintaining party discipline.

Types of Whips in India

Depending on the level of strictness, whips issued by political parties fall into three categories:

1. **One-line Whip:** This is the least stringent form of a whip. It merely informs legislators about an upcoming vote and allows them the freedom to abstain or vote as per their discretion.
2. **Two-line Whip:** This whip instructs legislators to be present during the vote but does not mandate how they must vote.
3. **Three-line Whip:** This is the strictest form of a whip. It mandates members to be present in the House and vote strictly according to the party’s stance.

Consequences of Violating a Whip

- Disregarding a **three-line whip** can lead to disciplinary action against the legislator.
- Under the **Anti-Defection Law**, any legislator who defies a three-line whip may face disqualification from the House.
- The party leader can recommend such disqualification to the **Presiding Officer of the House** (the Speaker in the Lok Sabha and the Chairman in the Rajya Sabha).

Importance of the Whip System

- The **Supreme Court of India** has emphasized that the whip system is necessary for the **stability and functioning of political parties**.
- The **Chief Whip** of a political party plays a pivotal role in enforcing the whip system, assisted by additional whips.
- In the **Lok Sabha**, the **Minister of Parliamentary Affairs** serves as the **Government's Chief Whip**.
- In the **Rajya Sabha**, the **Minister of State for Parliamentary Affairs** assumes this role.

Criticism of the Whip System

Despite its role in maintaining party cohesion, the whip system faces significant criticism due to its restrictive nature:

1. **Curtails Freedom of Expression:** The whip system forces legislators to vote along party lines, limiting their ability to express personal opinions or represent the specific interests of their constituents.
2. **Restricts Debate and Discussion:** By enforcing rigid voting patterns, the system discourages open deliberation on critical issues, thereby reducing the overall quality of legislative discussions.
3. **Undermines Democratic Accountability:** Legislators often become mere instruments of their parties, rather than representatives of the people who elected them. This diminishes their ability to act independently in the best interests of their constituents.
4. **Alters the Role of the Rajya Sabha:** The **anti-defection law** extends to the **Rajya Sabha**, which was originally envisioned as a revising chamber meant for thoughtful deliberations. This limits its effectiveness as a forum for diverse opinions and constructive debates.

Conclusion

The whip system ensures party discipline and the smooth functioning of the legislature. However, it also restricts lawmakers from freely expressing their views. While maintaining order in legislative proceedings is essential, allowing greater freedom to lawmakers could lead to more meaningful, dynamic, and democratic debates in Parliament. A balance between party discipline and individual expression could strengthen the legislative process and uphold democratic principles more effectively.

EXPECTED QUESTION FOR UPSC CSE

Descriptive Question

- Q. The whip system in India ensures party discipline but raises concerns about restricting legislators' independence. Discuss the significance of the whip system and suggest reforms to balance party cohesion with democratic deliberation. [15 marks] [250 words]

AADHAAR AUTHENTICATION FOR GOOD GOVERNANCE (SOCIAL WELFARE, INNOVATION, KNOWLEDGE) AMENDMENT RULES, 2025

Why in News: The Ministry of Electronics and Information Technology (MeitY) has recently notified the Aadhaar Authentication for Good Governance (Social Welfare, Innovation, Knowledge) Amendment Rules, 2025. This amendment aims to enhance inclusion and transparency in decision-making processes.

Key Highlights

Expanding Aadhaar Authentication for Ease of Living

- The goal of the amendment is to **expand the use and functionality of Aadhaar authentication in order to support social welfare, innovation, good governance, and the sharing of knowledge**.
- This will make it possible to use Aadhaar to **improve service delivery**, which will improve residents' quality of life and give them better access to a range of services.
- The change would make it easier for consumers to **access services offered by organisations other than the government** in the areas of e-commerce, travel, tourism, hospitality, and health, among others.
- The amendment makes it **possible for both governmental and non-governmental organisations to use the Aadhaar authentication service to offer a range of services** in the public interest for related specific purposes, such as fostering innovation, disseminating knowledge, improving residents' quality of life, and facilitating improved access to services.
- This would **facilitate trustworthy transactions for both service providers and service seekers**.

Streamlined approval process for Aadhaar Authentication requests

- **Any organisation** wishing to authenticate Aadhaar must **submit an application** in the format provided on a portal for this purpose, together with the specific requirements, to the relevant ministry or department of the federal or state government.
- **UIDAI will review the applications** and MeitY will grant approval based on UIDAI's suggestion.

- Following certification by MeitY, the relevant Central or State Government ministry or department will inform the entity for Aadhaar usage.
- It is anticipated that this revision **will improve people's access to 'streamlined and effective Aadhaar-enabled services'**.
- It would **boost collaborations between the government and other organisations** for better governance solutions and promote the creation of creative digital solutions that make use of Aadhaar authentication.

About Aadhaar

- Aadhaar is a 12-digit unique identification number issued by the UIDAI on behalf of the Government of India.
- The UIDAI, established under the Aadhaar Act of 2016, functions as a statutory body under the Ministry of Electronics & Information Technology.
- Aadhaar serves as proof of identity and address across India.
- Any resident of India, regardless of age or gender, can apply for Aadhaar after completing the UIDAI's verification process.
- Enrollment is free, and each individual needs to register only once.

- Aadhaar numbers are unique and remain valid for life.
- Aadhaar facilitates access to services like banking, mobile connections, and other government and private sector services.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements regarding Aadhaar:


1. The Ministry of Electronics and Information Technology oversees the implementation of Aadhaar.
2. As observed by the Supreme Court of India, the Aadhaar card can be used as proof of citizenship.

Which of the statements given above is/are *incorrect*?

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


Answer: (b)


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INDIA-CHINA: COOPERATION AND CHALLENGES

Why in News: China and India have resumed direct commercial flights for the first time in five years, marking a significant step towards improving bilateral relations.

Key Developments

- **High-Level Diplomacy:** Following a meeting between the Indian Prime Minister and the Chinese President in Kazan in October, India's Foreign Secretary and China's Vice Foreign Minister held a comprehensive review of bilateral relations. The outcome emphasized implementing people-centric measures to stabilize and strengthen ties.
- **Recent Diplomatic Engagements:**
 - **December 18:** India's National Security Advisor met with the Chinese Foreign Minister in Beijing.
 - **October 21:** A border patrolling agreement was reached.
 - **October 23:** Both leaders met on the sidelines of the BRICS Summit in Kazan, Russia.
- **Agreed Measures:**
 - Resumption of the **Kailash Mansarovar Yatra** in summer 2025.
 - Restoration of **direct flights** between New Delhi and Beijing.
 - Issuance of **visas for journalists and think tanks**.
 - Collaboration on **sharing trans-border river data**.
- **75th Anniversary of Diplomatic Relations:** Both countries recognize 2025 as an opportunity to improve public diplomacy, build trust, and raise mutual awareness. A series of commemorative events is planned.

Background

- Since April 2020, the **Chinese People's Liberation Army (PLA)** has amassed a large number of troops and armaments in eastern Ladakh and other areas along the 3,488 km LAC.
- The PLA moved into Indian territory and built fortified structures and defences, in an attempt to permanently alter the status quo on the ground.
- While there are differences in perception of the alignment of the LAC, both sides have, over the years, concluded a series of agreements to maintain peace at the border.

- On May 5, 2020, clashes erupted on the north bank of Pangong Tso in which over 70 Indian soldiers were injured.
- The norm was that the Indian Army would patrol the area up to Finger 8, and the Chinese ingress blocked this routine.
- On May 9, 2020 clashes were reported at Naku La in north Sikkim.
- India responded by mobilising additional troops and equipment to match the Chinese build-up.
- Since then, both sides have amassed over 50,000 troops on each side, deployed a range of long-range firepower and equipment, and have undertaken massive infrastructure build-up.

Areas of Cooperation between India and China

- **Global Trade & Economic Engagement**
 - Shared interests in boosting trade, investment, and manufacturing, despite imbalances.
 - Efforts to diversify supply chains and enhance economic ties.
- **Climate Change & Environmental Initiatives:** Mutual interest in addressing climate change and sustainable development.
- **Reform of International Financial Institutions:** Common calls for changes in global economic governance that reflect shifting power balances.
- **Diplomatic & Strategic Dialogue:** High-level meetings and informal summits (e.g. Wuhan, Mamallapuram) aimed at maintaining dialogue and managing disputes.
- **Cultural & People-to-People Exchanges:** Initiatives to build mutual understanding through cultural interactions and civil society engagement.

Areas of Challenges between India and China

- **Border Disputes & Territorial Issues**
 - Longstanding unresolved boundary disputes with episodes like Galwan and Doklam standoffs.
 - Increasing militarization and infrastructure buildup along the Line of Actual Control (LAC).
- **Strategic & Military Competition**
 - Growing disparities in military capabilities and the continuous enhancement of border defense systems.
 - Tactical maneuvers and unilateral actions that heighten tensions.

- **Divergent Worldviews & Political Systems**
 - Clashing political ideologies - India's democratic model versus China's authoritarian approach.
 - Different civilizational narratives (e.g. India's 'Vasudhaiva Kutumbakam' vs. China's 'shared destiny').
- **Economic Imbalances & Trade Dependencies:** A significant trade deficit and India's heavy reliance on Chinese supply chains.
- **Regional Influence & Geopolitical Rivalry:** Competition over influence in the Indo-Pacific and South Asia, including China's expanding footprint in India's neighborhood.
- **Trust Deficit & Unilateral Actions:** Persistent distrust fueled by unilateral shifts in the status quo and insufficient progress on confidence-building measures.

Way Forward

- **Diplomatic Engagement:** It is crucial to maintain open channels of communication to avoid any misunderstandings or escalation of tensions.
- **Reassess Defence Acquisition Plans:** India needs to re-evaluate its defence acquisition plans to ensure that they are geared towards long-term sustainability rather than just possessing capability.
- **Allocate Adequate Funds for Defence:** The Parliamentary Standing Committee on Defence has recommended that allocation for defence should be 3% of GDP to maintain India's deterrent posture. The government of India should seriously consider this recommendation and allocate sufficient funds for defence rather than relying on emergency armament purchases from abroad.
- **Emphasize Negotiations from a Position of Strength:** India should adopt a negotiating strategy that emphasizes its strength and power rather than capitulation. This would involve casting a shadow of power across the bargaining table and making it clear that India is prepared to defend its interests.
- **Border Infrastructure Development:** The Development of infrastructure along the border, such as roads and bridges, can help both countries access remote areas and reduce the possibility of any misunderstandings or conflicts.

While India-China relations remain complex, recent diplomatic initiatives and renewed people-to-people engagement signal a potential thaw. Managing border disputes, addressing economic imbalances, and fostering cultural exchanges will be key to ensuring peace and stability. With the 75th anniversary of diplomatic relations approaching, both nations have an opportunity to reset ties, balancing cooperation with cautious pragmatism.

EXPECTED QUESTION FOR UPSC CSE

Descriptive Question

- Q. The recent resumption of direct flights and other people-centric initiatives between India and China represent a genuine shift towards resolving long-standing challenges. Comment. [10 marks] [150 words]

INDIA-US SUMMIT

Why in News: The Prime Minister of India visited the United States for a significant bilateral summit, marking a new phase of cooperation across key sectors like defense, trade, technology, and energy.

Key Highlights from the Bilateral Summit

Launch of New Initiatives

- **U.S.-India COMPACT for the 21st Century:** A comprehensive framework focusing on defense collaboration, technology cooperation, and enhancing bilateral commerce with a results-oriented agenda.
- **TRUST Initiative (Transforming the Relationship Utilizing Strategic Technology):** Aims to boost collaboration in critical technologies like AI, quantum computing, and space while ensuring secure, verified technology ecosystems.
- **Autonomous Systems Industry Alliance (ASIA):** A strategic initiative to scale Indo-Pacific partnerships in autonomous systems, including maritime surveillance and counter-drone technology.

Defense & Security Cooperation

- **10-Year Defense Partnership Framework:** Focuses on enhancing military interoperability, co-production of advanced systems (e.g., Javelin missiles, Stryker vehicles), and streamlining technology sharing.
- **Reciprocal Defense Procurement (RDP) Agreement:** Progress on negotiating an RDP to facilitate smoother, faster defense trade.
- **Expanded Joint Military Exercises:** Plans to scale up the tri-service "Tiger Triumph" exercise in India, alongside deeper intelligence and logistics collaboration for Indo-Pacific missions.

Trade & Investment Growth

- **Mission 500:** A commitment to double bilateral trade to \$500 billion by 2030.
- **Bilateral Trade Agreement (BTA):** First-phase negotiations by fall 2025, targeting market access, tariff reductions, and supply chain diversification.
- **Investment Boost:** Major Indian investments in the U.S. (e.g., \$7.35 billion by Hindalco, JSW) expected to create over 3,000 jobs, coupled with increased U.S. agricultural exports to India.

Energy Security and Clean Energy Partnership

- **Civil Nuclear Cooperation:** Agreements to build U.S.-designed nuclear reactors in India, supported by proposed legal reforms in India's Atomic Energy Act.
- **Strategic Oil Reserves:** Joint collaboration to stabilize global energy markets, with U.S. supporting India's bid for International Energy Agency (IEA) membership.
- **Hydrocarbon Trade:** Expansion of U.S. crude oil, LNG, and ethane exports to meet India's growing energy needs.

Technology & Innovation Collaboration

- **AI Infrastructure Roadmap:** Joint development of data centers, computing capabilities, and AI applications for sectors like healthcare, defense, and climate tech.
- **INDUS Innovation Bridge:** Space, energy, and defense technology partnerships, including an Indian astronaut on an Axiom mission to the International Space Station and the upcoming NISAR satellite launch.
- **Critical Minerals & Pharmaceuticals:** A new Strategic Mineral Recovery initiative to secure supplies of rare earths and bolster pharmaceutical supply chains.

Multilateral Cooperation Initiatives

- **Quad Summit in India:** New commitments to boost disaster response airlift capabilities and expand maritime patrols.
- **Indian Ocean Strategic Venture:** U.S.-India collaboration on undersea cable projects (e.g., Meta's 50,000 km cable network) and securing vital sea lanes.
- **Counterterrorism Collaboration:** U.S. commitment to extradite Tahawwur Rana and pressure on Pakistan to prosecute perpetrators of 26/11 and Pathankot attacks.

People-to-People Connections

- **Education & Mobility:** Measures to simplify student and professional mobility, with U.S. universities opening campuses in India.
- **Joint Action Against Illegal Activities:** Cooperation on tackling illegal immigration, human trafficking, and organized crime.

The TRUST Initiative: A Deep Dive

- **Launched by:** Indian Prime Minister and U.S. President.
- **Objective:** To eliminate technology barriers, streamline export controls, and promote high-tech commerce.
- **Key Features:**
 - Government, academia, and private sector collaboration in critical technologies.
 - Fast-tracking AI infrastructure, including U.S.-India Roadmap on Accelerating AI Infrastructure.
 - Emphasis on sectors like semiconductors, quantum computing, biotechnology, energy, and space exploration.
 - Strengthened cooperation in critical minerals, with a focus on recycling, R&D, and processing technologies.

The India-U.S. bilateral summit marked a turning point in the strategic partnership, with ambitious commitments across defense, technology, trade, and energy. The TRUST initiative, in particular, signifies a new era of technology collaboration and innovation. As both countries prioritize Indo-Pacific security and economic resilience, this partnership is poised to redefine global geopolitics and foster sustainable, shared growth.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

- Q. Recently, the TRUST initiative was seen in the news. This initiative is signed between India and:
- (a) USA (b) U.K.
(c) Japan (d) Australia

Answer: (a)

Descriptive Question

- Q. Discuss the key takeaways and major developments of the recent India-US bilateral summit in the field of trade & investment, defence, technology and energy sector. [15 marks] [250 words]

INDIA-FRANCE RELATIONS

Why in News? The Indian Prime Minister and the French President recently held **bilateral talks** to strengthen cooperation in key areas such as **defense, space, civil nuclear collaboration, health, trade, and cultural ties**.

Key Takeaways from the India-France Summit

Strengthening the Strategic Partnership

- India and France reaffirmed their **multifaceted and time-tested strategic partnership**, with both leaders emphasizing their commitment to a **shared vision** of global stability, security, and progress.
- The talks built upon **previous bilateral roadmaps and joint statements**, ensuring a structured and forward-looking engagement in diverse fields.

Advancing Technology & Innovation Collaboration

- **Co-hosting of the Artificial Intelligence (AI) Action Summit and the launch of the India-France Roadmap on AI** marked a significant step in technology-driven cooperation.
- Initiatives like **FRIND-X (France-India Defence Startup Excellence)** and the inclusion of **Indian startups at France's Station F (the world's largest startup campus)** highlight new opportunities in **defense and technology sectors**.

Strengthening Defense & Security Ties

- **Defense Manufacturing Collaboration:**
 - France remains a **trusted defense partner**, supplying cutting-edge military equipment such as **Rafale fighter jets and Scorpène submarines**.
 - Both nations committed to **co-developing defense technologies**, including **advanced missile systems and naval projects**.
- **Military Exercises & Counterterrorism Efforts:**
 - Enhanced joint **military exercises and defense R&D frameworks** were discussed to boost interoperability.
 - Counterterrorism cooperation, **intelligence sharing, and cybersecurity collaboration** remain key priorities.

Expanding Economic, Trade & Energy Partnerships

- **Focus on Trade & Connectivity:**
 - Discussions centered on **enhancing trade and investment** between the two nations.
 - Emphasis was placed on the **India-Middle East-Europe Corridor (IMEC)** as a means to improve connectivity and economic integration.
- **Nuclear & Renewable Energy Cooperation:**
 - Both leaders welcomed the **first meeting of the Special Task Force on Civil Nuclear Energy**.
 - France's expertise in **nuclear technology** is expected to help India **expedite nuclear power projects like Jaitapur** and explore **Small Modular Reactors (SMRs) and Advanced Modular Reactors (AMRs)**.
 - A renewed commitment was made towards **clean energy collaboration, including green hydrogen and renewable energy solutions**.

Strengthening Cultural & People-to-People Ties

- Enhanced **student exchange programs, museum collaborations, and joint cultural initiatives** will further deepen ties between the two nations.
- Health cooperation, particularly in **public health initiatives and medical research**, was discussed to bolster global pandemic preparedness.

Strengths in India-France Relations

Strong Defense Collaboration

- France has emerged as a **key defense supplier** to India, providing advanced military platforms like the **Rafale jets and Scorpène submarines**.
- Both nations are **jointly developing defense technologies**, including **missile engines and naval warfare systems**.
- Unlike some other countries, **France has been more willing to share critical defense technologies** with India without imposing excessive restrictions.

Deep Nuclear Energy Cooperation

- France has been a **long-term partner** in India's civil

nuclear energy program, playing a crucial role in **nuclear power projects like Jaitapur**.

- The collaboration focuses on **reducing carbon footprints and promoting clean energy solutions**.

Shared Vision of Strategic Autonomy

- Both India and France prioritize an **independent foreign policy**, resisting pressures from major power blocs like the U.S. and China.
- They strongly advocate for **multilateralism and a multipolar global order**, supporting reforms in international institutions like the **United Nations Security Council (UNSC)**.

Space & Technology Partnership

- Long-standing **collaboration in space exploration**, including partnerships between **ISRO and CNES (France's space agency)** on **satellite launches, climate monitoring, and deep-space missions**.
- Expanding ties in **Artificial Intelligence, cybersecurity, and quantum computing**.

Focus on the Indo-Pacific Region

- Both nations share a **common vision for a free, open, and rules-based Indo-Pacific**.
- Regular **joint naval exercises** and enhanced **maritime security initiatives** reinforce India-France cooperation in the region.

Counterterrorism & Security Cooperation

- Strong collaboration in **intelligence sharing and counterterrorism efforts**.
- Joint initiatives to **combat radicalization and extremism**.

Cultural & Educational Ties

- France has a growing **Indian diaspora**, contributing to **strong cultural exchanges**.
- Increasing **academic partnerships and scholarship programs** for Indian students studying in France.

Challenges in India-France Relations

- **Bureaucratic & Project Delays**
 - Some large-scale projects, like the **Jaitapur nuclear power plant**, have faced **delays due to bureaucratic hurdles**.
- **Diverging Approaches Towards China**
 - While India views China as a **strategic rival** due to **border tensions**, France maintains **economic ties with China**, leading to differences in policy approaches.
- **India's Ties with Russia**
 - France, being a NATO member, has **sanctioned Russia** over the Ukraine war, while **India continues to maintain strong defense and energy ties with Moscow**.
- **Limited Trade Volume**
 - **Bilateral trade remains below its potential**, with a **trade imbalance favoring France**.

- **Competition in Third Countries**
 - India and France sometimes have **competing economic and strategic interests in regions like Africa.**
- **Technology Transfer Hurdles**
 - **Intellectual property rights (IPR) concerns** and reluctance to **transfer high-end defense technologies** pose challenges to deeper defense collaboration.
- **Global Geopolitical Shifts**
 - Differing perspectives on **global conflicts (Ukraine war, Middle East tensions, etc.)** can impact long-term diplomatic strategies.
- **Political Changes in France**
 - **Domestic political shifts, including the rise of far-right politics in France,** could impact **long-term commitments** in areas like **immigration, defense, and trade.**

Way Forward for Strengthening India-France Relations

- **Deepening Defense & Strategic Autonomy**
 - **Accelerate joint production of advanced defense technologies** to reduce dependency on third parties.
 - Strengthen **maritime security and Indo-Pacific cooperation** through expanded naval exercises and defense agreements.
- **Expanding Clean Energy & Nuclear Collaboration**
 - Expedite the **Jaitapur nuclear project** and explore **cooperation in Small Modular Reactors (SMRs).**
 - Collaborate on **renewable energy initiatives,** leveraging France's expertise in wind and solar power.
- **Strengthening the Indo-Pacific Partnership**
 - Institutionalize **maritime security and infrastructure projects** in the Indo-Pacific.
 - Expand engagement with regional partners like **ASEAN and the UAE** for trade and security frameworks.
- **Advancing Technological & Startup Ecosystems**
 - Establish **joint research hubs in AI, cybersecurity, and space exploration.**
 - Encourage **Indian and French startups** to collaborate on defense, AI, and innovation projects.
- **Enhancing Trade & Investment**
 - Work towards a **balanced EU-India trade agreement** to boost **bilateral investments.**
 - Focus on **new areas like digital infrastructure, healthcare, and critical minerals.**
- **Institutionalizing Regular High-Level Dialogues**
 - Establish **structured diplomatic mechanisms** to ensure continuity in agreements.
 - Foster **sub-national partnerships,** such as **sister cities and university collaborations,** to deepen ties.

EXPECTED QUESTION FOR UPSC CSE

Descriptive Question

- Q. India and France have increasingly aligned their strategic interests in recent years, forging a multifaceted partnership. Critically analyze the key pillars of this partnership and the challenges that hinder its progress. [15 marks] [250 words]

TROUBLED WATERS IN INDIA AND SRI LANKA RELATIONS

Why in News: Recently, the Sri Lankan Navy detained 14 fishermen from Tamil Nadu's Ramanathapuram district on charges of poaching in Sri Lankan waters near Mannar. This incident highlights the persistent fisheries conflict in the Palk Bay region, which has been a longstanding source of tension between India and Sri Lanka.

Key Issues

- **Geographical proximity:** At the closest point, the two countries are separated by barely 10 nautical miles or 18.5 km.
- **Historical claims:** Fishermen from Tamil Nadu claim that they and their ancestors have fished in waters beyond the International Maritime Boundary Line (IMBL) for centuries and generations and have shared Tamil ethnic identity.
- **Declining fish stocks:** A steady depletion of fish stocks on the Indian side of the International Maritime Boundary Line (IMBL).
- **Inadvertent straying:** As IMBLs are not clearly discernible in the waters, **failure of boat engines, and sudden disturbances in weather conditions.**
- **Bottom trawling fishing:** This technique catches a range of marine life, such as coral and seaweed, in addition to catching the targeted fish species and prawns. The decline of marine resources in Palk Bay, particularly on the Indian side, has been attributed to this approach.
- **National security:** Sri Lanka maintains that the practice could jeopardize the national security of both nations.

Possible Solutions

Joint Patrolling and Maritime Cooperation

- **India and Sri Lanka should conduct joint naval patrols** to monitor illegal fishing activities in the Palk Bay region.
- Establishing a **coordinated surveillance system** could help deter cross-border fishing violations.

Humanitarian Approach by Sri Lanka

- The Sri Lankan government must treat the fisheries conflict as a **livelihood and humanitarian issue,** rather than merely a legal or security concern.

- The use of excessive force by the Sri Lankan Navy should be avoided to prevent **diplomatic escalation and human rights violations**.

Revival of the Joint Working Group on Fisheries

- Regular meetings of the **India-Sri Lanka Joint Working Group on Fisheries**, including representatives from **Tamil Nadu**, can help address concerns and formulate cooperative solutions.
- The group should work towards **sustainable fishing practices and alternative livelihood programs** for affected fishermen.

Leveraging Technology for Better Border Management

- **GPS tracking systems** should be provided to Indian fishermen to help them navigate safely and avoid crossing the IMBL.
- **Satellite imaging and AI-based monitoring** can be used to track fishing vessels in real time, enabling timely intervention and preventing unintentional border violations.

Exploring the Leasing of Katchatheevu Island

- While **Katchatheevu Island** was ceded to Sri Lanka in 1974, India could negotiate a **lease agreement** allowing Indian fishermen to operate in its surrounding waters.
- This would provide a legal and structured solution to the long-standing dispute.

Encouraging Sustainable Fishing Practices

- India must **phase out bottom trawling** and promote **eco-friendly fishing methods** to preserve marine biodiversity.
- The Indian government should provide financial aid and training to fishermen to transition to **deep-sea fishing**, reducing dependence on Palk Bay.

Diplomatic and Bilateral Engagement

- India and Sri Lanka must **prioritize diplomatic dialogue** to find long-term solutions.
- Enhancing cooperation in **marine resource management and fisheries research** will benefit both nations.

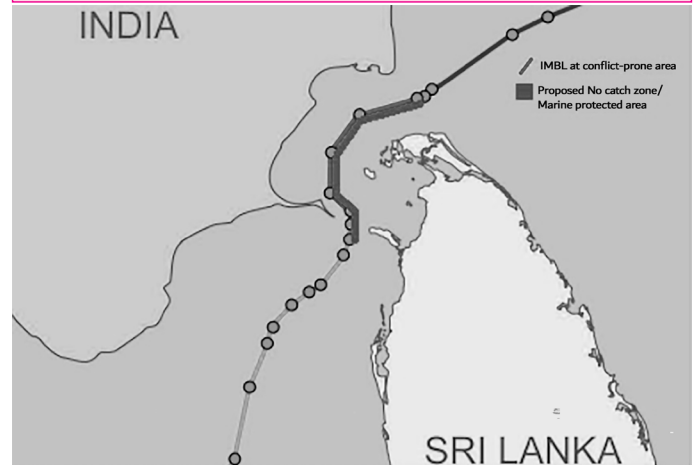
The continuing fisheries conflict between Sri Lanka and India is a complicated matter that might affect the two countries' bilateral ties. This issue needs to be handled sensitively and with an openness to finding win-win solutions by both nations. To address this issue, a thorough and integrated strategy is required, taking into consideration the worries of all parties involved, particularly the human rights abuses committed against Indian fishermen in the Palk Strait.

Maritime Boundary Agreements of 1974 and 1976

- **1974 Agreement**
 - Defined the maritime boundary between India and Sri Lanka, placing **Katchatheevu Island** on the Sri Lankan side of the **International Maritime Boundary Line (IMBL)**.

- Nonetheless, Katchatheevu was **opened to Indian fishermen during the yearly St. Anthony Church celebration and net drying**.

- **1976 Agreement**
 - The agreement further delineated the **International Maritime Boundary Line in Bay of Bengal and the Gulf of Mannar**.



EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

- Q. The Katchatheevu island dispute is between which of the following countries?
- India and Sri Lanka
 - India and Maldives
 - Sri Lanka and Indonesia
 - Indonesia and Malaysia

Answer: (a)

Descriptive Question

- Q. Discuss the key issues involved in the India-Sri Lanka fisherman dispute and suggest a comprehensive way forward for a sustainable solution. [10 marks] [150 words]

INDIA-INDONESIA RELATIONS

Why in News: Indonesian President Prabowo Subianto was the chief guest at India's Republic Day celebrations in New Delhi. **This marks a significant moment as the first Republic Day chief guest in 1950 was Indonesia's first President, Sukarno.**

During his visit, India and Indonesia signed agreements on maritime security, health, traditional medicine, culture, and digital cooperation, strengthening their bilateral ties.

Evolution of India-Indonesia Relations

- **Early Ties and Friendship Treaty (1951):** India and Indonesia, both committed to anti-imperialism and democracy, signed a **Treaty of Friendship in March 1951**, pledging “perpetual peace and unalterable friendship.”
- **Strained Relations in the 1960s:** Ties weakened as Indonesia aligned itself with China and Pakistan.
- **Renewal in the 1990s:** Relations improved under India’s ‘Look East’ policy initiated by the P.V. Narasimha Rao government.
- **Strengthening Relations (2000-Present):** Since 2000, every Indonesian President and Indian Prime Minister has exchanged visits, enhancing cooperation in political, security, defense, trade, and cultural sectors.

Key Aspects of India-Indonesia Relations

Trade Relations

- Indonesia is India’s second-largest trading partner in ASEAN (after Singapore).
- **Bilateral Trade Growth:** From \$4.3 billion in 2005-06 to \$38.84 billion in 2022-23 and \$29.40 billion in 2023-24.
- **Key Commodities:**
 - **Imports from Indonesia:** Coal, crude palm oil, minerals, rubber, pulp, paper, hydrocarbons.
 - **Exports to Indonesia:** Refined petroleum, commercial vehicles, telecom equipment, agriculture commodities, bovine meat, steel, plastics.

Cultural Ties

- Historical connections trace back to the Ramayana, where “Yawadvipa” (Java) is mentioned.
- During the Srivijaya era, many Indonesians studied at Nalanda University in India.
- Modern cultural influences include Indonesian Dangdut music, which has strong Hindustani musical elements.

Defense and Security Cooperation

- Long-standing defense ties formalized in 1951, strengthened by agreements in 2001 and 2018.
- Joint Military Exercises:
 - *Garuda Shakti* (Army)
 - *Samudra Shakti* (Navy)
 - Coordinated patrols (*IND-INDO CORPAT*)

Significance of Indonesia for India

- **Strategic Importance**
 - India and Indonesia have a strategic partnership to boost security, trade, and economic cooperation.
 - India’s Andaman and Nicobar Islands are close to Indonesia’s Aceh province, an important global trade route.
- **Military Cooperation**
 - **Bilateral “Samudra Shakti” naval exercises** have

been conducted since 2018 in the Java and Andaman Seas.

- **Joint Development of Sabang Deep Sea Port** for enhanced naval cooperation.
- **Economic Significance**
 - India and Indonesia have set an ambitious goal to double their trade in five years.
 - India benefits from its Free Trade Agreement (FTA) with ASEAN, where Indonesia is a key member.
- **Natural Resource Supplier**
 - Indonesia’s vast natural resources:
 - ✓ **Largest producer:** Palm oil.
 - ✓ **Major producer:** Tin (2nd), rubber & cocoa (3rd), coffee (4th), copper & nickel (5th).
 - ✓ **Leading exporter:** Timber, bauxite, gold, fisheries, rare earths, and thermal coal (recently surpassing Australia).

President Prabowo Subianto’s visit to New Delhi early in his tenure signifies a new era of cooperation. India and Indonesia are poised to expand trade, boost economic ties, enhance connectivity, strengthen maritime security, deepen military exchanges, and collaborate on defense industries. The agreements signed during this visit mark a significant step toward realizing these goals.

PRELIMS SPECIAL



About Indonesia

- Indonesia is a country in Southeast Asia and Oceania, between the Indian and Pacific oceans and comprises over 17,000 islands.
- **Area and Population:** Indonesia is the world’s largest archipelagic state and the 14th-largest country by area, at

1,904,569 square kilometers (735,358 square miles). With over 280 million people, Indonesia is the world's fourth-most-populous country and the most populous Muslim-majority country.

Border Countries: Indonesia shares land borders with Papua New Guinea, Timor-Leste, and the eastern part of Malaysia, as well as maritime borders with Singapore, Peninsular Malaysia, Vietnam, Thailand, the Philippines, Australia, Palau, and India.

EXPECTED QUESTION FOR UPSC CSE

Descriptive Question

Q. How can Indonesia act as a "Pivot" in expansion of India's Act East policy? Also mention the importance of Indonesia across various sectors for India. [15 marks] [250 words]

NEIGHBOURHOOD FIRST POLICY

Why in News: India's Union Budget 2025 allocated Rs 20,516 crore to the Ministry of External Affairs (MEA), emphasizing the 'Neighbourhood First' policy.

Key Budget Highlights

- **Increased Allocation:** The MEA's budget saw a 15.45% increase from the previous year, reaching Rs 20,516.61 crore.
- **Focus on Neighbouring Countries:** Rs 4,320 crore — 64% of the total scheme portfolio — is dedicated to projects in neighbouring countries, including infrastructure development like hydroelectric plants, power transmission lines, roads, bridges, housing, and integrated check-posts.
- **Bhutan:** Remains the largest beneficiary of Indian foreign aid, receiving Rs 2,150 crore for 2025-26, an increase from last year's Rs 2,068 crore.

About the Neighbourhood First Policy

The Neighbourhood First policy aims to foster cooperative, peaceful, and mutually beneficial relationships with India's immediate neighbours, focusing on development, connectivity, and stability.

Guiding Principles

The policy is built on four key pillars:

- **Samman (Respect):** Equal, respectful partnerships.
- **Samvad (Dialogue):** Regular, constructive communication.
- **Shanti (Peace):** Ensuring regional stability and conflict resolution.
- **Samridhi (Prosperity):** Promoting economic growth and development for mutual benefit.

Key Initiatives Under the Policy

1. Nepal:

- High Impact Community Development Projects (HICDP) for hospitals, schools, colleges, clean water, rural electrification, hydropower, and river embankments.
- Enhancing connectivity through roads, digital links, and cultural exchanges.

2. Afghanistan:

- Humanitarian assistance in the form of food and medical supplies.
- Scholarship schemes to support Afghan students.

3. Bangladesh:

- Strengthening cross-border power, energy, and transport linkages.
- Development projects improving infrastructure and regional trade connectivity.

4. Bhutan:

- Hydropower development projects.
- Infrastructure support, including roads, digital links, and energy partnerships.

5. Maldives:

- Maritime security cooperation.
- Infrastructure development, including community projects.
- Support to overcome financial instability.

6. Myanmar:

- Infrastructure and connectivity development.
- Humanitarian aid for disaster relief and capacity building.

7. Sri Lanka:

- Comprehensive development across agriculture, power, education, culture, and human resource development.
- Significant financial aid package to help stabilize the economy.

Significance of the Neighbourhood First Policy

1. Continuity and Trust:

- India's sustained assistance has built long-term goodwill, ensuring support programs remain effective despite changes in neighbouring countries' administrations.

2. Geopolitical Importance:

- **Regional Stability:** A stable neighbourhood reduces the risk of conflicts spilling into India (e.g., refugee crises, civil unrest).
- **Multilateral Leadership:** Strengthens India's leadership role among the Global South in global forums (e.g., WTO negotiations).

- **Territorial Integrity:** Collaborative security efforts help counter separatist movements and maintain India's borders.
 - **Maritime Security:** Partnerships with countries like Maldives and Sri Lanka improve safety against piracy, terrorism, and China's growing influence (e.g., String of Pearls strategy).
3. **Economic Benefits:**
- **Trade and Investment:** Neighbouring nations are crucial trade partners. India promotes regional economic integration through platforms like SAARC.
4. **Cultural and People-to-People Links:**
- **Shared Heritage:** Many neighbouring countries share religious, linguistic, and cultural ties with India (e.g., Buddhism, common languages, family connections).
 - **Cross-border Movement:** Facilitating travel for work, education, and religious pilgrimages fosters understanding and cooperation.
5. **Regional Leadership:**
- India's proactive role in assisting neighbours positions it as a trusted regional leader, strengthening its global influence.

India's Neighbourhood First Policy, backed by increased budgetary support, highlights its commitment to fostering development, connectivity, and regional stability. By investing in infrastructure, humanitarian aid, and strategic partnerships, India strengthens ties with its neighbours, ensuring a more secure, prosperous, and cooperative South Asia.

EXPECTED QUESTION FOR UPSC CSE

Descriptive Question

Q. Discuss the Significance of India's Neighbourhood First Policy and highlight its key initiatives. [10 marks] 150 words]

INDIA AS A BRIDGE BETWEEN THE GLOBAL NORTH AND SOUTH

Why in News: Recently, during the 18th Pravasi Bharatiya Divas Convention, the Indian Prime Minister emphasized India's role in amplifying the voice of the **Global South** while engaging constructively with the **Global North** (He highlighted India's active role in shaping a more inclusive and balanced global governance framework).

Understanding the Global North and Global South

What is the Global North-South Divide?

The **Global North-South divide** is a geopolitical and economic classification used by international organizations, including the **United Nations**. It broadly categorizes countries based

on their level of **development, economic prosperity, political stability, and historical trajectory**.

Who Belongs to the Global North?

The **Global North** typically includes developed nations such as:

- **North America:** United States, Canada
- **Europe:** Most European nations
- **East Asia:** Japan, South Korea, Taiwan
- **Oceania:** Australia, New Zealand
- **Middle East:** Israel

Who Belongs to the Global South?

The **Global South** includes developing and emerging economies:

- **Asia and Oceania** (excluding Japan, South Korea, Taiwan, and Australia)
- **Africa**
- **Middle East** (excluding Israel)
- **Latin America**

Historical Context

- The divide originates from the **colonial era and the Industrial Revolution**, when European nations expanded their economic and military dominance over large parts of **Asia, Africa, and Latin America**.
- European colonization created economic disparities, as **Global North nations industrialized rapidly** while the **Global South remained dependent on agriculture and raw materials**.
- Even after decolonization, economic inequalities persisted due to factors like **unequal trade, technological gaps, and financial dependencies**.

India and Global North

- **Developing Strategic Alliances:** India's ties with nations such as the US, EU, and Japan are centred on topics like **technological exchange, economic cooperation, and defence cooperation**.
- **Climate Leadership:** By supporting programs like the **International Solar Alliance (ISA)** and the **Coalition for Disaster Resilient Infrastructure (CDRI)**, **India is taking the lead in combating climate change**. For example, Mission LiFE and the Global Development Compact.
- **Multilateral Forum Participation:** India actively participates in multilateral forums like the **UN, BRICS, and G20 in order to influence international policy and promote the interests of developing countries**.
- **Promoting Cultural and Educational Exchanges:** This includes **academic partnerships, student activities, and cultural festivals**, with the goal of fostering interpersonal relationships and improving understanding.
- **Economic Diplomacy:** India has attracted the attention of both developed and developing countries

by demonstrating its effectiveness in creating and implementing digital public infrastructure, such as the Universal Payments Interface (UPI) and the Aadhaar biometric identity program.

India and the Global South

- **First responder:** India is developing capacity to become the **first responder to the Global South**. For instance, the **Vaccine Maitri campaign** during Covid-19 and the India-UN Capacity Building Initiative.
- **Global Climate Agenda:** India supports **Common but Differentiated Responsibilities (CBDR)** to ensure equitable burden on developed and developing countries.
- **Development of the global south:** By working on developmental projects in a variety of areas, such as **housing, health, education, and the environment**, we may improve connectivity and economic interconnections.
- **Economic support:** India is also providing Global South nations with **fiscal, financial, and humanitarian support** to help them deal with economic difficulties and resolve crises. **For example**, India has so far provided 5 billion dollars in line of credit and grant assistance to Sri Lanka during its economic crisis.

Challenges for India as a bridge

- **Geopolitical Rivalries:** **China and India are competing for influence in Asia and Africa**, which is causing rivalry in development and investment initiatives.
- **Balancing Divergent Interests:** The **Global South places a higher priority on infrastructure development, poverty alleviation, and access to essential services**, while the **Global North concentrates on concerns like trade, climate change, and technology breakthroughs**.
- **Economic Disparities:** **International financial institutions frequently put conditionalities and debt loads on developing nations**, which might impede their ability to thrive.
- **Institutional Reforms:** India's push for reforms in global governance institutions, such as the UNSC, is met with **resistance from established powers**.
- **Resource Crunch:** India faces resource constraints, including financial limitations, inadequate mineral resources, and developmental challenges. Thus, **balancing domestic priorities with its international commitments** requires careful planning and resource allocation.

Way forward

- **Multi-Alignment:** India needs to **maintain strong ties with the western powers like the U.S. and Europe while deepening its relations with the Global South**. Example: India recently participated in G7 as a guest country as well as leading the Global South through the Non-Aligned Movement.
- **Leveraging Common Agendas:** In order to encourage cooperation between developed and poor countries,

India can **highlight common global issues including healthcare, digital transformation, and climate change**.

For instance, during its G20 presidency in 2023, India was instrumental in achieving climate financing obligations for poor nations, therefore bringing the goals of the Global North and the demands of the Global South into alignment.

- **Cultural Diplomacy:** India maintains trust across geopolitical boundaries by using its **rich cultural legacy, democratic principles, and historical non-alignment position**. For instance, the International Solar Alliance (ISA), Yoga Diplomacy, and India's growth of diplomatic posts in Africa have all contributed to the improvement of ties between the two blocs.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following countries

- | | |
|-----------|----------------|
| 1. Japan | 2. South Korea |
| 3. Israel | |

How many of the countries given above is/are part of the global south?

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

(d) Answer

Descriptive question

Q. Discuss the challenges and opportunities in India's faces while balancing Global North and South and suggest measures to enhance its effectiveness. [15 marks] [250 words]

GAZA STRIP

Why in News: The US President recently proposed that the United States take ownership of the Gaza Strip and redevelop it. This proposal comes alongside earlier suggestions that Palestinians should relocate from the region — an idea that faced strong opposition globally, especially from Arab nations.

Key Details:

- **Proposal Overview:** The US President suggested that America could take control of Gaza and transform it into the "Riviera of the Middle East," implying a vision of redevelopment and modernization.
- **Displacement Controversy:** Previously, the US President had indicated that neighbouring countries should accommodate displaced Palestinians, an idea that was promptly rejected by Arab nations. This new proposal

continues to raise concerns about the displacement of Gaza's population.

Repercussions of the Proposal:

- **Violation of UN Resolutions:** The proposal challenges long-standing United Nations Security Council (UNSC) and General Assembly (UNGA) resolutions that uphold Palestinians' right to self-determination — a stance India has consistently supported.
- **Against the Will of the People:** The President's assertion that Gazans may not wish to return contradicts on-ground reports showing thousands of people returning to North Gaza after the ceasefire.
- **Worsening the Refugee Crisis:** Transforming Gaza into a luxury destination implies mass displacement of its current population, potentially turning Palestinians into stateless refugees scattered across the region.

Global Reactions to the Proposal:

- **Israel's Response:** Israel's Prime Minister appeared receptive to the idea, emphasizing the need to ensure that Gaza no longer poses a security threat to Israel.
- **Saudi Arabia's Stance:** Saudi Arabia firmly reiterated its commitment to the establishment of an independent Palestinian state, stating that "a permanent and just peace cannot be achieved without the Palestinian people obtaining their legitimate rights."
- **Egypt and Jordan:** Both countries strongly oppose any plans to resettle Palestinians within their borders, emphasizing that Gaza's future must respect Palestinian sovereignty.

- **Geographical Location:** The Gaza Strip is a small coastal territory along the eastern Mediterranean Sea.
- **Political Context:** It forms one of the two Palestinian territories, alongside the West Bank, constituting the State of Palestine.
- **Size and Dimensions:** The Gaza Strip stretches 41 kilometers (25 miles) in length, with a width ranging from 6 to 12 kilometers (3.7 to 7.5 miles), covering a total area of 365 square kilometers.
- **Borders:**
 - Shares a 51-kilometer (32-mile) border with Israel.
- An 11-kilometer (7-mile) border with Egypt near the city of Rafah.

The Gaza Strip remains a focal point of geopolitical tensions, and any proposals affecting its future are bound to evoke widespread diplomatic, humanitarian, and security-related consequences. The latest US proposal brings renewed global attention to the region, igniting debates on sovereignty, displacement, and the path to lasting peace.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements about the Gaza Strip:

1. It shares a border with Egypt, Israel and Jordan.
2. Cities such as Khan Younis and Rafah are located in the Gaza strip.

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)

PRELIMS SPECIAL

About the Gaza Strip:



INDIAN OCEAN CONFERENCE 2025

Why in News: India's Minister of External Affairs recently addressed the 8th Indian Ocean Conference in Muscat, Oman, under the theme 'Voyage to New Horizons of Maritime Partnership.' This conference brought together key regional and global stakeholders to deliberate on fostering maritime cooperation and tackling emerging challenges in the Indian Ocean Region (IOR).

Key Highlights from the Address

1. Global Context & Maritime Relevance

- The Minister acknowledged the rapidly evolving global landscape marked by geopolitical upheavals and economic disruptions.
- He emphasized the Indian Ocean's pivotal role as a

global lifeline, supporting production, consumption, and international connectivity, underscoring its strategic importance in global trade and energy flows.

2. Regional Challenges

- **Middle East/West Asia:** Ongoing conflicts in the region are impacting global shipping routes and affecting economic stability.
- **Indo-Pacific Dynamics:** Rising geopolitical tensions and disputes highlight the importance of upholding international law to ensure peace and stability.
- **Developmental Constraints:** Local challenges such as economic slowdowns, debt crises, and disrupted connectivity (a colonial-era legacy) were acknowledged as key barriers to growth.
- **Maritime Security:** Concerns were raised about safeguarding Exclusive Economic Zones (EEZs), protecting fishing rights, combating illegal trafficking, and countering maritime terrorism.

India's Contributions and Initiatives in the Region

The Indian External Affairs Minister detailed India's multifaceted approach to fostering regional stability and growth through:

- **Economic Stabilization:** India provided a **USD 4 billion aid package** to Sri Lanka to support its economic recovery during the recent financial crisis.
- **Connectivity Projects:** Key infrastructure projects were highlighted, including:
 - India–Middle East–Europe Economic Corridor (IMEC)
 - India-Myanmar-Thailand Trilateral Highway (IMTT)
 - International North-South Transport Corridor (INSTC)
- **Disaster Response:** India showcased its role as a 'first responder' during conflicts and natural disasters in regions like Yemen, Mozambique, Myanmar, Nepal, Sri Lanka, and Türkiye, including responses to oil spills.
- **Plurilateral Cooperation:** India supports regional frameworks such as:
 - **Quad initiative** (India, the US, Japan, and Australia)
 - **ReCAAP Centre** (Regional Cooperation Agreement on Combating Piracy and Armed Robbery against Ships in Asia)
- **Maritime Safety & Security:** India established the **International Fusion Centre** for enhanced maritime domain awareness, deployed coastal surveillance radars, and advanced **White Shipping Agreements** (information sharing about commercial non-military vessels).
- **Naval Capacity Building:** India continues training and

equipping navies and coast guards of friendly countries like **Vietnam, Mauritius, Mozambique, and Sri Lanka** to enhance regional maritime security.

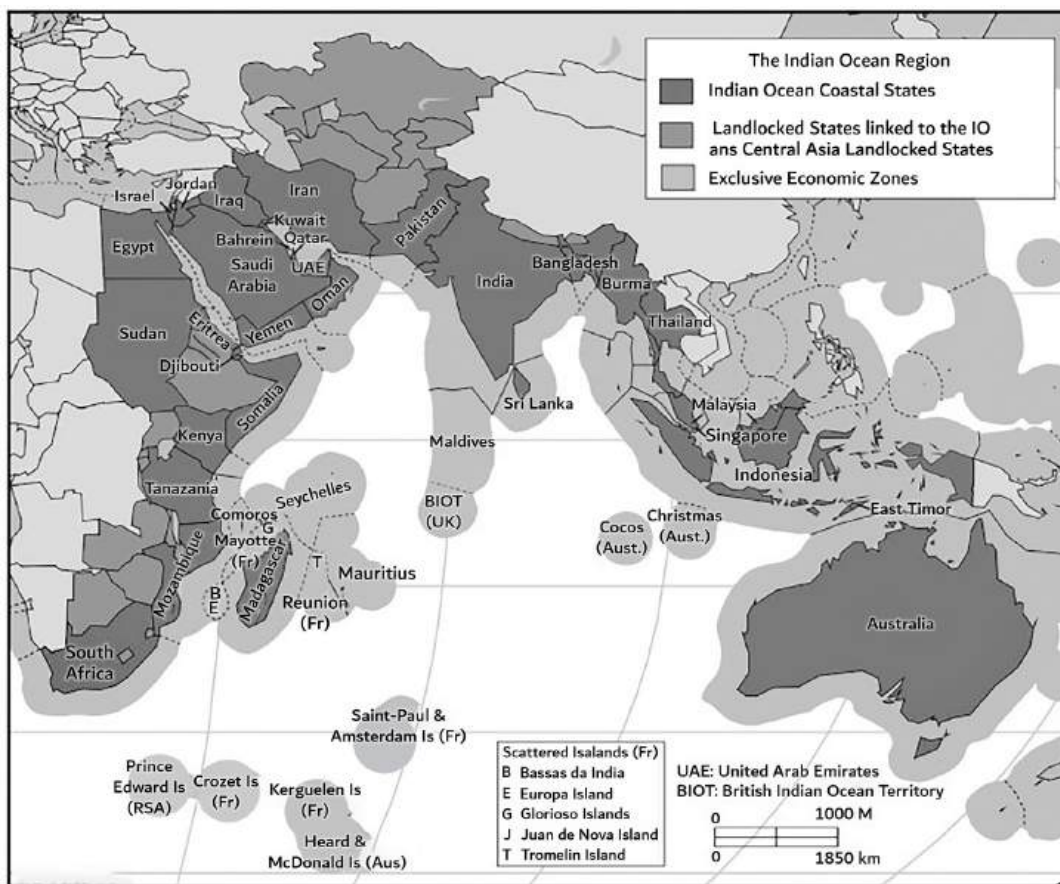
- **Digital Infrastructure & Cyber Security:** India emphasized creating secure and resilient digital communication networks, positioning itself as both a trusted technology partner and infrastructure developer.
- **Bridging Indo-Pacific Divides:** India reiterated its commitment to promoting regional unity, adherence to **UNCLOS** (United Nations Convention on the Law of the Sea), and strengthening regional partnerships.
- **Institution Building:** India supports and strengthens regional institutions like **IORA** (Indian Ocean Rim Association), **BIMSTEC** (Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation), **IONS** (Indian Ocean Naval Symposium), and the **Indian Ocean Conference**.

Indian Ocean Conference 2025

- The Indian Ocean Conference was **started by the India Foundation in 2016 in Singapore**, with participation from 30 countries.
- In the last 8 years, the Conference has emerged as the flagship consultative forum for countries in the region over regional affairs.
- The Conference endeavours to bring critical states and principal maritime partners of the region together on a common platform to deliberate upon the prospects of regional cooperation for **Security and Growth for All in the Region (SAGAR)**.

About India Foundation

- India Foundation is an **independent research centre** focused on the issues, challenges and opportunities of the Indian polity.
- The Foundation believes in understanding contemporary India and its global context through a civilizational lens of a society on the move.
- Based on the principles of **independence, objectivity and academic rigour**, the Foundation aims at increasing awareness and advocating its views on issues of both national and international importance.
- It seeks to articulate the Indian nationalistic perspective on issues.
- India Foundation's vision is to be a premier **think tank** that can help understand the Indian civilizational influence on our contemporary society.
- With a team of dedicated professionals based at its **office in New Delhi**, the Foundation works with partners and associates both in India and overseas to further its stated objectives.



EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. The annual Indian Ocean Conference is organised by:

- (a) Indian Ocean Rim Association (IORA)
- (b) Indian Ocean Commission (IOC)
- (c) Ministry of External Affairs
- (d) India Foundation

Answer: (d)

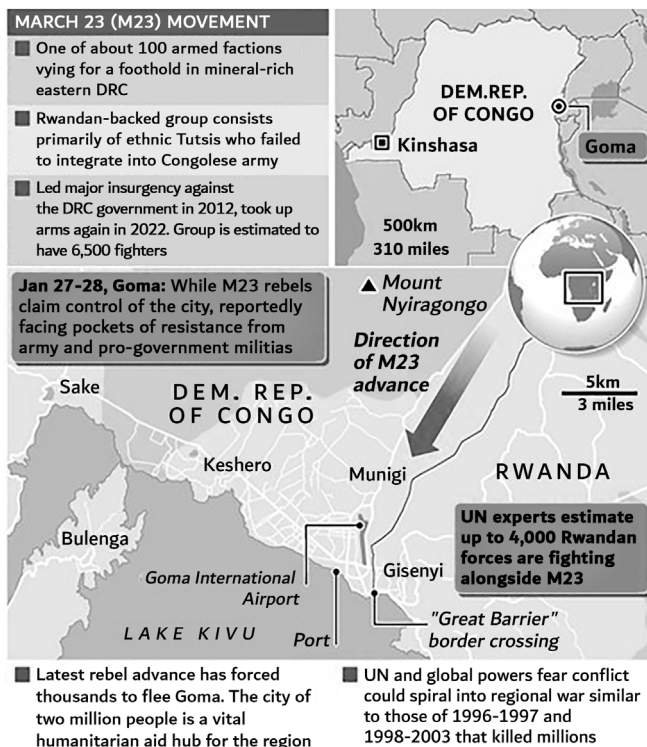
CRISIS IN THE DEMOCRATIC REPUBLIC OF CONGO

Why in News: The conflict in the Democratic Republic of the Congo (DRC) has once again drawn global attention following the M23 militia’s capture of Goma — a vital, mineral-rich city bordering Rwanda.

Key Details

- **Casualties and Displacement:** According to United Nations estimates, the ongoing conflict, which reignited in January, has led to over **2,900 deaths**, displaced **nearly 7,000 people**, and left many others injured.

- **Conflict Expansion:** The fighting has now spread southward, with rebels advancing toward **Bukavu**, the provincial capital of **South Kivu**, another resource-rich area in eastern DRC.



Historical Background of the Conflict

The roots of the conflict trace back to ethnic tensions and colonial legacies in the region, particularly between the **Tutsis** and **Hutus**:

- **Colonial Rule:** Rwanda was colonized by Germany and later Belgium, both of which favored the **Tutsi** minority by granting them administrative roles. This led to resentment among the **Hutu** majority.
- **1959 Revolution:** A violent Hutu uprising ensued, resulting in the deaths of **20,000 Tutsis**. King Kigali V fled, and a **Hutu-led** government emerged.
- **Independence:** In 1960, Belgian-administered elections solidified Hutu political dominance. Two years later, Rwanda gained independence, and **Grégoire Kayibanda** became the nation’s first president.

This ethnic division, which spilled over into the DRC, continues to fuel present-day conflicts, with armed groups like M23 claiming to protect Tutsi interests.

About the Democratic Republic of Congo

- **Geography:** The DRC is **Africa’s second-largest** country and the **eleventh-largest** globally. It boasts a short coastline along the **Atlantic Ocean** and shares borders with **nine** nations — **Central African Republic, South Sudan, Uganda, Rwanda, Burundi, Tanzania, Zambia, and Angola**.
- **Natural Resources:** The **Katanga Plateau** is a major mining hub, rich in valuable minerals such as **cobalt, copper, tin, radium, uranium, and diamonds** — resources that often intensify the conflict.
- **Capital:** **Kinshasa**, located along the **Congo River**, holds the distinction of being the **only river in Africa** that crosses the **equator twice**.
- **Language:** **French** is the official language, while **Kituba, Lingala, Swahili, and Tshiluba** are also widely spoken across different regions.

The ongoing conflict in the Democratic Republic of the Congo is deeply rooted in historical ethnic divisions and competition for resource control. The seizure of strategic cities like Goma and Bukavu underlines the continuing instability in the region, necessitating international attention and humanitarian intervention to prevent further casualties and displacement.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Recently, the extremist organization Mouvement du 23 Mars (M23) was in the news. It operates in:

(a) Democratic Republic of Congo (b) Egypt
 (c) South Sudan (d) Yemen

Answer: (a)

US EXIT FROM KEY GLOBAL INSTITUTIONS

Why in News: On his first day in office, the U.S. President signed an executive order initiating the process of withdrawing the United States from the **Paris Agreement** and the **World Health Organization (WHO)**.

Key Details: Reasons for withdrawal

- **Unfair Economic Burden:** The President argued that commitments under the Paris Agreement and financial contributions to WHO place an excessive economic burden **on American taxpayers**.
- **Energy Regulations Impact:** Compliance with the Paris Agreement’s energy regulations is projected to lead to job losses, harm American manufacturing, and **reduce GDP by an estimated \$2.5 trillion by 2035**.
- **Distrust in Member Countries:** Concerns over the misuse of funds by beneficiary nations and skepticism regarding WHO’s handling of the COVID-19 pandemic.

Impact of exit

- **Shortage of funds:** The **USA is the largest contributor of funds to the WHO**, somewhere between 12% to 15% in 2022-23. Also, the US is responsible for **funding around 21% of UNFCCC’s core budget**.
- **Institutional breakdown:** The U.S.’s withdrawal will likely lead to a **loss of jobs, a reduction of work, and less ability to do the functions in WHO and its allied activities**.
- **Leadership vacuum:** The departure of the USA from the Paris Agreement and WHO will likely create a **leadership vacuum in global climate governance and health governance**.
- **Domino effect:** The USA withdrawal **may encourage other member countries to take an exit from the Paris Agreement and WHO**, thus negatively affecting world governance.
- **Impact on lower-income countries:** The US stepping back may curtail efforts to provide lifesaving healthcare and combat climate disasters, especially in lower-income countries without the means to do so.

WHO’s Funding System

WHO gets money from two main sources:

1. **Assessed Contributions (AC)** (Fixed Membership Fee)
2. **Voluntary Contributions (VC)** (Donations for Specific Projects)

Assessed Contributions (AC) – The Fixed Membership Fee

- Each country that is a part of WHO has to **pay a fixed amount of money every year** as a membership fee.
- This money is used for **WHO’s regular expenses**, like paying salaries to permanent staff and maintaining its offices.

- Trump also said that **Palestinians needed to agree to peace talks with Israel** before receiving U.S. funding.
- **Israel has accused UNRWA of supporting anti-Israel propaganda and even having links to terrorist activities.**
- Trump has decided to **continue the funding freeze** in his second term.

Why is the U.S. leaving the UNHRC?

- The Trump administration **accuses the UNHRC of being biased against Israel.**
- The U.S. has criticized the **UNHRC for not making enough reforms.**
- Trump had **already withdrawn the U.S. from the council in 2018** during his first term (2017-2021).
- Under **President Joe Biden (2021-2025), the U.S. rejoined the council for a term from 2022-2024.**
- Now, with **Trump back in office in 2025, he has again withdrawn the U.S. from the UNHRC.**
- The US and Israel accuse the UNHRC of being anti-Semitic.

Impact of US and Israel's Withdrawal from UNHRC

- **Undermining Multilateralism:** It weakens the international framework that supports human rights accountability and erodes trust in multilateral institutions among global partners.
- **National Image and Credibility:** The withdrawal raises questions about the moral leadership of countries that have historically championed human rights.
- **Reduced Accountability and Effectiveness:** The absence of key nations diminishes the Council's capacity to hold violators accountable.
 - Reduced participation can lead to decreased funding, diminished expertise, and lower overall effectiveness of the Council.
- **Implications for Victims:** Reduced international oversight can limit avenues for redress and protection for vulnerable populations. This may embolden regimes or policies that disregard human rights obligations.
- **Erosion of Global Norms:** Withdrawing major players may weaken the normative framework that underpins international human rights protections.

United Nations Human Rights Council (UNHRC)

- The Human Rights Council is the **main intergovernmental body** within the United Nations responsible for human rights.
- Established in **2006** by the General Assembly, it is responsible for strengthening the promotion and protection of human rights around the globe.
- The Council, composed of **47 Member States**, provides a multilateral forum to address human rights violations and country situations.
- It **responds to human rights emergencies and makes**

recommendations on how to better implement human rights on the ground.

- The Council benefits from substantive, technical, and secretariat support from the Office of the High Commissioner for Human Rights (OHCHR).
- The Human Rights Council replaced the former United Nations Commission on Human Rights.
- **Headquarters:** Geneva, Switzerland
- The Human Rights Council consists of 47 Member States elected directly and individually by a majority of the 193 states of the UN General Assembly.
 - Elections take place every year.
 - Seats are equitably distributed among the five UN regional groups, with one-third of the members being renewed each year.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. The headquarters of the United Nations Human Rights Council (UNHRC) is located in:

- (a) New York
- (b) Vienna
- (c) London
- (d) Geneva

Answer: (d)

INTERNATIONAL CRIMINAL COURT

Why in News: US President Donald Trump has signed an executive order that places sanctions on the International Criminal Court (ICC).

Key Details

- According to a White House official, the sanctions are **in response to the ICC's investigations into U.S. citizens and its allies**, including Israel.
- The sanctions impose a ban on ICC officials from entering the United States.
- The **executive order imposes financial and visa sanctions on individuals, along with their family members**, who assist in the ICC's investigations related to US citizens or its allies.

PRELIMS SPECIAL

About International Criminal Court (ICC)

- **Founding year:** The International Criminal Court was founded in 2002
- **Goal of ICC:** The goal of ICC is to **hold individuals accountable for war crimes, crimes against humanity, genocide, and acts**

HIGHLIGHTS OF ECONOMIC SURVEY 2024-25

Why in News: The Economic Survey 2024-25 was recently released, providing a comprehensive analysis of India's economic performance over the past year and offering key policy recommendations ahead of the Union Budget.

Key Highlights of Economic Survey

- **Real GDP GVA estimates**
 - India's **Real Gross Domestic Product (GDP)** and **Gross Value Added (GVA)** growth estimated at **6.4%** in **Financial Year (FY) 2025** (First Advance Estimates).
 - The **Real Gross Domestic Product (GDP)** growth is projected to be between **6.3% and 6.8%** in **Financial Year (FY) 2026**.
- **Capital Expenditure trends**
 - **Capital Expenditure (Capex)** improved continuously from **Financial Year (FY) 2021** to **FY 2024**, and post-general elections, it grew **Year-on-Year (YoY)** by **8.2%**.
 - **Capital Expenditure (Capex)** on key infrastructure sectors grew at a rate of **38.8%** from **FY 2020** to **FY 2024**.
- **Status of Inflation:**
 - RBI and the IMF project India's consumer price inflation will align with target of **4 per cent** in **FY 2026**.
 - Retail headline inflation softened from **5.4 per cent** in **FY 2024** to **4.9 per cent** in April –December 2024.
- **Status of Banks**
 - Bank credit has **grown at a steady rate** with credit growth converging towards deposit growth.
 - **GNPA** of scheduled commercial banks declined to a **12-year low of 2.6 per cent**
 - ₹3.6 lakh crore realized in resolution of 1,068 plans till September 2024 under insolvency and bankruptcy code.
- **Status of Share Market**
 - ₹11.1 lakh crore mobilised through equity and debt till december 2024, a **5%** increase than previous year.
 - **Bombay Stock Exchange (BSE)** stock market capitalization to **Gross Domestic Product (GDP)** ratio stood at **136%**, far higher than **China (65%)** and **Brazil (37%)**.
- **Export Sector**
 - Overall exports grew by **6 per cent**, services by **11.6 per cent (YoY)** in the first nine months of **FY 25**.
 - India ranks **2nd largest exporter** in the world in telecommunications, computer, & information services.
 - India's services export growth surged to **12.8 percent** during april–november **FY 25**, up from **5.7 per cent** in **FY 24**.
 - Forex at **usd 640.3 billion**, sufficient to cover **10.9 months** of imports and **90 percent** of external debt.
- **Agriculture and Allied Sector:**
 - **Agriculture and allied activities sector** contributes approximately **16%** of the country's **Gross Domestic Product (GDP)** for **Financial Year (FY) 2024 (Provisional Estimate - PE)** at current prices.
 - **Kharif foodgrain production** is expected to reach **1,647.05 Lakh Metric Tonnes (LMT)**, an increase of **89.37 LMT** from the previous year.
 - **Fisheries sector** showed the highest **Compound Annual Growth Rate (CAGR)** of **8.7%**, followed by **livestock** with a **CAGR** of **5.8%**.
- **Renewable Energy**
 - Installed electricity generation capacity from non-fossil fuel source accounts for **46.8 per cent** of the total capacity.
 - Additional carbon sink of **2.29 billion tonnes co2 equivalent** has been created between **2005** and **2023**.
- **Social Sector**
 - Social services expenditure registers an annual growth rate of **15 per cent** from **FY 21** to **FY 25**.
 - Government health expenditure increases from **29.0 per cent** to **48.0 per cent**; expenditure by people on health declines from **62.6 percent** to **39.4 per cent**
- **Employment**
 - Unemployment rate declines to **3.2 per cent** in **2023-24** from **6.0 per cent** in **2017-18**.
 - Growing digital economy and renewable energy sectors provide enhanced opportunities for job creation, essential for achieving **Viksit Bharat's** vision.
 - **PM-Internship scheme** emerges as transformative catalyst for employment generation

- The total receipts other than borrowings and the total expenditure are estimated at ₹ 34.96 lakh crore and ₹ 50.65 lakh crore respectively.
- The net tax receipts are estimated at ₹ 28.37 lakh crore.
- The fiscal deficit is estimated to be 4.4 per cent of GDP.
- The gross market borrowings are estimated at ₹ 14.82 lakh crore.
- Capex Expenditure of ₹11.21 lakh crore (3.1% of GDP) earmarked in FY 2025-26.

Four engines of development as outlined in the Budget

- Agriculture As the 1st Engine of Development
 - **Prime Minister Dhan-Dhaanya Krishi Yojana** - Developing Agri Districts Programme
 - **Building Rural Prosperity and Resilience:** A comprehensive multi-sectoral programme to be launched in partnership with states to address under-employment in agriculture through skilling, investment, technology, and invigorating the rural economy.
 - **Aatmanirbharta in Pulses:** Government to launch a 6-year “Mission for Aatmanirbharta in Pulses” with focus on Tur, Urad and Masoor.
 - **National Mission on High Yielding Seeds:** A National Mission on High Yielding Seeds to be launched aiming at strengthening the research ecosystem, targeted development and propagation of seeds with high yield, and commercial availability of more than 100 seed varieties.
 - **Fisheries:** Government to bring a framework for sustainable harnessing of fisheries from Indian Exclusive Economic Zone and High Seas, with a special focus on the Andaman & Nicobar and Lakshadweep Islands.
- MSMEs as the 2nd Engine of Development
 - **Revision in classification criteria for MSMEs:** The investment and turnover limits for classification of all MSMEs to be enhanced to 2.5 and 2 times respectively.
 - **Credit Cards for Micro Enterprises:** Customized Credit Cards with ₹ 5 lakh limit for micro enterprises registered on Udyam portal, 10 lakh cards to be issued in the first year.
 - **Fund of Funds for Startups:** A new Fund of Funds, with expanded scope and a fresh contribution of ₹ 10,000 crore to be set up.
 - **Scheme for First-time Entrepreneurs:** A new scheme for 5 lakh women, Scheduled Castes and Scheduled Tribes first-time entrepreneurs to provide term-loans upto ₹ 2 crore in the next 5 years announced.
- Investment as the 3rd Engine of Development
 - **Saksham Anganwadi and Poshan 2.0:** The cost norms for the nutritional support to be enhanced appropriately.

- **Atal Tinkering Labs:** 50,000 Atal Tinkering Labs to be set up in Government schools in next 5 years.
- **Broadband Connectivity to Government Secondary Schools and PHCs:** Broadband connectivity to be provided to all Government secondary schools and primary health centres in rural areas under the Bharatnet project.
- **Public Private Partnership in Infrastructure:** Infrastructure-related ministries to come up with a 3-year pipeline of projects in PPP mode, States also encouraged.
- **Support to States for Infrastructure:** An outlay of ₹1.5 lakh crore proposed for the 50-year interest free loans to states for capital expenditure and incentives for reforms.
- **Asset Monetization Plan 2025-30:** Second Plan for 2025-30 to plough back capital of ₹ 10 lakh crore in new projects announced.
- **Urban Challenge Fund:** An Urban Challenge Fund of ₹ 1 lakh crore announced to implement the proposals for ‘Cities as Growth Hubs’, ‘Creative Redevelopment of Cities’ and ‘Water and Sanitation’, allocation of ₹ 10,000 crore proposed for 2025-26.
- Exports as the 4th Engine of Development
 - **Export Promotion Mission:** An Export Promotion Mission, with sectoral and ministerial targets, driven jointly by the Ministries of Commerce, MSME, and Finance to be set up.
 - **BharatTradeNet:** ‘BharatTradeNet’ (BTN) for international trade to be set-up as a unified platform for trade documentation and financing solutions.

Critical Analysis and Scrutiny of the Budget

- **Overly Optimistic Fiscal Consolidation Targets**
 - The target to reduce the fiscal deficit to 4.4% of GDP by FY26 relies on ambitious revenue projections (11.2% growth in tax revenues), which appear unrealistic.
 - Reasons why the target is unrealistic:
 - ◆ Tax cuts announced in the Budget.
 - ◆ Economic headwinds like softening consumption and weak external demand.
 - ◆ Risks of crowding out private investment due to high net market borrowings (₹11.54 lakh crore).
 - ◆ Underperformance of previous asset monetization plans, raising doubts about the new 2025-30 strategy.
- **Unsustainable Tax Reforms:** While the tax relief for incomes up to ₹12 lakh benefits the middle class, it risks:
 - Revenue loss of ₹1 lakh crore, limiting funds for critical infrastructure and social welfare.

- Erosion of the tax base amid a structural decline in household savings (18.4% of GDP in FY23).
- Long-term questions about balancing tax cuts with investments needed for inclusive growth.

- **Manufacturing Ambitions Lack Depth**

- Production-Linked Incentives (PLIs) show limited scalability, and the sector remains stagnant at 17% of GDP.
- Key gaps in the manufacturing sector:
 - ◆ **Low R&D investment** (0.64% of GDP), lagging behind competitors like China and Germany.
 - ◆ No concrete measures to address **regulatory inefficiencies**, infrastructure gaps, or innovation deficits.
 - ◆ Revised MSME criteria may improve scale but fail to resolve core competitiveness issues.

- **Superficial Agricultural Reforms:** Initiatives like the PM Dhan-Dhaanya Krishi Yojana focus on credit access, but they overlook systemic issues like:

- Continued reliance on short-term debt without tackling price volatility or market access.
- No strategy to boost agricultural exports (e.g. millets, natural farming).
- Precision support in 100 districts ignores broader inefficiencies in agricultural markets.

- **Weak External Sector Strategy**

- **Overdependence on IT/services exports** (10.5% CAGR) with inadequate diversification efforts.
- Reasons for persistent trade deficit:
 - ◆ Insufficient scale of initiatives like Bharat Trade Net (BTN).
 - ◆ No fiscal push for value-added sectors (pharma, renewables, electronics) to integrate into global supply chains.
 - ◆ Lack of measures to address rupee depreciation and declining forex reserves.

- **Incremental Climate Action**

- Clean-tech incentives (e.g. lithium-ion recycling, solar PV support) are pragmatic but lack ambition.
- There are no major investments in grid modernization or industrial decarbonization.
- There is a fragmented approach to energy transition, missing a holistic roadmap for a low-carbon economy.

Conclusion

- The Budget's success hinges on resolving core contradictions like balancing private enterprise with inclusive development, boosting consumption without further eroding household savings and accelerating growth while maintaining macroeconomic stability.

EXPECTED QUESTION FOR UPSC CSE

Descriptive Question

- Q. The government laid out an ambitious road map for Viksit Bharat, spanning agriculture, manufacturing, micro, small and medium enterprises (MSME), social welfare, and infrastructure, but the Budget's policy announcements and fiscal plans need closer scrutiny. Comment. [10 marks] [150 words]

BUDGETARY ALLOCATIONS FOR THE AGRICULTURE SECTOR

Why in News: The **agriculture sector** has been described as the **first engine of growth** by Finance Minister Nirmala Sitharaman in the Union Budget. *Several schemes have been announced, but some farmers' groups are unhappy, saying the budget will increase farming costs while reducing support for farmers.*

Prime Minister Dhan-Dhaanya Krishi Yojana

- A new scheme aimed at benefiting **1.7 crore farmers** in **100 districts** where **crop production is low**.
- The goal is to **boost agricultural productivity** in these areas through better support.
- Likely to include **financial aid, improved irrigation, technology adoption, and other incentives** to help farmers grow more crops.
- **Why is this important?**
 - Many districts in India struggle with **low crop yields due to poor soil, lack of water, or outdated farming techniques**. This scheme is expected to **help farmers in these districts improve their production and income**.

Reduction in Budget Allocation for Agriculture

- **The total budget for the Department of Agriculture and Farmers Welfare has been reduced by ₹3,905.05 crore** compared to last year's revised estimates.
- **Current allocation: ₹1,27,290.16 crore**
- **Last year's revised allocation: ₹1,31,195.21 crore**
- This means that overall **funding for agriculture has been cut**, which could affect several existing schemes.

Reduction in Crop Insurance Allocation:

- The **Pradhan Mantri Fasal Bima Yojana** (Crop Insurance Scheme) has received **₹3,621 crore less** than last year.
- **New allocation: ₹12,242 crore** (previous year: ₹15,864 crore).
- This could affect **farmers' ability to get compensation** for crop losses.

Reduction in Fertilizer Subsidy

- New allocation: ₹1,56,502.44 crore
- Last year's revised allocation: ₹1,83,003.29 crore
- Reduction: ₹26,500.85 crore
- Why is this significant?
 - The **government provides subsidies** on fertilizers to ensure that farmers get them at **low prices**.
 - With reduced funds, **the cost of fertilizers could go up**, making farming **more expensive for small and marginal farmers**.
 - This could **increase the overall cost of food production** and lead to **higher food prices for consumers**.

Increase in Loan Limit under the Modified Interest Subvention Scheme

- **Loan limit under Kisan Credit Card (KCC) increased from ₹3 lakh to ₹5 lakh.**
- **Who benefits?**
 - **7.7 crore farmers**, including **fishermen and dairy farmers**.
- **What does this mean?**
 - Farmers can **borrow more money at lower interest rates** for short-term needs like seeds, fertilizers, and equipment.
 - This helps them manage **cash flow and invest in better farming practices**.
- **Why is this important?**
 - Many farmers **depend on credit for their farming activities**.
 - With **higher loan limits**, they can **borrow more at affordable rates** instead of relying on private moneylenders who charge high-interest rates.

Aatmanirbhar (Self-Reliance) in Pulses – New Mission for 6 Years

- Focus on increasing **production of pulses like tur, urad, and masoor**.
- India **imports a lot of pulses**, leading to **price fluctuations**.
- This mission aims to **increase domestic production, reduce dependence on imports, and stabilize prices**.
- **Why is this important?**
 - Pulses are a key source of **protein in Indian diets**.
 - Encouraging **local production** will ensure **better income for farmers and stable prices for consumers**.

₹100 Crore Allocation for Makhana Board in Bihar

- Makhana (Fox nut) is a popular food product grown mainly in **Mithilanchal region of Bihar**.
- In 2022, it received a **Geographical Indication (GI) tag**, which means it is officially recognized as a speciality of Bihar.

- The government announced a special **Makhana Board** to improve its **production, processing, value addition, and marketing**.
- This will help **over 5 lakh farmers**, most of whom belong to economically weaker sections.
- The districts benefiting from this move include **Darbhanga, Madhubani, Sitamarhi, Saharsa, Katihar, Purnia, Kishanganj, Araria, Supaul, and Madhepura**.

Increased Funding for Fisheries and Animal Husbandry

- **Allocation increased by ₹1,500 crore** compared to last year's revised estimates.
- **Why is this important?**
 - Fisheries and livestock are **important for rural economies**, providing **employment and nutrition**.
 - More funds mean **better infrastructure, disease control, and export support**.

Reduction in Basic Customs Duty (BCD) on Certain Fish Products

- **BCD on frozen fish paste (Surimi) reduced from 30% to 5%.**
- **BCD on fish hydrolysate (used in shrimp/fish feed) reduced from 15% to 5%.**
- **Why was this done?**
 - To make **India more competitive in global seafood exports**.
 - Lower import duties mean **lower production costs for seafood companies**.
 - This will help **India's seafood industry grow and compete in international markets**.

EXPECTED QUESTION FOR UPSC CSE

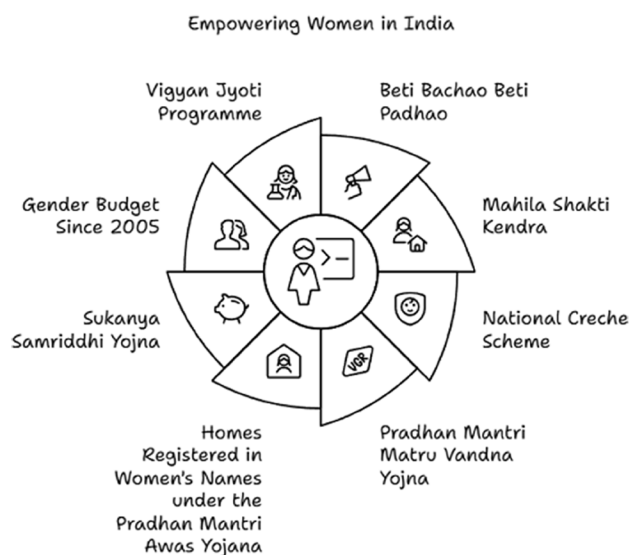
Descriptive Question

- Q.** Discuss the key budgetary measures for the agriculture sector and their potential impact on farmers, agricultural productivity, and rural livelihoods in India. [15 marks] [250 words]

KEY BUDGET ANNOUNCEMENTS FOR WOMEN'S FINANCIAL INDEPENDENCE

Why in News: The Union Budget for this year focuses on **enhancing the financial independence of women** and creating a **supportive work environment** for them. The government aims to **increase women's participation in economic activities to 70%**, meaning more women should have jobs or run businesses.

Women's Entrepreneurship Loan Scheme



- A new scheme has been introduced under which **5 lakh women** will receive **entrepreneurship loans** over the next **five years**.
- The loan amount can be up to **₹2 crore** per woman entrepreneur.
- The goal of this scheme is to **help women start or expand businesses**, which will **boost employment, innovation, and economic growth**.
- These loans are likely to come with **lower interest rates or easy repayment options**, though the exact details will be clarified in policy guidelines.
- **Why is this important?**
 - Many women face difficulties in getting loans due to lack of collateral or financial support.
 - This scheme will **remove financial barriers** and encourage more women to become business owners.

Total Allocation for the Women and Child Development Ministry

- The government has allocated **₹26,889 crore** to the Women and Child Development Ministry.
- This is an **increase from the Revised Estimate of ₹23,182 crore** last year.
- Last year's budget had allocated **₹26,092 crore**, but the actual spending was lower.
- The increase in funds means **the government is focusing more on programs for women and children**.

Major Allocations within the Women and Child Development Ministry

Saksham Anganwadi and Poshan 2.0 – ₹21,960 crore

- **What is this program?**
 - It is a **nutrition and childcare program** aimed at improving the health of women and children.
 - **Saksham Anganwadi** is an initiative to upgrade **Anganwadi centers** with better facilities, nutrition support, and early childhood education.
 - **Poshan 2.0** is a continuation of the **POSHAN Abhiyaan (National Nutrition Mission)**, which aims to reduce malnutrition, anemia, and stunting among children.
- **Why is this important?**
 - Malnutrition affects the physical and mental development of children.
 - Improved Anganwadi centers help mothers and children by providing **nutritious food, healthcare services, and early education**.
 - This program will directly **benefit millions of women and children**, ensuring a **healthier next generation**.

Mission Vatsalya – ₹1,500 crore

- **What is Mission Vatsalya?**
 - This program focuses on **child protection services and welfare of children** in need.
 - It supports orphaned, abandoned, or vulnerable children by providing them **care, shelter, and rehabilitation**.
- **Why is this important?**
 - India has a large number of **orphaned and abandoned children** who need government support.
 - This scheme ensures that these children receive **education, healthcare, and a safe environment**.
 - The budget for this program has increased from **₹1,391 crore to ₹1,500 crore**, showing the government's focus on child welfare.

Response from Women's Organizations and Industry Bodies

- Women's organizations and industry groups have **welcomed these budget measures**.
- **Why?**
 - The **loan scheme** will help more women become entrepreneurs.
 - The **increase in funding** for child welfare and nutrition programs will improve **women's and children's well-being**.
 - These steps contribute to **women's empowerment**, which is essential for economic development.

EXPECTED QUESTION FOR UPSC CSE

Descriptive Question

Q. The Union Budget for this year has introduced several measures to enhance women’s financial independence and child welfare. Discuss the significance of the Women’s Entrepreneurship Loan Scheme and increased allocations for programs like Saksham Anganwadi & Poshan 2.0 and Mission Vatsalya in promoting gender empowerment and inclusive growth. [15 marks] [250 words]

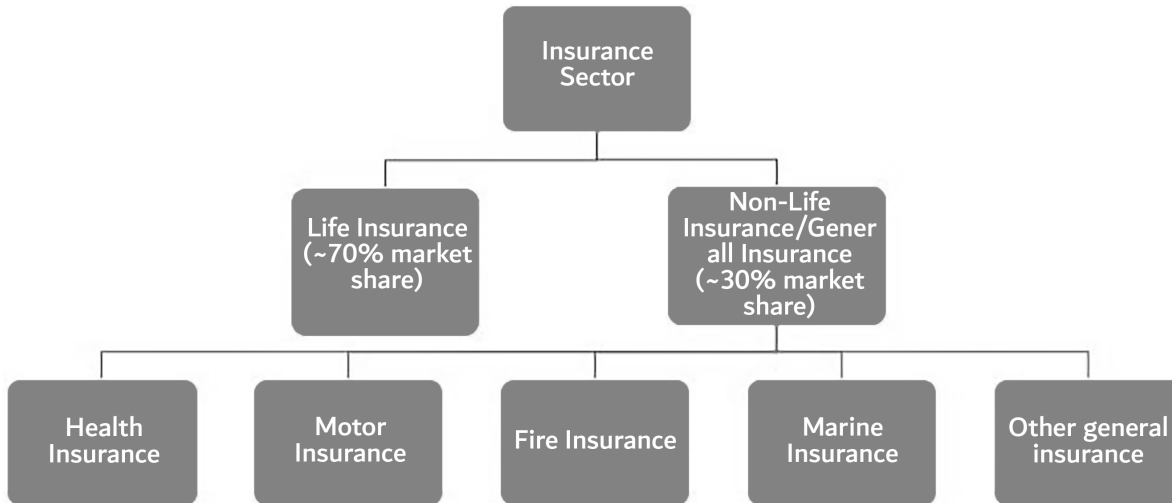
INSURANCE SECTOR

Why in News: In the budget 2025, the finance minister announced a proposal to raise the FDI limit in the insurance sector to 100%.

Key Details

- **Increase in limit:** FM said that the Foreign Direct Investment (FDI) limit for the insurance sector will be raised from 74 to 100 percent.
- **Target companies:** This enhanced limit will be available for only those companies which invest the entire premium in India.
- **More reforms assessed:** Further the different guardrails and conditionalities associated with foreign investment at present will be reviewed and simplified.

About Insurance Sector in India



- Insurance in India covers both public and private sector organisations. It is listed in the **Seventh Schedule of India’s Constitution as a Union List subject**, meaning it can only be legislated by the Central government.
- **Legal Structure:** The **Insurance Act of 1938** was the first legislation governing all forms of insurance to provide strict state control over insurance business. Life insurance

- **Changes to acts related to Insurance Sector:** The government has also sought public comments on proposed changes to the Insurance Act, 1938, the Life Insurance Corporation Act, 1956, and the Insurance Regulatory and Development Authority Act, 1999.

Significance of 100% FDI in Insurance sector

- **Reduce Unwanted Expenditures:** A large portion of India’s population and insurable assets remain uninsured, which escalates the risk of high out-of-pocket expenses and places significant pressure on public finances.
- **Achieve “Insurance For All”:** The proposal will help the Insurance Regulatory and Development Authority (IRDAI) to achieve its pledge of “Insurance for All” by 2047.
- **Create a strong “Insurance Economy”:** A 100 per cent FDI allowance would ensure long-term capital availability, enabling insurers to adopt emerging technologies, strengthen distribution networks, and enhance market competitiveness.
- **Invite Foreign Investments:** The move is also expected to attract global insurance firms, generate employment, and simplify foreign investment by removing the requirement for overseas investors to collaborate with Indian partners.
- **Advantage to Consumers:** The proposal is likely to lead to better product offerings, enhanced customer service, and competitive pricing, ultimately improving insurance penetration and narrowing the protection gap.

- in India was completely nationalised on 19 January 1956, through the Life Insurance Corporation Act.
- **Regulatory Authority:** The primary regulator for insurance in India is the **Insurance Regulatory and Development Authority of India (IRDAI) which was established in 1999** under the government legislation called the Insurance Regulatory and Development Authority Act, 1999.

- **Global scenario:**
 - Currently, **India is the 10th-largest insurance market in the world.** India's total premium volume in 2022 stood at US\$ 131 billion, up from US\$ 123 billion, a surge of 6.5% YoY.
 - As per Swiss Re's report, India is projected to become the sixth-largest insurance market in 2032, surpassing Italy, Canada, South Korea, and Germany.

Way Forward

- **Consistent Transformation:** The insurance sector in India has played a vital role towards the steadiness and growth of the Indian economy. It has gone through significant transformation over the past few decades, driven by regulatory reforms.
- **Tech driven Industry:** The adaptation of the latest technologies and the rising customer awareness (especially after COVID-19 pandemic) has established a strong base for the industry to flourish in the near future.
- **High Economic Value:** As per IRDAI, the insurance market in India is expected to touch US\$ 222 billion by 2026. Additionally, IRDAI has adopted a new mission of 'Insurance for All' 2047, that is expected to increase the insurance penetration, while ensuring the ease of doing business for the insurers.
- **Highest growth in India:** As per Swiss Re, the insurance sector in India is projected to grow the fastest among the G20 countries, with the total premium projected to grow at an average of 7.1% as compared with the global average of 2.4% between 2024-28.
- **Innovation will Drive Expansion:** Despite the various challenges that the industry faces, they present an opportunity for the various stakeholders in the sector to innovate and expand the sector further.

EXPECTED QUESTION FOR UPSC CSE

Descriptive Question

Q. "Insurance sector has seen a major boom in recent decades in India". Explain the statement and highlight the implications of the recent increase in FDI limit for the Insurance sector. [15 marks, 250 words]

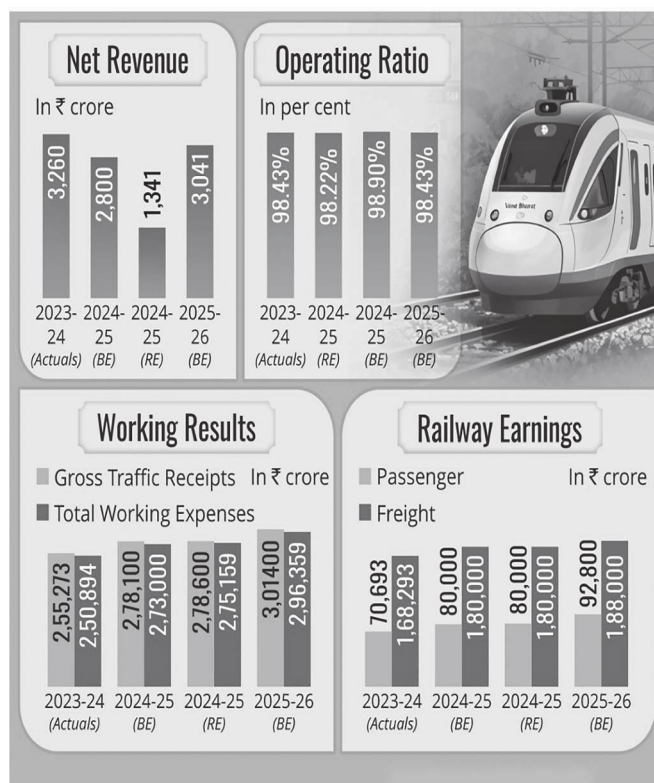
UNION BUDGET: INDIAN RAILWAYS

Why in News: In the Union Budget 2025, the highest-ever capital allocation of Rs. 2.65 lakh crores has been allotted for the Ministry of Railways.

Key Details: Budget Overview

- This allocation will **support the continued development and modernisation of India's railway network**, with a particular emphasis on increasing revenue from both passenger and freight services.

- **Revenue:** The Railways' internal revenue for 2025-26 is estimated to be Rs 3,02,100 crore. This is an increase of 8.3% over the revised estimate for 2024-25.
- **Traffic revenue:** In 2025-26, **99.8% of revenue is estimated to be raised from traffic operations (Rs 3,01,400 crore).**
 - **62% of traffic revenue is estimated to come from freight services (Rs 1,88,000 crore),** and 31% from passenger services (Rs 92,800 crore).
 - In 2025-26, revenue from freight and passenger services are estimated to increase by 4.4% and 16% over the previous year, respectively.
- **Revenue Expenditure:** The total revenue expenditure in 2025-26 is estimated at Rs 2,99,059 crore, an increase of 7.7% over the revised estimate of 2024-25.
- **Capital expenditure:** In 2025-26, capital expenditure is estimated at Rs 2,65,200 crore, the same as the revised estimate for 2024-25. In both 2024-25 and 2025-26, the budgetary support from the central government is estimated at Rs 2,52,200 crore, financing 95% of the capital expenditure in these years.



Initiatives and Focus Areas in the Budget for Railways

- **Private Investment in Freight Infrastructure**
 - **General Purpose Wagon Investment Scheme:** Private investment in general-purpose wagons.
 - **Liberalised Wagon Investment Scheme:** Investment in specialized wagons, including Roll-on-Roll-off services.
 - **Automobiles Freight Train Operator Scheme:** Private wagons for automobile transport.

- **Wagon Leasing Scheme:** Leasing wagons via PPP models.
- **Station Modernization: Amrit Bharat Station Redevelopment Scheme:** Upgrade 1,337 stations with improved access, kiosks for local products, and business lounges.
- **Freight Capacity Expansion**
 - Dedicated Freight Corridors (DFCs): Operationalize Eastern and Western DFCs (2,741 km) to increase freight speed (48–54 kmph).
 - National Rail Plan (NRP) Targets: Achieve 45% rail modal share in freight by 2030 and increase average freight speed to 50 kmph.
- **Passenger Services**
 - **Amrit Bharat Non-AC Trains:** Introduce non-AC sleeper and general coaches.
 - **Vande Bharat Trains:** Expand AC chair car (136 operational) and sleeper variants (post-trials).
 - **Bharat Gaurav Trains:** Promote tourism with mixed AC/non-AC coaches.
- **Energy Efficiency**
 - **Electrification:** 97% of broad-gauge routes electrified by 2025-26.
 - **Renewable Energy Targets:** Install 30 GW solar/wind capacity by 2030.
- **Safety Measures: Kavach System:** Automatic train protection system deployed on 1,465 route km (₹1,547 crore spent).

Challenges in Indian Railways

- **Financial Sustainability**
 - High operating ratio (98.43% in 2025-26), limiting surplus for capital investments.
 - Over-reliance on central government grants (95% of capital expenditure).
 - Cross-subsidization of passenger services by freight revenue.
- **Freight Sector**
 - Declining modal share (26% in 2021-22 vs. 36% in 2007-08).
 - Over-dependence on coal (52% of freight revenue), posing risks due to decarbonization goals.
 - Competition from road transport due to poor first/last-mile connectivity.
- **Passenger Services**
 - Losses in most classes (e.g. Sleeper: ₹17,038 crore in 2021-22).
 - Stagnant growth in non-AC segments (e.g. Ordinary Class: -10% annual growth).
- **Infrastructure Constraints**
 - Network congestion (80% of high-density routes over 100% capacity).

- Backlog in asset renewal (₹34,319 crore for rolling stock, tracks, etc.).
- **Energy and Efficiency**
 - Slow adoption of renewable energy (375 MW solar, 103 MW wind by 2024).
 - Rising specific energy consumption in freight operations.

Way Forward

- **Enhance Freight Competitiveness**
 - Accelerate DFC completion and develop new corridors (east-west, north-south).
 - Improve first/last-mile connectivity via Gati Shakti cargo terminals (91 of 354 commissioned).
 - Diversify freight mix (e.g. containers, chemicals, FMCGs).
- **Financial Reforms**
 - Rationalize passenger fares to reduce losses while ensuring affordability.
 - Boost non-fare revenue (e.g., ads, land monetization) to meet the 20% target by 2030.
 - Expand PPP models for station redevelopment and infrastructure projects.
- **Modernization and Safety**
 - Scale up Kavach coverage and prioritize track renewal/electrification.
 - Address staff training gaps to reduce accidents (68% caused by human error).
- **Sustainable Growth**
 - Fast-track renewable projects and open electricity procurement in all states.
 - Align coal transportation plans with decarbonization targets.
- **Policy Clarity**
 - Define social vs. commercial objectives (per NITI Aayog recommendations).
 - Implement 8th Pay Commission and unified pension scheme judiciously to manage salary/pension costs.

Conclusion

To ensure the long-term sustainability and efficiency of Indian Railways, a balanced approach is needed, one that boosts freight competitiveness, modernizes infrastructure, ensures financial viability, and enhances safety measures. Strategic investments, policy clarity, and sustainable energy adoption will be key to transforming the railways into a more efficient and future-ready transport system.

EXPECTED QUESTION FOR UPSC CSE

Descriptive Question

Q. What are the various challenges plaguing the effective Operations and management of Indian Railways? Discuss the solutions for these challenges. [15 marks] [250 words]

- **Global trade: Sixth largest exporter** of textiles, with a **3.91% share in world textile exports**.
- **Production:** The domestic textile and apparel production is **approximately US\$175.7 billion**.
- **Employment generation:** The sector provides direct employment to over **45 million people**, including a large number of women and the rural population.
- **Export value: Currently, ₹3 lakh crore**, with a target to increase this to ₹9 lakh crore by 2030.

Challenges faced by India's textile sector

- **Pollution:** The industry uses **various chemicals, acids, industrial enzymes, and alkaline solutions**. These chemicals and pollutants are **directly released into the environment without any treatment, which can pose serious health risks**.
 - **Microfibre pollution:** Textile manufacturing processes and water used during manufacturing lead to about **half a million tonnes of microfibre pollution, most of it dumped in rivers and oceans**.
- **Raw material issues:** An unhealthy **over-reliance on cotton imports** from other countries, leading to rising raw material prices and supply bottlenecks.
- **Unorganised sector: Only 5% of the apparel industry is classified as organised, leading to industrial fragmentation and skill shortages** along with issues of economies of scale.
- **Water consumption:** Studies show that the production of **one cotton shirt requires up to 2700 litres of water**.
- **Electricity consumption:** Spinning and fabric production processes are **very energy intensive**, with a "total of 34% of all energy being used for spinning, 23% for weaving, and 38% for chemical processing. The textile industry in India currently has the **lowest efficiency in energy utilisation as compared to other energy-consuming industries**.
- **Mass and fat consumption:** Nearly **1 kg of textile waste a year per person in a country of 120 crore + people**. Almost 85% of all the clothes used end up in the landfills.

Solutions

- **Recycling and Upcycling:** Many companies are using their waste and converting it into unique garments, thereby contributing to the global **circular economy**. For example, textile brands like **Pomogrenade and The Second Life** have implemented the sustainable **concept of upcycling**.
- **Sustainable energy:** Many textile factories are **progressively installing rooftop solar panels**, which not only reduce the usage of fossil fuels but also promote energy efficiency. For example, Welspun.
- **Eco-conscious water management and dyeing process:** Reusing wastewater in manufacturing processes and applying water recycling systems will reduce the overall water footprint and promote water management in the sector.

- **Biodegradable textiles:** Advancement in material science has supported the **production of textiles that naturally decompose, which will help in reducing the environmental impact**.

Government Initiatives

- **Schemes for Capacity Building and Development in Textile Sector (SAMARTH)**
 - Aims to **address skilled manpower requirements in the textile sector**.
 - Formulated under the "Skill India" initiative by the Ministry of Skill Development and Entrepreneurship.
- **Amended Technology Upgradation Fund Scheme (ATUFS)**
 - Promotes **ease of doing business and employment generation**.
 - Supports the Make in India initiative with "Zero Effect and Zero Defect" in manufacturing.
 - Provides **credit-linked Capital Investment Subsidy (CIS) for purchasing benchmarked machinery**.
- **National Technical Textile Mission (NTTM)**
 - With an outlay of ₹1480 crore, the scheme aims to **develop and promote the use of technical textiles**.
 - The scheme **integrates technical textiles into flagship missions, national programs, and strategic sectors**.
- **The PLI Textiles Scheme**
 - The incentive structure has been designed in a way that will **incentivise industry investment in the production of technical textiles, high-value MMF fabric, and clothing**.
 - This will significantly **boost the expanding high-value MMF market**.
 - **Over 7.5 lakh new jobs will be created in this sector**, which will also generate over Rs. 19,000 crore in new investment and a total turnover of over Rs. 3 lakh crore.
- **PM-MITRA (PM Mega Integrated Textile Region and Apparel Parks)**
 - Establishes **7 PM-MITRA Parks on Greenfield/Brownfield sites**, under the Make in India initiative to boost employment generation
 - Provides world-class infrastructure, including plug-and-play facilities.
- **Integrated Processing Development Scheme (IPDS)**
 - Helps the textile industry **meet environmental standards**.
 - Supports the **establishment and upgradation of Common Effluent Treatment Plants (CETPs)**.
 - Targets existing textile processing clusters and new processing parks, especially in coastal zones.

Conclusion

To ensure the sustainable growth of India's textile sector, **a balanced approach is needed, one that integrates eco-friendly practices, reduces raw material dependency, and enhances energy efficiency**. With innovation, policy support,

and responsible manufacturing, the industry can thrive while minimizing its environmental footprint.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements regarding India's textile sector:

1. It is the largest employment-generating sector in India.
2. India is the second largest exporter of textiles.
3. Recently, India launched the 1st edition of Bharat Tex in New Delhi.

How many of the statements given above is/are correct?

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

Answer (a) 3 only

Descriptive Question

Q. The textile sector in India plays a crucial role in the economy, contributing significantly to revenue, employment, and exports. However, it faces multiple challenges, including environmental concerns, raw material dependency, and high energy consumption. Discuss these challenges in detail and suggest viable solutions and policy measures to ensure its sustainable growth. [250 words] [15 marks]

LIQUIDITY PUSH

Why in News: The Reserve Bank of India, on a review of current liquidity and financial conditions, has decided to conduct a few operations to inject liquidity into the banking system.

Key Details

- These were the measures announced by India's Central bank:
 - **OMO purchased auctions of Government of India securities for an aggregate amount of ₹60,000 crore** in three tranches of ₹20,000 crore each to be held on: January 30, 2025, February 13, 2025, February 20, 2025.
 - **56-day Variable Rate Repo (VRR) auction** for a notified amount of ₹50,000 crore to be held on February 7, 2025.
 - **USD/INR Buy/Sell Swap auction of USD 5 billion** for a tenor of six months to be held on January 31, 2025.

Why is there a Liquidity Issue?

- **Negative Balance of Payments:** The swing from surplus to deficit was led by balance of payments turning deep negative from Q3FY25 onwards with outflows in both FPI and FDI.
- **Low Capital Inflows :** It implies that capital inflows are not enough to fund the current account deficit, forcing the RBI to bridge the gap by selling dollars.
- **Sale of dollar:** The substantial dollar sales by RBI have drained banking system liquidity by Rs 3.9 trillion in FYTD25
- **Delayed Impact:** Liquidity from the government enters the market with a time lag, causing fluctuations in overall liquidity.

PRELIMS SPECIAL

About Open market operations

- **Open market operations** are a monetary policy tool. They are employed by the Reserve Bank of India (RBI) to:
 - Regulate liquidity in the banking system
 - Influence interest rates and
 - Control inflation
- The RBI conducts OMO by **purchasing and selling government securities and bonds** in the public financial domain or the open market. The term "open market" implies that these **transactions occur openly in the financial market between the RBI and other financial institutions or investors.**
- **How does the RBI manage liquidity through OMO?**
 - When the RBI wants to inject liquidity into the banking system, it purchases government securities from:
 - ◆ Commercial banks and
 - ◆ Other financial institutions
 - This infusion of funds increases the amount of money available to banks for lending and investment purposes.
- How does OMO help in controlling inflation?
 - OMO is popularly used to control inflation. The RBI conducts OMO when it perceives that:
 - ◆ There is excess liquidity in the system
 - ◆ This excess can lead to inflationary pressures
 - In such a scenario, RBI sells government financial securities. This action:
 - ◆ Absorbs excess liquidity
 - ◆ Reduces the money supply and
 - ◆ Curbs inflationary pressures

Variable Repo Rate (VRR)

- **Variable Repo Rate (VRR)** is a short-term liquidity adjustment tool used by the RBI to provide funds to the banking system. The RBI has the discretion to conduct overnight or longer-term repo auctions at either fixed or variable rates, depending on market conditions and other relevant factors.

- In this mechanism, banks borrow funds at an interest rate determined through an auction process.
- The RBI decides the auction amount. It operates under the Liquidity Adjustment Facility (LAF).

About USD/INR Buy/Sell Swap auction

- It's a forex tool whereby the **central bank uses its currency to buy another currency or vice versa.**
- In a Dollar-Rupee buy / sell swap, the central bank buys dollars (US dollars or USD) from banks in exchange for Indian Rupees (INR) and immediately gets into an opposite deal with banks **promising to sell dollars at a later date.**
- Forex swaps help in liquidity management and (in a limited way) helps in keeping the currency rates in check.

EXPECTED QUESTION FOR UPSC CSE

Descriptive Question

Q. What are the various tools available with RBI to manage Liquidity in Economy?

Explain in light of recent steps taken by RBI to increase liquidity in the system.[10 marks, 150 words]

TAX AVOIDANCE

Why in News: The Central Board of Direct Taxes (CBDT) has issued **new guidance on the Principal Purpose Test (PPT)**, which applies to tax treaties that India has signed with other countries. The new guidelines clarify when and how the **PPT will apply** and specifically state that **certain older tax treaty benefits will not be affected.**

What is the Principal Purpose Test (PPT)?

- The **PPT is a rule** that helps **prevent tax avoidance** by ensuring that people or companies **cannot misuse tax treaties** just to reduce their tax liability.
- If a person or company **claims a tax benefit** under a treaty, but the **main purpose of their transaction is only to avoid taxes**, the tax department can **deny the benefit** using the **PPT rule.**
- This rule is part of **India's Double Taxation Avoidance Agreements (DTAAs)** with different countries.

Example:Imagine a company from Country A **sets up a shell company** in Country B only because Country B has a favorable tax treaty with India. If the real purpose of this company is just to **reduce taxes** and not to conduct genuine business, the Indian tax department can **deny tax benefits** under the PPT rule.

New PPT Guidelines Will Apply Prospectively (Future Transactions Only)

- The **new PPT rules will only apply to future transactions.**
- This means that **past transactions or existing investments will not be affected** by the new rule.

- This gives businesses and investors **clarity and certainty** that their past arrangements will not suddenly become invalid.

Why is this important? If the PPT rule applied **retroactively** (to past transactions), companies and investors would face **legal uncertainty and tax disputes.** This decision provides **stability** for businesses operating under older tax agreements.

Grandfathering Provisions for India's Tax Treaties with Cyprus, Mauritius, and Singapore Will Not Be Affected

What is a Grandfathering Provision?

A **grandfathering provision** is a special rule that **protects certain older tax benefits** even if new rules come into effect.

- India has signed **Double Taxation Avoidance Agreements (DTAAs)** with several countries, including **Cyprus, Mauritius, and Singapore.**
- In these agreements, India made **specific treaty-based commitments** that allow companies or investors from these countries to **continue enjoying tax benefits** under the **older rules.**
- The **new PPT guidelines will NOT override these commitments.**

Example:If a company from **Mauritius** has been investing in India and enjoying **certain tax benefits under the older DTAA**, the new PPT rule will **not take away those benefits.** The tax treatment will continue as per the **specific grandfathering provisions of the DTAA.**

Tax Authorities to Use BEPS Action Plan 6 and the U.N. Model Tax Convention for Guidance

- **BEPS Action Plan 6** refers to international tax guidelines designed to **prevent tax treaty abuse.**
- The **U.N. Model Tax Convention** provides rules on how countries should **structure tax treaties to avoid double taxation and prevent tax evasion.**
- The **CBDT has encouraged tax authorities in India to refer to these guidelines when interpreting the PPT rule.**
- However, India has made **some reservations on specific matters**, meaning it may not fully agree with every part of these global rules.

Why is this important?

- Tax officers will have **clearer instructions on how to apply the PPT rule.**
- This will **reduce legal disputes** between taxpayers and tax authorities.
- It will also make sure that the **PPT rule is applied in a fair and standardized manner.**

About Double Taxation Avoidance Agreement (DTAA)

- Double Taxation agreements **merely seek to do away with Double Taxation in instances of cross-border income flow.** They are widely pursued by nations to prevent a

situation where international economic activities are discouraged.

- A Double Taxation Avoidance Agreement (DTAA) is a **pact signed by two nations that encourages capital investment, trade in goods and services**, and other economic activities between the two nations by preventing International Double Taxation.
- This suggests that there are agreed-upon tax rates and jurisdictions for certain types of income that originate in one country and are received by tax residents of another country.
- **Objectives of DTAA**
 - The main purpose of a DTAA is to ensure that income earned by a resident of one country is not taxed twice, once in the country of residence and again in the country where the income is earned.
 - By lowering the tax burden on international transactions, DTAA's encourage businesses and individuals to engage in cross-border trade and investment.
 - DTAA's offer clear rules and guidelines on how income from various sources will be taxed, providing taxpayers with certainty and stability.
 - DTAA's often include provisions to prevent tax evasion and avoidance by promoting the exchange of information between tax authorities of the contracting countries. This helps detect and address tax fraud and make sure that taxpayers pay their share of taxes.

EXPECTED QUESTION FOR UPSC CSE

Descriptive Question

Q. What do you understand by the Principal Purpose Test under Double Tax Avoidance Agreement (DTAA)? How does DTAA help in reducing tax avoidance? [10 marks] [150 words]

RECIPROCAL TARIFFS AND THEIR IMPLICATIONS FOR INDIA'S ECONOMY

Why in News: Recently, the US President unveiled his plan to hit the whole world with "reciprocal tariffs."

Reciprocal tariffs

- A reciprocal tariff is a **tax or trade restriction that one country places on another in response to similar actions taken by that country.**
- The idea behind reciprocal tariffs is **to create balance in trade between nations.**
- If one country raises tariffs on goods from another, the affected country might respond by imposing its own tariffs on imports from the first country.

- **The goal of this response is to correct trade imbalances, maintain jobs, and safeguard local companies.**
- Trade barriers may rise back and forth as a result of reciprocal tariffs, thereby **sparking a trade war that hurts both economies.**
- These circumstances have the **potential to hinder economic growth, boost consumer prices, and upset supply systems.**
- Instead of using reciprocal tariffs to resolve trade disputes, it is crucial that **nations engage in open communication and cooperation.**

Impact on India

- **Bilateral trade: India exports nearly \$74 billion worth of goods to the US in 2024;** the implementation of these tariffs would impose annual financial losses between \$2 billion and \$7 billion.
- **Affects competitive edge:** Higher tariffs on Indian products will **decrease their competitive edge in the US market**, which will hit major labour-intensive sectors hard. Increased tariffs may cause **consumers to switch to purchasing from other low-cost manufacturing hubs, such as Bangladesh and Vietnam.**
- **Agriculture sector:** By sector, India imposes higher tariffs on agricultural products, which is generally **politically difficult for India to lower even in the event of reciprocal tariffs imposed by the USA.**
- **Effect on domestic industries:** In addition to raising prices for Indian exporters, these tariffs **may reduce market share, exacerbate competition from imports, and perhaps result in job losses and a slowdown in investment.**
- **Pharmaceutical sector:** India's pharmaceutical sector, a leading supplier of generic drugs to the US, will see its **profit margins squeezed due to increased costs.**

Way forward

- **Diversification of trade partners:** Increasing commercial relations with the **European Union (EU)**, expanding trade agreements with **neighbouring countries**, and engaging with emerging markets in **Africa and Latin America.**
- **Atmanirbhar Bharat:** Increased R&D spending in sectors driven by technology. Subsidies to help domestic businesses endure price increases.
- **Scaling up production capacity:** Implementation of programs like **production-linked incentives** to ensure enhanced production.
- **Negotiations:** A bilateral and collaborative approach to ensure fairness in tariffs imposed on each other's trade interests.

Conclusion

- Such tariffs' effects will go beyond a sudden decline in the export of goods. Higher tariffs on a number of goods combined with a persistent drop in exports would

discourage investment. Thus, India's attempts to promote industrial growth would be further strained as a result.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. What is a reciprocal tariff?

- (a) A tariff imposed on imports without any reference to other countries' tariffs
- (b) A tariff that matches or mirrors the tariff imposed by another country on exports

- (c) A tariff imposed only on luxury goods
- (d) A tariff that applies only to domestic goods

(b) Answer


Descriptive Question


Q. Discuss the impact of reciprocal tariffs on India's trade and economy. Suggest measures to mitigate the adverse effects of such tariffs while ensuring sustainable economic growth. [10 marks] [150 words]

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RESILIENCE OF MANGROVES

Why in News: A recent study highlights the remarkable resilience of the Sundarbans mangroves in enduring both natural and human-induced stresses.

About the Study

- **Title:** Resilience of Sundarban mangroves in South Asia to Weather Extremes and Anthropogenic Water Pollution
- **Conducted by:** Researchers from IIT Bombay, Indian Institute of Science Education and Research, Kolkata, and National Remote Sensing Centre (ISRO), Hyderabad.
- The study looked at the nutrient profile available to the mangroves in the soil from 2013 to 2015 and studied their response to it.
- It also looked at **how mangroves reacted to natural events like cyclones**. This was done by studying the mangroves' interactions with a variety of factors, including water, wind, water vapour, sunlight, etc.
- **Vegetation Productivity:** The rate at which a plant can convert solar energy into biomass through photosynthesis. It is a **marker of a plant's health**.
 - To study this, researchers looked at the light being re-emitted (after absorption for photosynthesis) by the chlorophyll in the mangroves. They also looked at the data from a flux tower, which measures the rate at which gases like carbon dioxide and water vapour move between the earth (including plants) and the atmosphere.

Findings of the Study

- **Rapid Recovery from Stress:** The results show that mangroves **recover from physiological stresses caused by weather extremes quickly, within one to two weeks**, and maintain stable productivity despite steeply declining nutrient composition due to human-induced water pollution.
- **Adaptive Mechanism:** The study demonstrated that mangroves maintain this stable productivity by increasing **link strength and memory** with the hydro-meteorological variables of the region.
- **Shifting Nutrient Ratios:** The study used the ideal Redfield Ratio (106:16:1 for carbon: nitrogen: phosphorus) as a benchmark. It **found that the nitrogen-to-phosphorus ratio increased from about 16:1 to roughly 75:1 by 2015—about a fivefold rise overall**, with some months showing

a tenfold increase between 2013 and 2015. At the same time, nitrate levels went up while phosphate levels went down.

Link Strength and Memory

- **Link Strength:** It describes the **robustness of the connections within a complex vegetation system**, such as a mangrove forest. It includes the physical intertwining of roots, the sharing of nutrients and soil components, and common exposure to environmental stressors. A stronger link means that the system's components are more interdependent, so a change in one part can influence the entire ecosystem.
- **Memory:** In plants, memory is the ability to remember past stress events—like cyclones or changes in water chemistry—and store that response. This stored experience allows the plants to adjust their future reactions, helping them cope better when similar stresses occur again.

Mangroves

- Mangroves are tropical plants that are **adapted to loose, wet soils, salt water and being periodically submerged by tides**.
- Four major factors appear to limit the distribution of mangroves: **climate, salt water, tidal fluctuation and soil type**.
- There are about **80 different species of mangrove trees**.
- All of these trees grow in **areas with low-oxygen soil**, where slow-moving waters allow fine sediments to accumulate.
- Mangrove forests **only grow at tropical and subtropical latitudes** near the equator because they cannot withstand freezing temperatures.

Sunderbans

- The Sunderbans contain the **world's largest mangrove forests and one of the most biologically productive** of all natural ecosystems.
- Located at the **mouth of the Ganges and Brahmaputra Rivers** between India and Bangladesh, its forest and waterways support a wide range of fauna including a number of species threatened with extinction.
- The mangrove habitat supports the **single largest population of tigers in the world which have adapted to an almost amphibious life**, being capable of swimming for long distances and feeding on fish, crab and water monitor lizards.

- Sundarbans National Park has been declared a **UNESCO World Heritage Site**.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements regarding Mangroves:

1. Mangroves possess specialized aerial roots to survive in oxygen-poor sediments.
2. Mangrove ecosystems act as critical nurseries for marine species and buffer coastal areas from storm surges.

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: (c)

PROTECTION OF PEATLANDS

Why in News: A recent study published in *Conservation Letters* has raised concerns about the severe underprotection of **peatlands**. The study warns that the continued degradation of these ecosystems could **undermine global climate goals**, highlighting the urgent need for stronger conservation efforts.

Key Details: Key Highlights from the Study

- Peatlands occupy only 3% of the Earth’s surface. They hold 600 billion tonnes of carbon — surpassing the carbon stored in all the world’s forest biomass combined.
- **Only 17% of peatlands are safeguarded globally:** Only 11% of boreal peatlands are protected, compared to 27% of temperate and tropical peatlands.
- At least 27% of the world’s peatlands are located on indigenous peoples’ lands, where these communities have protected them, and over 85% of peatlands on indigenous peoples’ lands are not part of other protected areas.
- **Challenges and Stress faced by peatlands**
 - Extensive drainage and degradation from commercial agriculture, forestry, mining, and infrastructure development
 - Peat extraction for fuel and horticulture
 - Climate change
 - Ramsar sites generally lack strong government commitment, evidenced by the absence of domestic legislation, legal frameworks or management plans in these sites.
- **Recommendations**
 - There is a large opportunity to expand the protection

& sustainable management of global peatlands and to strengthen protections for peatlands, particularly in the tropics where Ramsar designation is more prevalent.

- Country submissions of Nationally Determined Contributions under the Paris Agreement, National Biodiversity Strategy and action plans under the Kunming-Montreal Global Biodiversity Framework could help catalyse actions and secure funding for peatland conservation.
- It is crucial to include support for Indigenous stewardship to safeguard many of the world’s most important peatland areas.

About Peat and Peatland

- Peat
 - Consists of **dead, partly decomposed plant remains** (but still macroscopically recognizable) that have accumulated and have been conserved on the spot where they have been produced (in situ).
 - Peat forms in waterlogged areas where microbial decomposition of the dead organic matter is slowed by anoxic conditions or is very low.
- Peatland
 - Land with a naturally accumulated layer of peat near the surface. Peatlands include both ecosystems that are actively accumulating peat and degraded peatlands that no longer accumulate but in contrast lose peat.
 - They are found in a wide variety of climatic zones and under many different land cover types.
 - Peatland ecosystems are typically classified using hydrological, botanical and physiognomic characteristics. These features disappear or are altered if peatlands are drained or intensively used.
- Significance of Peatlands
 - Peatlands are **among the most carbon-rich ecosystems on Earth**, storing twice as much carbon as the world’s forests.
 - They have a **net cooling effect on climate**.
 - They **slow the flow of water, cleaning it naturally** and reducing flood risk.
 - They **provide floodplain storage in the lowlands**.
 - They support plant life, which provides habitats for wildlife.
 - Support biodiversity

PRELIMS SPECIAL

Global Peatlands Initiative

- The Global Peatlands Initiative is an effort by leading experts and institutions formed **at the UNFCCC COP in Marrakech, Morocco in 2016** to save peatlands as the world’s largest terrestrial organic carbon stock and to prevent it being emitted into the atmosphere.

- Members of the Initiative are working together within their respective areas of expertise to improve the conservation, restoration and sustainable management of peatlands.
- In this way the Initiative is contributing to several Sustainable Development Goals, including by reducing greenhouse gas emissions, maintaining ecosystem services and securing lives and livelihoods through improved adaptive capacity.

EXPECTED QUESTION FOR UPSC CSE

Descriptive Question

Q. Peatlands are among the most carbon-rich ecosystems on Earth, yet they remain severely underprotected. Discuss the ecological significance of peatlands and the challenges they face. Suggest measures for their effective conservation and management. [15 marks] [250 words]

DROP IN GLOBAL SEA ICE COVER

Why in News: Recently, the combined extent of Arctic and Antarctic Sea ice dropped to a new record low of 15.76 million sq km, surpassing the previous record of 15.93 million sq km, according to a BBC analysis of data from the **US National Snow and Ice Data Center (NSIDC)**.

About Sea Ice

- Sea ice refers to the free-floating ice in the polar regions. It generally expands during the winter and melts in the summer. Some sea ice remains year-round.
- Sea ice differs from icebergs, glaciers, ice sheets, and ice shelves, which form on land.
- **Significance of Sea Ice:** Sea ice plays a crucial role in cooling the planet by trapping existing heat in the ocean, and thus precluding it from warming the air above. **Therefore, a reduction in sea ice cover can have disastrous consequences for Earth.**
- **Reduction in Sea Ice:** Since the late 1970s, NSIDC has estimated that some 77,800 sq km of sea ice has been lost per year in the Arctic.
 - According to NASA, between 1981 and 2010, Arctic Sea ice extent in September — when it reaches its minimum extent — shrunk at a rate of 12.2% per decade.

Reasons for Decline in Sea Ice Cover

- Rising Global Temperatures
 - Arctic warming is nearly four times faster than the global average, accelerating ice melt.
 - Unprecedented warmth in polar regions (e.g. 20°C above normal in the Arctic in early February) drives melting.

- **Ocean Warming**
 - Warmer ocean waters delay freezing (e.g. **Hudson Bay's late freeze-up in 2024**).
 - Increased heat absorption by dark ocean surfaces (due to reduced ice cover) creates a feedback loop.
- **Atmospheric and Weather Extremes**
 - Winds break up thin, mobile Antarctic Sea ice.
 - Storms disrupt ice formation (e.g. in the Barents and Bering Seas), amplified by thinner ice.
 - High air temperatures in Antarctica (December–January 2025) promoted surface melting of ice shelves.
- **Thinning Ice and Feedback Loops**
 - Arctic sea ice is thinner and less resilient, making it more vulnerable to weather events.
 - Reduced ice extent lowers Earth's albedo effect (14% loss in cooling capacity since the 1980s), accelerating global heating.
- **Polar-Specific Dynamics**
 - **Arctic:** Long-term decline in sea ice due to consistent warming trends; projected to be ice-free in summers before 2050.
 - **Antarctic:** Shift to a "new regime" of lower ice extents post-2010s, driven by warming oceans and atmospheric shifts.
- **Climate Change Amplification**
 - Events like Antarctica's 2023 record low (a 1-in-2,000-year event without climate change) highlight human influence.
 - Persistent ocean warming and altered weather patterns suggest irreversible, long-term declines.

Outcome of the Decline in Sea Ice

- **Temperature Rise:** Less sea ice cover means that more water is getting exposed to the Sun and more heat (solar radiation) is getting absorbed, leading to a further rise in temperatures.
- **Reduced Albedo:** Sea ice keeps temperatures down in the polar regions, as its bright and white surface reflects more sunlight back to space than liquid water. The loss of sea ice cover could be one of the reasons why the polar regions are getting warmer at a faster rate than the rest of the world.
- **Reduced Water Flow:** Melting sea ice is slowing down the flow of water through the world's oceans. This is because freshwater from melting ice enters the ocean, and reduces the salinity and density of the surface water, thereby diminishing that downward flow to the sea's bottom.
- A slowdown of ocean overturning can severely impact the global climate, the marine food chain, and the stability of ice shelves.

Conclusion

The continuous decline in global sea ice cover is a stark warning about the accelerating impacts of climate change. As sea ice melts, it not only contributes to rising temperatures but also disrupts ocean circulation, weather patterns, and marine ecosystems. Urgent global action is needed to curb greenhouse gas emissions and implement effective climate adaptation strategies to mitigate these far-reaching consequences.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements regarding Sea Ice:

1. Sea ice refers to the free-floating ice in the polar regions.
2. Sea ice plays a crucial role in cooling the planet by trapping existing heat in the ocean.

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: (c)

REJUVENATION OF YAMUNA RIVER

Why in News: The Energy and Resources Institute (TERI) has proposed a **10-point action plan** to clean and revive the Yamuna River — especially the polluted stretch passing through Delhi — within 3 years.

TERI's Action Plan to Rejuvenate Yamuna

- (1) **Ensure Minimum Environmental Flow:** Revisit the 1994 Yamuna water-sharing treaty to guarantee sufficient water flow into Delhi, maintaining ecological health.
- (2) **Strengthen Pollution Monitoring:** Track non-point pollutants (e.g. ammonia, phosphates) from agricultural runoff and pesticides to combat eutrophication and algal blooms.
- (3) **Regular Desilting:** Implement routine desilting of riverbeds to improve water flow and reduce stagnation.
- (4) **Upgrade Sewage Infrastructure:** Enhance the efficiency and capacity of Sewage Treatment Plants (STPs) and Common Effluent Treatment Plants (CETPs), ensuring compliance with standards.
- (5) **Curb Sand Mining:** Regulate illegal sand mining along Yamuna and Hindon river stretches near Delhi.
- (6) **Complete Drain Management Projects:** Expedite the Trunk Sewer Project to tap and divert all 22 major drains to STPs (only 9 fully tapped currently).

- (7) **Promote Micro-STPs:** Install decentralized, small-scale STPs (<1MGD capacity) for localized wastewater treatment, especially in underserved areas.
- (8) **Tackle Laundry Wastewater:** Prohibit direct discharge from dhobi ghats; mandate onsite treatment via micro-STPs before releasing into drains.
- (9) **Septage Management:** Improve collection and treatment of sewage from unauthorized colonies to prevent untreated waste inflow.
- (10) **Institutional Coordination & River Maintenance**
 - Remove invasive hyacinth from riverbeds to restore ecosystems.
 - Establish a unified governance framework under the Jal Shakti Ministry, integrating the Delhi Jal Board, irrigation departments, and other agencies.

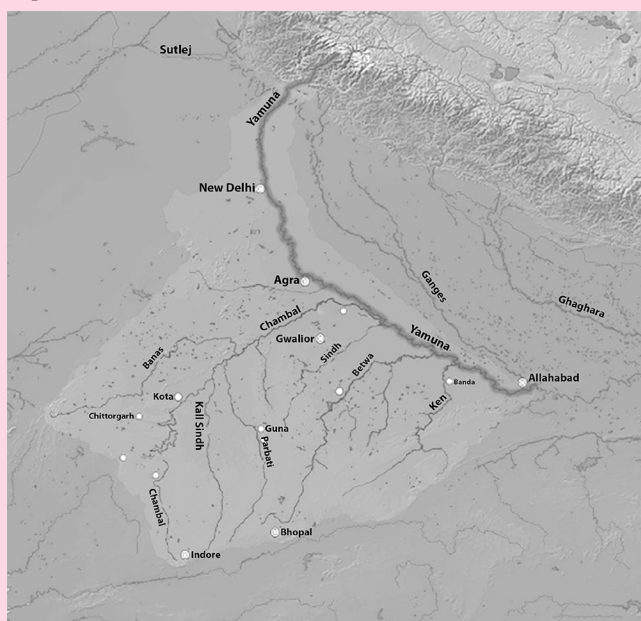
Sources of Pollution in the Yamuna

- **Point Sources**
 - Point sources are organized sources of pollution with measurable pollution load. These sources include surface drains carrying municipal sewage or industrial wastes; sewage pumping stations etc.
 - **Domestic pollution:** Domestic pollution accounts for 85% of the pollution in the Yamuna River and is sourced to the major cities along the river. These cities include Delhi, Ghaziabad, Mathura-Vrindavan, Agra, Etawah, Panipat, Sonipat and Prayagraj. The domestic waste majorly comprises of organic matter and microorganisms, salts, detergents, nutrients, oil and grease and others.
 - **Industrial pollution:** Towns along the Yamuna River have numerous industries that discharge their waste water into the Yamuna. The industries include textile, chemical, pharmaceuticals, oil refineries, sugar, paper and pulp. Leather, thermal power, fertilizers, food industries, etc., were set up in many cities in the Yamuna basin. Many of these have poor environment management systems and discharge untreated or partially treated wastewater containing toxic and organic effluents into the river, thus contributing to the degradation of water quality.
- **Non-point sources**
 - Non-point sources are the numerous diffused and unspecified sources of pollution and are non-measurable as the amount of pollution generated by each source is less.
 - Agricultural runoffs
 - Dumping of solid waste, dead bodies, animal carcasses, etc.
 - Immersion of idols made of Plaster of Paris, ashes and floral offerings
 - Pollution due to in-stream use of water, such as bathing, washing, cattle wading and open defecation.

PRELIMS SPECIAL

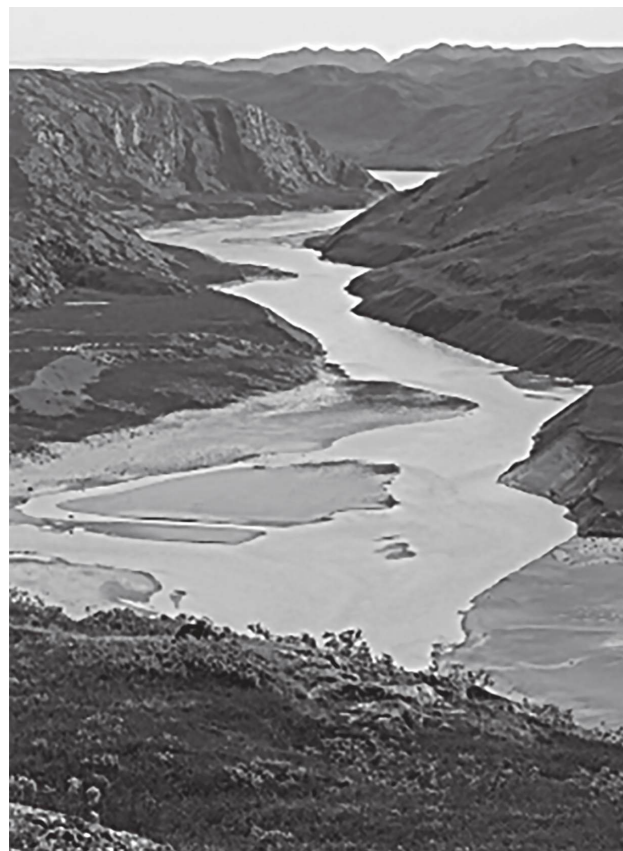
About Yamuna River

- Yamuna, once a tributary of the River Ghaggar (most likely the Saraswati River referred to in the Veda), changed its course eastwards due to tectonic events, becoming a tributary of the River Ganges.
- **Origin and Journey:** Originating near Banderpooch peaks at a height of 6,387 meters at Yamunotri Glacier, it travels a length of 1,376 kilometers before merging with the River Ganges at Sangam (Prayagraj).
- The total catchment area of the river spreads over 36,220 kilometers.
- It is the longest river in India which does not directly flow to the sea.
- **Tributaries:** It has four main tributaries in the Himalayan region: Rishi Ganga, Hanuman Ganga, Tons and Giri. In the plains, the main tributaries are Hindon, Chambal, Sind, Betwa and Ken. Tons, being the major tributary contributes to about 60 percent flow of the Yamuna.
- In the plains, the river's flow is regulated by barrages and at places, diverted into canals.



CLIMATE CHANGE AND GREENLAND LAKES

Why in News: A new study has revealed that **more than 7,500 lakes in western Greenland** have turned brown, started releasing carbon, and suffered a **drop in water quality** due to extreme weather events in 2022.



Key Details

- The study revealed that the lakes underwent the transformation at a breakneck speed.
 - Typically, such changes take place over centuries, but in this case, they **happened within months after the extreme weather events occurred.**
- Greenland usually experiences snowfall during the fall season, from late August to late September.
- However, in 2022, due to warmer temperatures, the snow turned into rain.
- The **heat also caused permafrost to thaw**, leading to the release of carbon, iron, magnesium, and other elements.
- As the record level of rain poured on the region, these elements were washed into the lakes, resulting in their transformation.

Role of Atmospheric Rivers

- The increase in temperatures and precipitation was driven by several atmospheric rivers.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following cities:

1. Mathura
2. Agra
3. Yamuna Nagar

How many of the above cities lie on the bank of the River Yamuna?

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

Answer: (c)

- Atmospheric rivers are relatively long, narrow regions in the atmosphere — like rivers in the sky — that transport most of the water vapour outside of the tropics.
- **Strong atmospheric rivers can lead to disastrous flooding** and bring in heat. With rising global temperatures, atmospheric rivers are expected to become more intense.
- By the end of the 21st century, **atmospheric rivers will become 50–290% more frequent in Greenland, western North America, east Asia, western Europe and Antarctica.**

How Did This Impact the Lakes?

(A) Water Became Brown and Polluted

- The minerals and organic matter from **melted permafrost** flowed into the lakes, **changing their color** from clear blue to brown.
- The **chemical composition** of the water changed, affecting **drinking water quality**.

(B) Dangerous Byproducts Formed in Drinking Water

- The new **organic material** in the lakes can react with **chlorine (used in water treatment)** to produce **trihalomethanes**.
- **Why is this dangerous?**
 - Trihalomethanes are **carcinogenic**, meaning they can **increase the risk of cancer** if consumed over time.
 - This creates a **health crisis** for local communities that rely on these lakes for drinking water.

(C) Reduced Sunlight in the Lakes Affected Phytoplankton

- The brown water blocked **sunlight** from reaching **phytoplankton** (tiny plants in the water that perform photosynthesis).
- Phytoplankton normally **absorb carbon dioxide** (like trees on land).
- With less sunlight, phytoplankton couldn't perform photosynthesis properly, **reducing their ability to absorb carbon dioxide**.

(D) Increased Carbon Dioxide Emissions from the Lakes

At the same time, **organic matter in the lakes** was being **broken down by bacteria**, releasing **huge amounts of carbon dioxide**.

- Instead of **absorbing carbon**, the lakes became **carbon sources, increasing their emissions by 350%**.

Why Is This a Big Concern?

(A) Carbon Sinks Are Failing Globally

- A separate study recently found that **forests, soil, and plants absorbed far less carbon in 2023** than in previous years.
- Normally, **natural carbon sinks (like oceans, forests, and soil) absorb about half of all human carbon emissions**.
- But if these natural systems **stop absorbing carbon or start**

releasing it, carbon dioxide levels will **skyrocket**, worsening climate change.

(B) Atmospheric Carbon Levels Are Already Too High

- Human activities, especially **burning fossil fuels**, are already emitting **record levels of greenhouse gases**.
- The **Global Carbon Budget report** estimated that carbon dioxide emissions in **2024 will reach 41.6 billion metric tonnes**, up from **40.6 billion metric tonnes in 2023**.

(C) Future Climate Models Predict Worse Conditions

- **By the end of the 21st century**, atmospheric rivers are expected to become **50%–290% more frequent** in Greenland, western North America, East Asia, and Europe.
- This means **more frequent and intense extreme weather events**, leading to **more lake transformations, flooding, and carbon release**.

Example: Before, the lakes were like **sponges soaking up extra carbon dioxide**. Now, they have turned into **fireplaces, releasing even more carbon into the air**.

Greenland (Key Facts)

- **Location:** Greenland is the world's largest island, located in the **North Atlantic Ocean**. It is a **territory of Denmark**.
- **Climate:** Two-thirds of Greenland lies **above the Arctic Circle**, making it extremely **cold all year**.
- **Seasonal Variations:**
 - **Summer:** 24 hours of sunlight, but temperatures remain low (**around 4°C**).
 - **Winter:** Almost complete darkness, with temperatures dropping to **-34°C**.
- **Massive Ice Sheet:** About **80% of Greenland** is covered by a **huge glacier ice sheet, the second largest in the world** after Antarctica.
- **Tundra Landscape:** The **ice-free areas** have **flat, treeless tundra** with strong winds. **Permafrost (frozen soil)** is present beneath much of the land.
- **Fauna (Wildlife):**
 - **Marine animals:** Seals, walruses, and whales.
 - **Land animals:** Polar bears, Arctic foxes, wolves, reindeer, and musk oxen.
- **Natural Resources:** Greenland has **valuable minerals** like rare earth metals, gold, silver, rubies, coal, graphite, and uranium.

Key Importance: Greenland's **climate, ice sheet, and resources** play a major role in the global environment and economy.

TUNGSTEN MINING AND BIODIVERSITY CONSERVATION

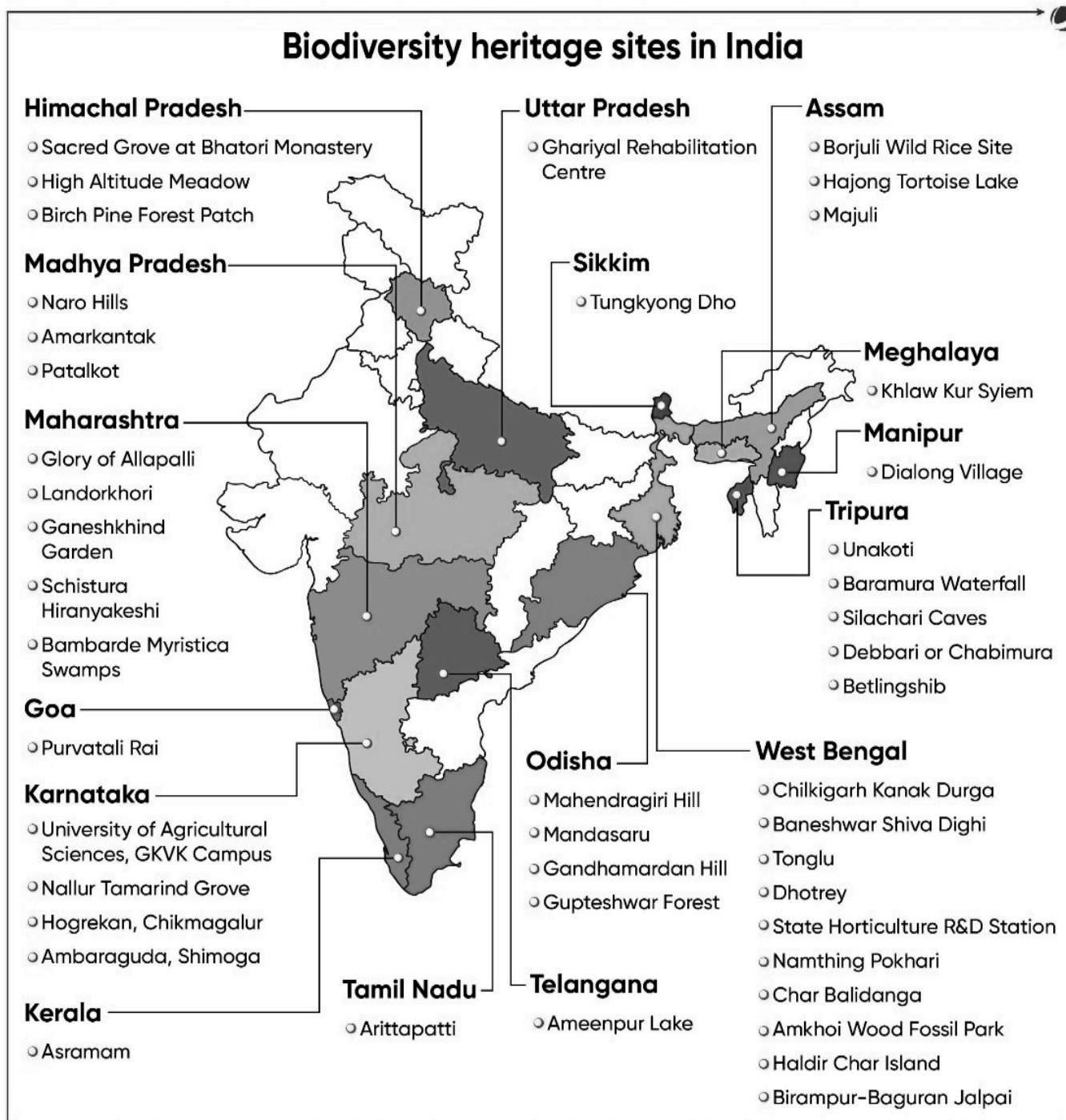
Why in News: The Mines Ministry decided to **cancel (annul)** the auction of the **Nayakkarpatti Tungsten block in Tamil Nadu**.

Key Details

- The Ambalakarars (traditional community leaders) from Madurai district of Tamil Nadu informed the Union Minister of Coal and Mines that the Nayakkarpatti Tungsten mineral block includes the Arittapatti Biodiversity Heritage Site and a number of cultural heritage sites.
- After detailed deliberations, **considering the importance of the Biodiversity Heritage Site in the area** it has been decided to annul the auction of Nayakkarpatti Tungsten mineral block.

About Biodiversity Heritage Sites

- Biodiversity Heritage Sites are notified areas of biodiversity importance in India.
- **How is it Notified:** The Indian Government can notify the Biodiversity Heritage Sites in consultation with local governing bodies under Section 37 of Biological Diversity Act of 2002.
- **Characteristics of the Sites:** These areas are considered unique and fragile ecosystems. They can be either terrestrial, coastal and inland waters or marine ecosystems.



PRELIMS SPECIAL

About Biological Diversity Act, 2002

- **Prime Goal of the Act:** The Biodiversity Act - 2002 primarily addresses issues of conservation, sustainable use of biological resources in the country, issues related to access to genetic resources and associated knowledge and fair and equitable sharing of benefits arising from utilization of biological resources to the country and its people.
- **Structure:** The Act and the Rules are implemented in India through a decentralized system.
 - A three-tiered structure has been established under the Act at the national, state and local levels.
 - **At the local level**, the Biodiversity Management Committees (BMCs) are to be established by institutions of local self-government for implementation of specific provisions of the Act and Rules.
 - **At the state level**, the State Biodiversity Boards (SBBs) are established to deal with all matters relating to implementation of the Act and the Rules.
 - **At the national level**, the National Biodiversity Authority (NBA) is established to deal with all matters relating to implementation of the Act and the Rules.
- **Mandate of the National Biodiversity Authority:** The National Biodiversity Authority is mandated to regulate use of India's biological resources; facilitates/ enables conservation action and provides advice to Central and State Governments on issues of conservation, sustainable use and access and benefit sharing.

About Tungsten

- Tungsten, also known as '**wolfram**' is a very dense lustrous greyish white to steel-grey metal. Tungsten is a metal of strategic importance and is essential for the industrial development of the country.
- Tungsten does not occur naturally as free metal. The major sources of tungsten are minerals scheelite (Calcium tungstate, CaWO₄) and Wolframite [mixture of ferrous tungstate and manganese tungstate, (Fe,Mn)WO₄] which are predominantly hydrothermal in origin.
- Properties of Tungsten:
 - Tungsten has a melting point of **3422 °C**, the highest of all metals and is resistant to all acids at ordinary temperatures.
 - It has good corrosion resistance, good thermal & electrical conductivity and low coefficient of expansion.
 - It is elastic, ductile and has high tensile strength and can be drawn into very thin wires.
 - Tungsten is considered the most important metal for thermal-emission applications not only because of its high electron emissivity but also because of its high thermal and chemical stability.
 - As tungsten has extremely high melting point and is ductile, it is widely used in **filaments of light bulbs and vacuum tubes**, and for heating elements in electrical furnaces.
 - It is inherent brittle therefore making it that much more difficult to work with.

EXPECTED QUESTION FOR UPSC CSE

Descriptive Question

- Q. Discuss the structure and functioning of the Biological Diversity Act, 2002. How does it contribute to biodiversity conservation and ensure the sustainable use of biological resources in India? [10 marks] [150 words]

WETLAND CITY ACCREDITATION SCHEME

Why in News: Recently, the Prime Minister congratulated Indore and Udaipur for joining the list of 31 Wetland Accredited Cities worldwide.

Key Details

- Ministry of Environment, Forest, and Climate Change submitted three nominations from India for Wetland City Accreditation (WCA) of Indore (Madhya Pradesh), Bhopal (Madhya Pradesh) & Udaipur (Rajasthan) under the Ramsar Convention on Wetlands in 2024.
- **Indore and Udaipur have become the first two Indian cities** that made it to the global list of accredited wetland cities under the Ramsar Convention.
- Bhopal, the third city which was nominated, **missed out to be accredited by the Committee**. It missed the opportunity of getting the accreditation amid certain concerns expressed by citizen groups over possible damage to the ecological character of Bhoj wetland in the city.

What is Wetland City Accreditation (WCA)?

- **Background:** In 2015, during the **12th meeting of the Ramsar Convention (COP12)**, the idea of **Wetland City Accreditation (WCA)** was introduced under **Resolution XII.10**.
- **Purpose of WCA:**
 1. Recognize **cities that are making extra efforts to protect their urban wetlands**.
 2. Encourage cities to develop a **positive relationship with wetlands**.
 3. Promote **wise use and conservation of wetlands** in urban areas.
 4. Provide **socio-economic benefits** (like tourism and livelihood) to local communities.
- **Who Can Apply for WCA?**
 - Cities with **important wetlands** that are either:
 - ◆ **Ramsar Sites** (Wetlands of International Importance)
 - ◆ **Other wetlands with conservation status**

- **How is a city selected?**
 - A city must **meet six international criteria** mentioned in the **Operational Guidance for WCA** under the Ramsar Convention.
- **Why is WCA Important?**
 - It gives cities **international recognition** for their **efforts in wetland conservation**.
 - It helps cities get **positive branding opportunities**, making them more attractive for **tourism and environmental projects**.

Amrit Dharohar Initiative & Its Link with WCA

- The **Amrit Dharohar initiative** was announced by MoEF&CC in **this year's budget**.
- **Aim:** To **promote conservation** of Ramsar Sites and their **unique values**.
- **How WCA Supports Amrit Dharohar?**
 - Both initiatives work towards the same goal of **protecting urban and peri-urban wetlands**.
 - WCA will help **raise public awareness** about **why wetlands need to be protected**.
 - The success of WCA can help in **better implementation of Amrit Dharohar** across India.

About the Cities

Indore (Madhya Pradesh)

- **Famous for:** Being India's **cleanest city** and winning **India's Smart City Award 2023** for its efforts in sanitation, water management, and environment.
- **Important Wetland: Sirpur Lake** (a Ramsar site)
 - It is an important place for **water birds**.
 - It is being developed as a **Bird Sanctuary**.
- **Conservation Efforts:**
 - A strong network of **200+ Wetland Mitras (Friends of Wetlands)** are actively working on **bird conservation**.
 - Special focus on protecting the **Sarus Crane**, an endangered bird species.

Udaipur (Rajasthan)

- **Famous for:** Being known as the **"City of Lakes"**.
- **Important Wetlands: Five major lakes** – Pichola, Fateh Sagar, Rang Sagar, Swaroop Sagar, and Doodh Talai.
 - These lakes are deeply connected to the **culture and identity** of Udaipur.
 - They help in **maintaining the city's climate** and **protecting against extreme weather events**.

Ramsar Convention

- The Ramsar Convention, or the Convention on Wetlands, was established in response to the growing awareness of wetlands' ecological significance and the threats they faced from human activities.

- The idea for an international treaty to protect these vital ecosystems was first proposed by **environmental and waterfowl conservationists in the 1960s**.
- The Convention on Wetlands is an **intergovernmental treaty** that provides the framework for the conservation and wise use of wetlands and their resources.
- The Convention was **adopted in the Iranian city of Ramsar in 1971 and came into force in 1975**. Since then, almost 90% of UN member states, from all the world's geographic regions, have acceded to become "Contracting Parties".
- India has been a member of the convention since **1982**. The current number of Ramsar Sites in India stands at 89.
- World Wetlands Day is celebrated every year on 2 February. This day marks the date of the adoption of the Convention on Wetlands on 2 February 1971, in the Iranian city of Ramsar on the shores of the Caspian Sea.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following cities in India:

1. Bhopal
2. Indore
3. Udaipur

How many of the above cities are Wetland Accredited Cities under the Ramsar Convention?

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

Answer: (b) (2 and 3 only)

PROJECT CHEETAH: ITS DRAWBACKS AND WAY FORWARD

Why in News: A new study by the Centre for Wildlife Studies (CWS), has expressed concern over the translocation of the African Cheetahs and also raised questions about its scientific merit and long-term viability.

Key Highlights of the Study

- **Title of the Study/Paper:** Delineating the environmental justice implications of an experimental cheetah introduction project in India
- The study highlights that the translocation of African cheetahs to India has resulted in **significant welfare challenges, with a mortality rate of 40%-50% in the first phase of the project**, far below the expected survival rate of 85%.

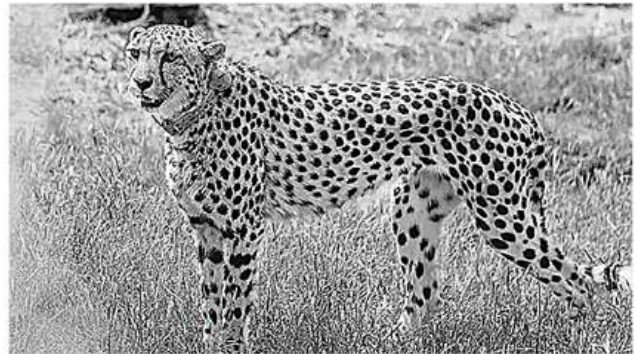
- African cheetah populations are already under pressure, with only around 6,500 mature individuals remaining in the wild.
- With an initial mortality rate of 40%–50% in these cheetahs, currently, all individuals are being kept in captivity in India, with plans to import 12 individuals annually till a viable population is established.
- The researchers argued that the project's reliance on a **continuous supply of cheetahs from southern Africa is neither ecologically sustainable nor ethical.**
- Cheetah translocations to India presented challenges such as **differences in climate, prey species, and habitat** that African cheetahs need to adapt to and the potential human–wildlife conflict for communities not accustomed to the presence of cheetahs.
- **Drawbacks of Project Cheetah**
 - **Insufficient Social Surveys:** The project relied on a rapid assessment of sites in 2010 without conducting comprehensive social surveys.

Project Cheetah

- Project Cheetah in Kuno National Park was initiated to establish a population of African cheetahs in India due to the Asiatic subspecies' extinction in the country since the 1950s.
- The Asiatic cheetah is the **only large carnivore species that went extinct in Independent India.**
- This is the **first intercontinental reintroduction** of a wild, large carnivore species and therefore, there is no comparable historical precedent.

• Initial Translocations

- On 17 September 2022, the government translocated eight African cheetahs (five females and three males) from Namibia into a quarantined enclosure at Kuno National Park in Madhya Pradesh.
- In February 2023, as part of a long-term strategy, an additional 12 cheetahs were sourced from South Africa.



• Acclimatization & Monitoring

- The cheetahs went into a quarantine and acclimatization phase before being gradually released into the wild.
- They were fitted with GPS radio collars to monitor their movements, behavior, and adaptation to the new habitat.
- Early observations had shown that the cheetahs were exhibiting normal behaviors such as hunting, territory exploration, and reproduction.

• Scaling Up the Initiative

- The government plans to import approximately 12–14 cheetahs annually for the next five years to gradually build a genetically viable population.
- Additional potential reintroduction sites (e.g. Gandhi Sagar and Nauradehi Wildlife Sanctuaries) are under preparation.

- **Unclear Methodology:** The approach to evaluating Anthropogenic Activities was ambiguous, with inconsistent criteria across different sites.
- **Neglect of Community Impact:** Some assessments focused solely on infrastructural and industrial pressures, omitting the effects on local communities and failing to plan for their adjustment to cheetah reintroduction.
- **Oversimplified Cultural Assumptions:** The assumption that a predominantly Hindu culture ensures tolerance toward wildlife is overly simplistic

and ignores the potential for human–wildlife conflict among diverse communities.

- **Species Welfare Concerns:** Translocating a Vulnerable species like the African cheetah—whose wild population is already under pressure—raises issues of ecological and species injustice.
- **Stress and Health Risks for Cheetahs:** The cheetahs have undergone repeated veterinarian interventions and over 90 chemical immobilizations, which could have long-term negative effects on their physical and mental well-being.

- **Limited Conservation Metrics:** Focusing solely on ecological factors like birth and death rates neglects important aspects of an animal's overall welfare, including its physiological and psychological health.

Way Forward: Justice-informed and Evidence-based Decision-Making

- **Local and Indigenous Knowledge:** Integrate local and indigenous perspectives in decision-making processes to ensure that conservation practices reflect diverse cultural frames of reference.
- **Embrace Justice Dimensions:** Apply a justice-informed framework that addresses distribution (fair sharing of costs and benefits), procedure (inclusive and transparent decision-making), and recognition (respect for cultural identities and traditions).
- **Conduct Comprehensive Impact Assessments:** Evaluate both ecological and social consequences of relocation and species translocation projects, with attention to mental health, community bonds, and animal welfare.
- **Enhance Community Engagement:** Prioritize participatory processes that involve community members in planning, implementation, and evaluation to ensure that relocations or conservation actions are locally accepted.
- **Adopt Scientifically Grounded Strategies:** Base conservation initiatives on robust scientific evidence that incorporates ecological processes alongside social, cultural, and mental well-being metrics.
- **Refine Success Metrics:** Redefine conservation success to include not only population dynamics and ecological balance but also the physical, physiological, and mental health impacts on both humans and non-human species.
- **Tailor Relocation Policies:** When relocation is necessary, ensure that policies account for long-term sustainability and are sensitive to local needs, including adequate land quality, resource access, and preservation of societal structures.
- **Promote Multi-Stakeholder Collaboration:** Foster collaboration among scientists, policy-makers, community members, and conservation practitioners to develop strategies that balance human and environmental well-being.

Conclusion

The study reveals that the cheetah translocation project in India is fraught with ethical, ecological, and social challenges, underscored by high mortality rates and unsustainable sourcing practices. Insufficient social surveys and unclear methodologies have overlooked local community impacts and cultural nuances. Moving forward, a justice-informed, evidence-based approach integrating indigenous knowledge, comprehensive impact assessments, and multi-stakeholder engagement is essential for achieving sustainable and humane conservation outcomes.

EXPECTED QUESTION FOR UPSC CSE

Descriptive Question

- Q. The translocation of African cheetahs to India under Project Cheetah has raised concerns regarding its ecological sustainability, ethical implications, and community impact. Critically analyze the drawbacks of the project and suggest a justice-informed, evidence-based approach for its success. [15 marks] [250 words]

ARAVALLI SAFARI PARK PROJECT

Why in News: A group of retired Indian Forest Service (IFS) officers from across the country have written to the Prime Minister, opposing the proposed 10,000-acre Aravalli Safari Park project in parts of Gurugram and Nuh (Haryana). Their concerns revolve around environmental degradation and the threat to the Aravalli ecosystem — a critical green belt in an otherwise low forest cover state.

About the Aravalli Safari Park Project

- The proposed Aravalli safari park will have animal cages, guest houses, hotels, restaurants, auditoriums, an animal hospital, children's parks, botanical gardens, aquariums, cable cars, a tunnel walk with exhibits, an open-air theatre and eateries.
- With an area of 3858 hectares, it is envisaged to be the world's largest safari park.
- Of the total 3,858 hectares proposed in the tender, 2,574 will be spread across 11 villages in Gurugram and the remaining 1,284 in Nuh, across its seven villages.
- **Status of the Project:** The project has been transferred to the forest department and an expert committee has been set up to oversee it.

Reasons for Opposition to the Project

- **Environmental Degradation:** The Aravallis are already suffering from mining, construction, and deforestation; the project risks further ecological harm.
- **Misplaced Priorities:** The project focuses on boosting tourism and private investment rather than conservation or restoration of the fragile ecosystem.
- **Increased Human Activity:** Higher tourist footfall, vehicular traffic, and construction could disrupt wildlife habitats and fragment the landscape.
- **Threat to Water Resources:** The project risks disturbing critical aquifers under the Aravalli Hills, which are vital for water-scarce regions like Gurgaon and Nuh.
- **Negative Impact on Wildlife:** Captive enclosures may harm animals' natural behavior, even if breeding programs are beneficial.
- **Low Forest Cover Concerns:** Haryana has India's lowest forest cover (3.6%), and the Aravallis are its primary green zone; development could reduce its capacity to restore regional humidity and rainfall.

- **Compensatory Afforestation Flaws:** The project is framed as compensation for deforestation in Great Nicobar, but critics argue it cannot offset the loss of tropical forests.
- **Risk to Natural Habitats:** Even if developers claim to use low-vegetation areas, nearby natural forests and wildlife could still face indirect disturbances.
- **Eco-Sensitive Zone Violation:** The Aravallis require conservation-focused interventions, not commercial exploitation.

PROJECT ANNOUNCED IN 2022

10,000-acre span of zoo safari in Gurgaon and Nuh districts
April 2022 project announced
7 zones safari will have including a large self-contained herpetarium (reptiles and amphibian) area, bird park, cat zone and an exotic zone
 Concerns raised by the retired officers



In Jan, an eight-member committee was formed to oversee the project

- › Destruction of natural habitat
- › Negative impact on biodiversity
- › Proposed construction illegal as the area under ambit of Forest Conservation Act
- › Disturbance to aquifers that are vital for the water-starved Gurgaon, Nuh districts
- Other challenges
- › Environmental groups cited the need for preservation over development in Supreme Court
- › Project criticised for further environmental degradation in an already fragile ecosystem

PRELIMS SPECIAL

About Aravalli Range

1. **Age:** One of the oldest mountain ranges on Earth — over 350 million years old.
2. **Location:** Spanning Delhi, Haryana, Rajasthan, and Gujarat — shaping the geography and culture of the region.
3. **Name Origin:** Aravalli is a Sanskrit word — “Ara” (line) and “Valli” (peaks) — meaning “Line of Peaks”.
4. **Highest Peak:** Guru Shikhar in Rajasthan, standing at 1,722 meters.
5. **Geology:** Part of the Indian Peninsula and rich in minerals — though many mines are now banned due to ecological risks.

LOGGERHEAD TURTLES

Why in News: A recent study published in *Nature* reveals that loggerhead turtles use **geomagnetic fields** to navigate vast distances, uncovering new insights into their remarkable migratory behavior.

Key Findings from the Study:

- **Magnetic Navigation:** Loggerhead turtles possess an impressive ability to **learn and remember** the unique **magnetic signature** of a location, helping them return to familiar feeding grounds or nesting sites.
- **Turtle Dance:** When the turtles arrive at a spot associated with food, they perform a unique ‘**turtle dance**’ — a movement believed to be a behavioral response to recognizing the magnetic field of that area.

- **Two Geomagnetic Senses:** The study highlights that loggerheads use **two distinct geomagnetic systems**:
 - › A **magnetic compass** to maintain direction.
 - › An **internal magnetic map** to recognize specific locations, separate from the compass sense — an advanced navigational skill rare in the animal kingdom.

PRELIMS SPECIAL

About Loggerhead Turtle:

- **Scientific Name:** *Caretta caretta*
- **IUCN Conservation Status:** Vulnerable
- **Distribution:** Found across the **Atlantic, Pacific, and Indian Oceans** and the **Mediterranean Sea**. They inhabit **saltwater and estuarine environments**, with **females** coming ashore briefly to **lay eggs**.
- **Lifespan:** Loggerheads reach sexual maturity in **17–33 years** and live for **47–67 years** on average.
- **Diet:** Omnivorous — primarily feeding on **bottom-dwelling invertebrates** like crustaceans, mollusks, and jellyfish.

Special Characteristics:

- **Largest Hard-Shelled Turtle:** Loggerheads are the **biggest** hard-shelled sea turtles in the world.
- **Powerful Jaws:** Their **large head** (which gives them their name) houses **strong jaw muscles**, allowing them to **crush hard-shelled prey** like conchs and whelks — a skill unique among sea turtles.

Threats to Loggerhead Turtles:

1. Human Exploitation:
 - › In **Mexico** and some other regions, **turtle eggs** are consumed as food, often wrongly believed to be an **aphrodisiac**.
2. Predators:
 - › **Hatchlings** face high mortality as they journey from nest to sea, falling prey to **crabs, toads, lizards, snakes, seabirds** (like frigatebirds), and **mammals**.
 - › In the ocean, **juveniles** are hunted by **portunid crabs, parrotfish, moray eels**, and other predators.
3. Diseases and Parasites:
 - › Loggerhead hatchlings and eggs are susceptible to **bacterial infections** from **Pseudomonas** and **Salmonella**.
 - › **Fungal infections** like **Penicillium** can affect **nests** and even **female turtles’ cloacae** (reproductive opening).

Conservation Efforts:

- **CITES Protection:** Loggerhead turtles are listed under **Appendix I** of the **Convention on International Trade in Endangered Species (CITES)** — prohibiting **commercial international trade** of the species or their products.
- **IUCN Listing:** Classified as **vulnerable** by the **International Union for Conservation of Nature (IUCN)**, highlighting the need for **sustained global conservation efforts**.

Expected Question for UPSC Prelims

Prelims MCQ

Q. Consider the following statements about Loggerhead turtle:

1. The loggerhead sea turtle is the world’s largest hard-shelled turtle.
2. They are classified as Critically Endangered by the International Union for Conservation of Nature.
3. The loggerhead turtle is named for its Wooden textured hard shell.

How many of the above statements are correct?

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

Answer: (a) (1 only)

RHODODENDRON WATTII

Why in News: A recent study published in the *Journal of Threatened Taxa* highlighted the flowering phenology of *Rhododendron wattii*, observed in Nagaland.

About Rhododendron wattii

- **First Discovery:**
 - *Rhododendron wattii* was first collected by **Sir George Watt** during his botanical survey of Nagaland’s **Japfu Hill range** between **1882 and 1885**.
- **Plant Characteristics:**
 - It is an **evergreen** species, with continuous leaf renewal throughout the year.
 - It grows as a **small tree**, reaching a maximum height of **25 feet**.
- **Flowering Season:**
 - Blooming occurs from **late February to April**.
 - Flowers grow in **trusses of 18-25 blooms**, displaying a **soft pink hue** with **darker flecks** and **purplish basal blotches**, adding to their visual appeal.
- **Fruiting Season:**
 - Fruiting takes place from **April to December**.
- **Geographical Distribution:**
 - The species is native to **Nagaland** and **Manipur**.
- **Conservation Status:**
 - Listed as **“Vulnerable”** under the **IUCN Red List**, indicating a high risk of becoming endangered in the wild.
- **Key Threats:**
 - Low seedling survival rates

- Wildfires
- Fragmentation of its natural habitat

About the Rhododendron Genus

- The **Rhododendron** genus consists of more than **1,000 species** globally.
- **India’s Rich Rhododendron Diversity:**
 - India is home to **132 taxa** of rhododendrons, out of which **129 taxa** are found in the **northeastern region**.
 - This includes **80 species**, **25 subspecies**, and **27 variations**.
- **Meaning and Origin:**
 - The name **“Rhododendron”** derives from the Greek words **“rhodo”** (meaning rose or red) and **“dendron”** (meaning tree), referring to the red or rose-colored flowers and woody growth of certain species.
- **Growth Forms:**
 - Rhododendrons display a wide variety of growth habits, ranging from **low-growing ground covers** to **towering trees**.
 - Examples include:
 - ◆ **Tree species:**
 - ◆ *Bearded rhododendron* (*R. barbatum*)
 - ◆ *Tree rhododendron* (*R. arboreum*)
 - ◆ *Big tree rhododendron* (*R. protistum* var. *giganteum*) — a critically endangered giant species found in Asia.
 - ◆ **Dwarf species:**
 - ◆ *Prostrate rhododendron* (*R. prostratum*) from **Yunnan, China**, which grows just **10 cm (4 inches)** tall.
- **Leaf Characteristics:**
 - Many rhododendrons have **evergreen, thick, and leathery** leaves, while some varieties are **deciduous**.
- **Flower Variations:**
 - Rhododendron flowers bloom in a **wide spectrum of colors**, including **white, yellow, pink, red, purple**, and even **blue**.
 - Their shapes vary from **tubular** to **funnel-shaped**, and they may or may not have a **fragrance**.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. The IUCN status of *Rhododendron wattii* is?

- (a) Critically endangered (b) Endangered
 (c) Vulnerable (d) Least Concern

Answer: (c)

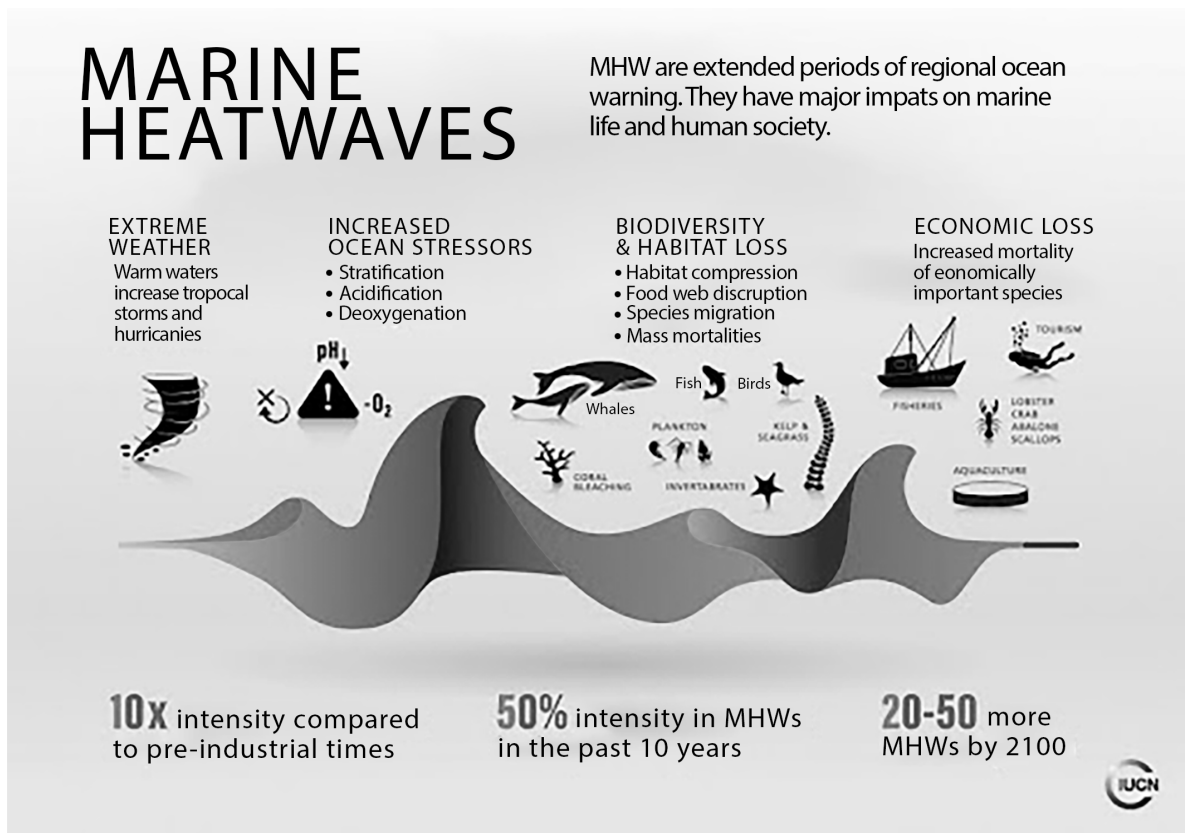
MARINE HEATWAVES

Why in News: Recently, the marine heatwaves (MHWs) linked to the death of more than 30,000 fish off the coast of Western Australia led to concern about the impact of marine heatwaves on marine life.

What are marine heatwaves (MHWs)?

- A marine heatwave is an extreme weather event. It happens when the sea surface temperature in a certain area rises by three or four degrees Celsius over the mean temperature for a minimum of five days.
- According to a report by the International Union for Conservation of Nature (IUCN), MHWs can last for weeks, months, or even years.

- According to a 2018 study titled “Marine heatwaves under global warming,” which was published in the journal Nature, MHWs have been stronger, more frequent, and more prolonged over the previous decades.
- MHWs have been observed at all latitudes, in all kinds of marine environments, and in both deep and surface waters.
- According to projections, by 2100, MHWs will occur up to 50 times more frequently than they did before the industrial revolution, and their frequency and severity will rise by 20–50 times and 10 times, respectively.
- The Arctic and tropical areas are anticipated to be most impacted.



Why have marine heatwaves intensified?

- **Global warming:** As global temperatures have soared to 1.3 degrees Celsius above the pre-industrial levels, 90% of the extra heat has been absorbed by the ocean. As a result, the global mean SST has risen by over 0.9 degrees Celsius since 1850 and by around 0.6 degrees Celsius during the past 40 years. MHWs have thus increased in frequency, duration, and severity.
- **Surface heat flux:** When an atmospheric high-pressure system hovers over a body of water for a long time, it leads to transfer of heat from the atmosphere.
- **Advection:** Advection is the process by which ocean currents bring warm waters into an area.

- While marine heat waves caused by advection can be deeper and last longer, those caused by surface heat flux are often shallower and last less time.
- Their frequency, severity, and persistence are significantly influenced by oceanic mixing processes.

What is the impact of marine heatwaves?

- **Fisheries:** MHWs can be devastating for marine life. For instance, the 2010–11 MHWs in Western Australia resulted in abrupt and large-scale fish kills, during a brief period of time, within a specific location.
- **Kelp forests:** It also destroyed kelp forests and fundamentally altered the ecosystem of the coast. In colder waters, kelps often flourish, giving many marine

Pradesh, Maharashtra, Meghalaya, Odisha, Uttar Pradesh, and West Bengal).

- **Catalytic assistance for drought-prone states:** The initiative for catalytic support to 12 of the most drought-prone states has been approved by the High-Level Committee. It would cost a total of Rs. 2022.16 crore, of which Rs. 1200 crore will come from the Central Government. The 12 states are Bihar, Gujarat, Jharkhand, Karnataka, Madhya Pradesh, Maharashtra, Odisha, Rajasthan, Tamil Nadu, Telangana, Uttar Pradesh, and Andhra Pradesh.
- **Mitigation Scheme for Forest Fire Risk Management:** HLC approved 818.92 crores for the implementation of forest fire risk management in 144 high-priority districts in 19 states. Andhra Pradesh, Arunachal Pradesh, Assam, Chhattisgarh, Gujarat, Himachal Pradesh, Jharkhand, Karnataka, Kerala, Manipur, Maharashtra, Mizoram, Madhya Pradesh, Meghalaya, Nagaland, Odisha, Tamil Nadu, Telangana, and Uttarakhand will each submit a proposal for the necessary activities to mitigate forest fires, prepare for responding to forest fires, and assess and recover after a fire.
- **Flood and Landslide Risk Mitigation:** HLC had approved financial assistance from NDMF for other projects viz. Urban Flood Risk Mitigation Projects in 7 major cities at a total outlay of Rs 3075.65 crore, **GLOF Risk Management in 4 states** at a total outlay of Rs. 150 crore, and **Landslide Risk Mitigation in 15 states** at a total outlay of Rs. 1000 crore.

National Disaster Mitigation Fund

- The National Disaster Mitigation Fund (NDMF) is constituted **under Section 47 (1) of the Disaster Management Act, 2005.**
 - There shall be constituted a fund to be called the National Disaster Mitigation Fund for projects exclusively for the purpose of mitigation, which shall be applied by the National Authority.
- The **15th Finance Commission recommended the creation of mitigation funds** and proposed national and state-level appropriations.
- On the basis of these recommendations Central Government has set aside Rs. 13,693 crore for the **National Disaster Mitigation Fund (NDMF) and Rs. 32,030.60 crore for the State Disaster Mitigation Fund (SDMF)** for the years 2021–2022 to 2025–2026.
- The fund will assist the states in implementing mitigation measures **to lessen the effects of calamities.**
- The **central government contributes 75% for all states (90% for North-Eastern and Himalayan states)** as a centre share in SDMF.

Objective and Scope

- The NDMF is meant **exclusively for the purpose of mitigation and not for relief, rehabilitation, and reconstruction.**
- It supports projects **aimed at reducing disaster risk and enhancing resilience.**
- **It supplements the mitigation efforts of the states and UTs.**
- **Eligible Activities Under NDMF**
 - **Structural Mitigation Measures:** Retrofit and strengthen critical infrastructure, flood control measures, seismic safety measures, cyclone shelters, etc.
 - **Non-Structural Measures:** Capacity-building, training programs, risk assessment studies, early warning systems, public awareness campaigns.
- The **High-Level Committee (HLC) which consists of the Finance Minister, Agriculture Minister and Vice Chairman NITI Aayog as members approves a quantum of assistance from NDMF for mitigation projects.**
- **NDMF works in synergy with the National Disaster Response Fund (NDRF) and State Disaster Response Funds (SDRF).**

Conclusion

- The National Disaster Mitigation Fund (NDMF) is a crucial step toward disaster preparedness, focusing on reducing risks rather than just responding to disasters. **recommended by the Disaster Management Act, 2005,** and backed by the 15th Finance Commission, it helps states implement projects that strengthen infrastructure, improve early warning systems, and enhance overall resilience against natural calamities.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

- Q. Consider the following statements regarding the National Disaster Mitigation Fund:
1. The fund was created on the recommendation of the 14th Finance Commission.
 2. The fund is constituted under the Disaster Management Act, 2005.
 3. It provides funding for post-disaster relief.

Which of the statements given above is/are correct?

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

(b) Answer

BALANCING GROWTH AND SUSTAINABILITY: THE CHALLENGE OF REGULATING INDIA'S THERMAL POWER EMISSIONS

Why in News: India's thermal power sector, which contributes to over 70% of the country's electricity generation, continues to be the largest emitter of greenhouse gases (GHGs) and air pollutants such as Sulphur dioxide (SO₂) and particulate matter.

Key details

- With increasing global pressure to reduce carbon emissions and meet climate goals, the Indian government has introduced new compliance norms and deadlines for power plants to install pollution control technologies such as Flue Gas Desulfurization (FGD).
- However, compliance remains a challenge, and recent reports highlight delays and weak enforcement of these regulations.

Overview of Thermal Power Emissions in India

- **Thermal power and emissions:** Coal-fired plants account for approximately 47% of India's total power capacity but contribute disproportionately to emissions, including 16% of the world's total SO₂ emissions in 2022.
- **Compliance issues:** The government introduced emission norms in 2015, initially requiring compliance by 2017, but this deadline has been repeatedly extended. The current timeline mandates compliance by 2024 for plants near major cities and 2026 for all others.
- **Technology lag:** Despite proven benefits, the installation of FGD technology remains sluggish, with only a fraction of the required plants having adopted it. Full compliance could reduce SO₂ emissions by 64%.
- **Climate goals:** India has committed to achieving 50% of its installed power capacity from non-fossil fuel sources by 2030, but thermal power remains essential for base load supply.

India's Energy Transition: Key Challenges and Government Initiatives

Key Challenges

- **Economic Perspective**
 - **Energy demand:** India's electricity demand is expected to rise significantly, requiring an estimated 283 GW of coal-based capacity by 2032, up from 217.5 GW in 2024.
 - **Investment burden:** Meeting this demand will require an investment of ₹6.67 lakh crore, raising concerns over balancing economic growth with environmental sustainability.
 - **Renewable shift:** India has already achieved 45.5%

of its installed capacity from non-fossil sources, but transitioning further requires large-scale financial and policy support.

- **Environmental Perspective**
 - **Air pollution:** Delhi-NCR thermal power plants alone emitted 281 kilotonnes of SO₂ between June 2022 and May 2023, far exceeding other pollution sources such as stubble burning.
 - **Climate impact:** UNEP's 2024 report warns that without aggressive reductions, global emissions could reach 57 GtCO_{2e} by 2030, far exceeding climate targets.
 - **Water usage:** Thermal power plants consume large amounts of water, worsening water scarcity in regions such as Maharashtra and Tamil Nadu.
- **Geographic Considerations**
 - **Emission hotspots:** The highest SO₂ concentrations are recorded in Chhattisgarh, Odisha, and Uttar Pradesh, where major coal-based plants are located.
 - **Regional disparities:** States with higher renewable energy capacity, such as Gujarat and Rajasthan, are better positioned to transition away from coal.
- **Infrastructure Challenges**
 - **Grid integration:** Despite growth in renewable energy, India lacks the infrastructure to ensure stable grid integration, necessitating continued dependence on coal.
 - **Transmission bottlenecks:** The Green Energy Corridor project aims to improve power transmission, but delays persist.

Government Initiatives

- **Emission control mandates:** The government mandates FGD installation and stricter emission norms, with staggered deadlines up to 2026.
- **Renewable energy promotion:** Policies include 100% FDI in renewables, ultra-mega renewable parks, and Green Energy Open Access Rules 2022.
- **National Green Hydrogen Mission:** This initiative aims to replace fossil fuel dependency in the long run.
- **State efforts:**
 - Delhi imposed fines of ₹260 crore on polluters in 2023.
 - Maharashtra launched a state-wide emission monitoring system for industries.
 - Tamil Nadu set up a task force to monitor compliance in thermal plants.

Regulating Thermal Power Emissions: Pros and Challenges

Pros of Regulating Thermal Power Emissions

- **Health Benefits**
 - Reducing SO₂ and PM_{2.5} emissions can cut respiratory diseases and premature deaths.

- IIT Delhi's study found that FGD installation could reduce sulphate aerosol pollution by 30% within a 100 km radius.
- **Environmental Protection**
 - Compliance with emission norms can prevent 4,327 kilotonnes of SO₂ emissions annually.
 - Reducing emissions aligns with India's climate commitments under the Paris Agreement.
- **Energy Transition Boost**
 - Stronger regulations incentivize investment in renewable energy.
 - UNEP projects that solar and wind could account for 38% of emission reductions by 2035.
- **International Reputation**
 - Strengthened environmental policies improve India's global standing in climate negotiations.
 - Meeting targets enhances India's eligibility for green financing.
- **Technological Advancement**
 - Stricter norms encourage the adoption of cleaner technologies like carbon capture and storage (CCS).
 - Transitioning to ultra-supercritical thermal plants could improve efficiency.

Challenges in Implementation

- **High Costs**
 - Retrofitting old plants with FGD costs ₹8.34 crore per MW, straining power producers.
 - Financial support for private sector compliance is lacking.
- **Regulatory Delays**
 - Since 2015, compliance deadlines have been repeatedly extended, weakening enforcement.
 - Less than 1% of India's clean air program funds are allocated to thermal power regulation.

- **Energy Security Concerns**
 - Rapidly phasing out coal could disrupt power supply in high-demand regions.
 - Renewable energy intermittency remains an issue.
- **State-Level Resistance**
 - Coal-dependent states like Jharkhand and Odisha are reluctant to impose stricter norms due to economic concerns.
 - Private sector compliance is lagging compared to state-run plants.
- **Technological Gaps**
 - India lacks widespread deployment of advanced emission-cutting technologies like CCS.
 - Grid stability remains a challenge for large-scale renewable energy adoption.

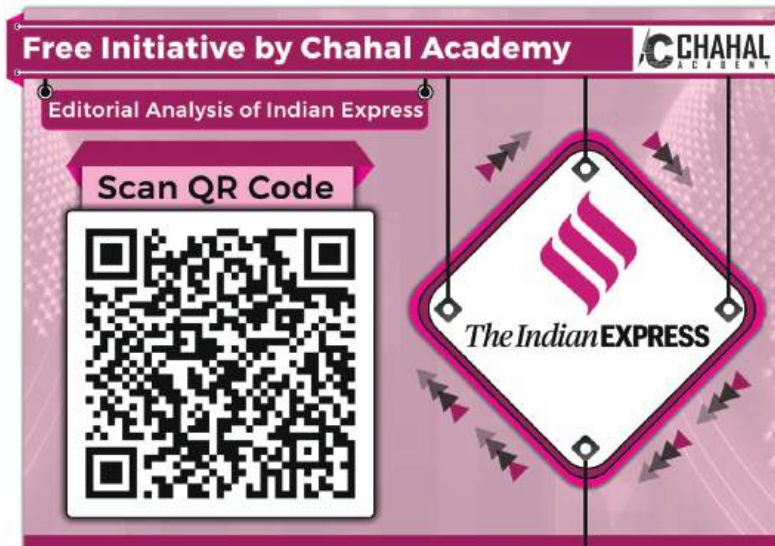
Conclusion

- While India has made significant strides in reducing thermal power emissions, challenges remain in financial viability, enforcement, and infrastructure. Stronger government enforcement, increased investments in renewable energy, and stricter adherence to deadlines are crucial for ensuring sustainable power generation while balancing economic growth and environmental conservation.

EXPECTED QUESTION FOR UPSC CSE

Descriptive Question

Q. Despite growing renewable energy capacity, India's thermal power sector remains a major source of emissions. Discuss the key challenges in regulating thermal power emissions and suggest measures for a sustainable energy transition. [15 Marks] [250 Words]



SPINAL MUSCULAR ATROPHY

Why in News: Health activists and patients with spinal muscular atrophy (SMA) have refuted the Central government's affidavit in the Kerala High Court and demanded urgent action to reduce the cost of medicines required for SMA.

Key Details

- According to the activists and patients, the **government's latest affidavit in the SMA case before the Kerala High Court abdicates its Constitutional obligation** to protect the right to life and health.
- **Cost:** In the affidavit, the Central government acknowledges the staggering cost of SMA therapies — ranging from ₹50 lakh to ₹8 crore per patient annually, with gene therapies costing between ₹9 crore and ₹30 crore per patient. This results in an unbudgeted national expenditure of ₹6,400 crore to ₹34,000 crore each year.

About Spinal Muscular Atrophy

- Spinal muscular atrophy (SMA) is a disorder affecting the motor neurons—nerve cells that control voluntary muscle movement. These cells are located in the spinal cord.

Signs and Symptoms

- The symptoms of spinal muscle atrophy can range from moderate to incapacitating, but they **all entail weakness in the muscles that govern movement**.
- **Involuntary muscles**, such as those in the heart, blood vessels and digestive tract, are **not affected**.
- SMA **weakens the muscles closest to the centre of the body**, including the shoulders, hips, thighs and upper back.
- The affected child may develop a curve in the spine (scoliosis) due to loss of size and strength of the back muscles.
- As SMA worsens, breathing and eating may also become difficult, endangering the patient's life.

SMA Causes and Risk Factors

- Spinal muscle atrophy is a **genetic disorder**.
- Most forms of SMA are caused by mutations of the survival motor neuron 1 gene (SMN1) on the fifth chromosome, resulting in insufficient expression levels of the SMN protein.

- SMN is essential to normal motor function because it enables muscles to receive signals from the nerves.

SMA Diagnosis

- The symptoms of spinal muscle atrophy are similar to those of several other diseases affecting the muscles.
- To determine whether a patient's muscle atrophy is due to SMA, the doctor may use the following tests:
 - **Genetic testing:** a blood test that enables technologists to look for mutations of SMN gene on the fifth chromosome.
 - **Electromyography (EMG):** a test that shows how muscles are receiving signals from the nerves.
 - **Muscle biopsy:** a small piece of muscle removed for examination under the microscope.

Treating and Managing SMA

- SMA currently **has no known cure**. SMA patients can improve their quality of life by managing their symptoms and avoiding complications in collaboration with their healthcare providers.
- **Medication:** There are no current medications for treatment of spinal muscular atrophy. Several medications to improve muscle and nerve function are currently in clinical trials.
- **Braces, support devices and wheelchairs:** These can help patients maintain their independence as long as possible.
- **Physical and occupational therapy and rehabilitation:** In addition to therapy to keep joints flexible and to slow the progression of muscle wasting while improving flexibility and circulation, specific therapies for speech, chewing and swallowing may be appropriate. Proper feeding is essential to avoid aspiration (inhaling food or fluid into the lungs) and ensure good nutrition.
- **Ventilation assistance:** Patients with breathing difficulties may require non-invasive ventilation to prevent apnea while sleeping, while others may need assisted ventilation during the daytime as well.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

- Q1. Consider the following statements regarding Spinal Muscular Atrophy (SMA):
1. SMA primarily affects involuntary muscles such as those in the heart and digestive tract.

2. It is caused by mutations in the survival motor neuron 1 (SMN1) gene, leading to insufficient levels of the SMN protein.

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)

PRELIMS SPECIAL

About Guillain-Barre Syndrome

- Guillain-Barre syndrome is a condition in which the body's immune system attacks the nerves. It can cause weakness, numbness or paralysis.
- **Symptoms:** Weakness and tingling in the hands and feet are usually the first symptoms. These sensations can quickly spread and may lead to paralysis. In its most serious form, Guillain-Barre syndrome is a medical emergency. Most people with the condition need treatment in a hospital.
- **Causes:**
 - GBS is not just rare, the exact causes of it remain unknown. According to Mayo Clinic, around a majority of people with Guillain-Barre Syndrome have experienced symptoms of an infection at least six weeks before the GBS symptoms show.
 - These infections include any respiratory illness or a gastrointestinal infection.
 - Guillain-Barre also can be caused by the Zika virus.
- **Treatment:**
 - There's no known cure for Guillain-Barre syndrome. Several treatment options can ease symptoms and help speed recovery.
- **Effects of GB Syndrome:**
 - Most people recover completely from Guillain-Barre syndrome, but some serious illnesses can be fatal.
 - While recovery may take up to several years, most people are able to walk again six months after symptoms first began.
 - Some people may have lasting effects, such as weakness, numbness or fatigue.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements:

1. Guillain-Barre syndrome is a condition in which the body's immune system attacks the nerves.
2. It is prevalent in only paediatric while young-age groups are not affected by it.

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)

GUILLAIN-BARRE SYNDROME

Why in News: A concerning rise in Guillain-Barré Syndrome (GBS) cases has been reported in Pune, Maharashtra.

Key Details

- According to the Maharashtra health department, "The total number of GBS cases increased to 59, including 38 men and 21 women out of which 12 patients are currently on ventilator support".
- The syndrome has been observed across **paediatric** and **young-age groups**. However, experts clarify that **GBS is not contagious** and **will not lead to an epidemic or pandemic**.

CROSS BLOOD TRANSPLANT AND BOMBAY BLOOD GROUP

Why in News: Recently, India's first kidney transplant for a patient with the rare 'Bombay' blood group was successfully performed in Mumbai.

Key Details

- **Cross-blood transplant:** Transplanting an organ from a donor with an incompatible blood group to a recipient is known as a cross-blood transplant.
- **Antibodies** are used by the body to **detect and neutralise foreign bodies**, while antigens are proteins or carbohydrates found on the surface of red blood cells, white blood cells, and platelets, and they determine blood type.

- There are chances of hyperacute rejection if cross-blood transplant is performed as anti-H antibodies are more potent than anti-A or anti-B antibodies.
- Thus, doctors performed plasmapheresis (it filters blood and removes antibodies, thus lowering chances of rejection). This was combined with immunosuppressive IVIG [intravenous immunoglobulin] to further suppress antibodies, thereby preventing hyperacute rejection of the organ.

The Bombay blood group

- The uncommon Bombay blood group, often known as HH, was initially identified in 1952 by Y.M. Bhende in Mumbai.
- As the basic component of the ABO blood group system, the presence (or lack thereof) of the H antigen is the primary distinction between the Bombay blood group and the common ABO blood types.
- In normal individuals, the H antigen serves as the base structure for building A and B antigens. Because the gene that produces the H antigen is either lacking or altered in people with the Bombay blood type, neither the A nor B antigens can be formed.
- Therefore, these people cannot receive blood transfusions from any ABO group, including type O, which has the H antigen.
- They can only receive blood from another Bombay blood group donor.
- It is present in around 0.0004% (one in four million) of the world's population.
- Even if the odds are one in 10,000 in Mumbai for the Bombay blood group, finding a donor is still a difficult task.

Blood Group	Gives to these groups	Receives from these groups
O ⁻	All	O ⁻ only
O ⁺	AB ⁺ , A ⁺ , B ⁺ , O ⁺	O ⁻ and O ⁺
A ⁻	AB ⁻ , AB ⁺ , A ⁻ , A ⁺	O ⁻ and A ⁻
A ⁺	AB ⁺ and A ⁺	O ⁻ , O ⁺ , A ⁻ , A ⁺
B ⁻	B ⁻ , B ⁺ , AB ⁻ , AB ⁺	O ⁻ and B ⁻
B ⁺	B ⁺ and AB ⁺	O ⁻ , O ⁺ , B ⁻ , B ⁺
AB ⁻	AB ⁻ and AB ⁺	O ⁻ , A ⁻ , B ⁻ , AB ⁻
AB ⁺	AB ⁺ only	All

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following blood groups:

1. A positive
2. B positive
3. O positive
4. Bombay blood group

The A antigen is absent in how many of the above blood groups?

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

ANSWER: (c) (Only 2, 3 and 4)

mRNA CANCER VACCINE

Why in News: Russian scientists have developed an mRNA vaccine that has shown the ability to suppress tumour development and metastasis in pre-clinical trials.

About the Russian Vaccine

- The vaccine can be personalised, with genetic mutations being detected in less than an hour using artificial intelligence (AI).

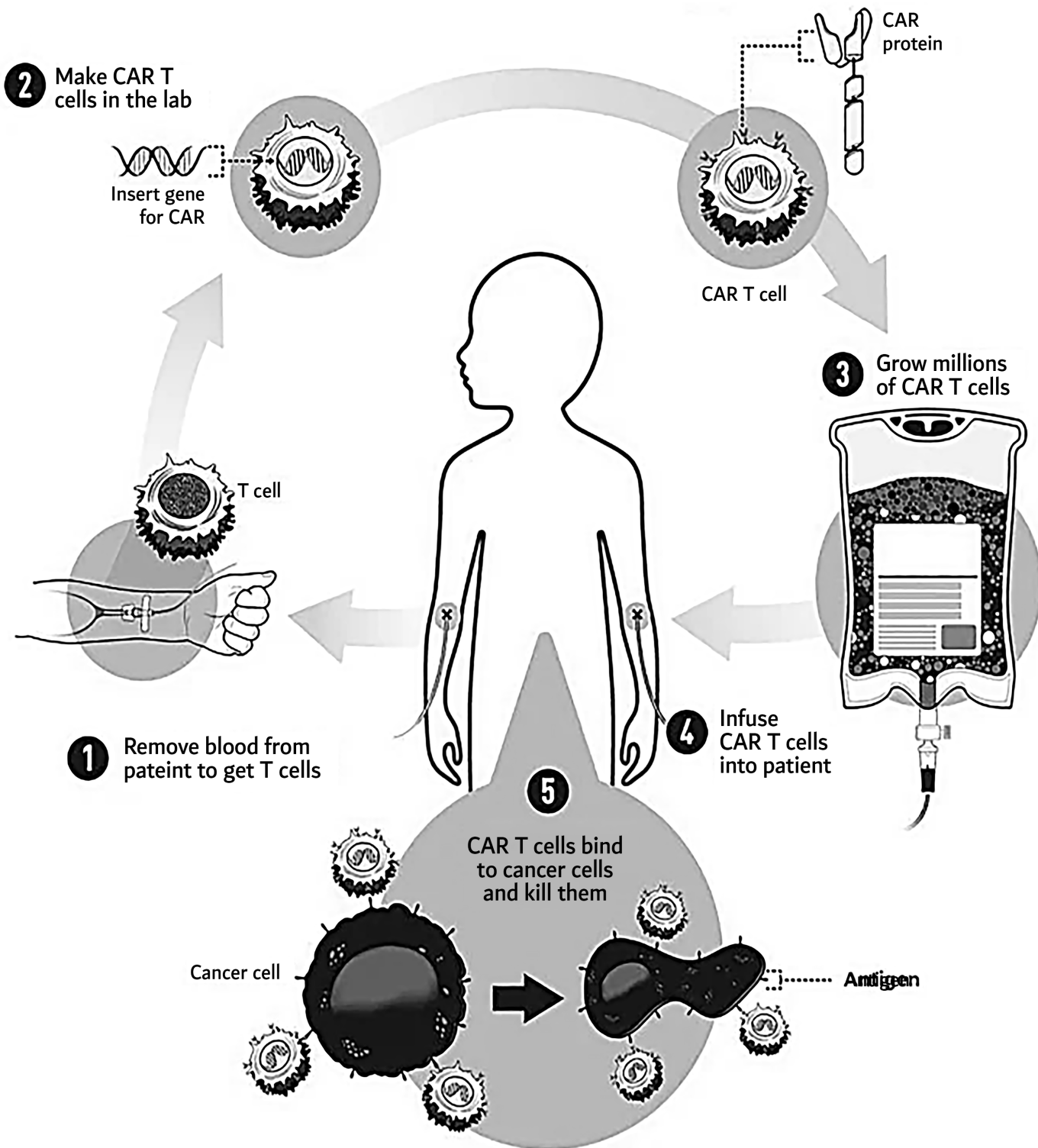
mRNA Cancer Vaccine

- mRNA or messenger RNA vaccines provide genetic information that teaches the body's cells to produce an antigen (protein or other substance that triggers an immune response), training the immune system to produce antibodies against it.
- When these antigens are detected on cancer cells, the immune system can potentially launch an attack against them.

Working of these Vaccines

- Like all vaccines, mRNA vaccines work by training your body to recognise and create tools to fight something harmful (like a virus).
- An mRNA cancer 'vaccine' is a form of immunotherapy. The idea of immunotherapy is to boost the body's immune system to find and destroy cancer cells, preventing their spread.
- The advantages of this treatment are that, unlike chemotherapy, only the cancer cells are killed, and the side effects are lowered.
- The mRNA cancer vaccines are not meant for healthy patients to prevent disease like other vaccines.
 - They are meant to be used in patients who already have cancer, in order to target and treat the tumours.
- This treatment is tailored to target specific antigens that each patient's tumour has, making them personalised and potentially more effective.

- After enough of the altered T-cells have grown and multiplied in the lab, patients are given an injection of these cells back into their circulation.
- As of now, CAR T-cell therapy is approved only for blood cancers in certain cases, but research is underway in several countries to assess them for solid cancers.



PRELIMS SPECIAL

Living Drug

- A “living drug” is a therapy that involves removing and modifying a patient’s cells, then infusing them back into the patient. They are also known as cellular therapies.
- Ex. CAR T-Cell Therapy.

Central Drugs Standard Control Organisation (CDSCO)

- **Ministry:** Ministry of Health & Family Welfare
- **Headquarters:** New Delhi
- **Functions:**
 - **Uniform implementation of the Drugs & Cosmetics Act, 1940, and rules 1945** for ensuring the safety, rights, and well-being of the patients.
 - **Ensure the safety, efficacy, and quality** of the medical product manufactured, imported, and distributed in the country.
 - *Approval of drugs*, conduct of clinical trials, laying down the standards for drugs, and control over the quality of imported drugs in the country.
 - CDSCO, along with state regulators, is jointly responsible for granting licenses for certain specialised categories of critical drugs, such as blood and blood products, I.V. fluids, vaccines, and sera.

Conclusion

- India faces a rising burden of blood cancers, with around 120,000 new cases and over 70,000 deaths annually from leukaemia, lymphoma, and multiple myeloma. Thus, CAR T-cell therapy can transform cancer treatment in India by providing globally advanced, personalised therapies at an affordable cost.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. The term ‘Qartemi’ sometimes mentioned in the news recently is related to,

- Blood cancer treatment
- Coronavirus protein particle
- Guillain-barré syndrome
- None of the above

Answer: (a)

NUCLEAR FUSION: THE FUTURE OF SUSTAINABLE ENERGY AND ITS CHALLENGES

Why in News: Recently, China’s artificial sun, known as the **Experimental Advanced Superconducting Tokamak (EAST)**, burned for over 1000 seconds, creating a new record for the scientists working on the project.

Key Details

- **For 1066 seconds**, the artificial sun reached a **temperature of 100 million degrees Celsius** and maintained a steady-state high-confinement plasma operation, breaking the previous record.
- Scientists from the **Chinese Academy of Sciences’ Institute of Plasma Physics (ASIPP)** set the aforementioned record by beating the previous record of 403 seconds set by the same project.
- Since its inception in 2006, EAST has served as a free testing ground for fusion-related research and experimentation by both Chinese and foreign scientists.

Experimental Advanced Superconducting Tokamak (EAST)

- The tokamak is an experimental machine designed to **harness the energy of fusion**.
- The **Russian abbreviation** for “toroidal chamber with magnetic coils” (тороидальная камера с магнитными катушками) is where the word “**tokamak**” originates.
- A tokamak’s doughnut-shaped **vacuum chamber** is its central component. Inside, gaseous **hydrogen fuel transforms into a plasma**—a hot, electrically charged gas—due to intense heat and pressure.
- **Plasmas create the conditions for light elements to fuse and produce energy** in a star, just like in a fusion device.
- To restrict the heated plasma away from the vessel walls, **scientists employ the enormous magnetic coils positioned around the vessel to shape and control the charged particles of the plasma**.
- The plasma is heated to fusion temperatures (between **150 and 300 million °C**) with the use of auxiliary heating techniques.
- **When particles are “energised” to this extent, they can fuse and release enormous amounts of energy by overcoming their inherent electromagnetic repulsion.**

Nuclear fusion

- The process of nuclear fusion releases enormous quantities of energy as **two light atomic nuclei unite to form a single, heavier one**.
- Fusion reactions occur in plasma, a hot, charged gas composed of free-moving electrons and positive ions that has special characteristics not seen in solids, liquids, or gases.
- This reaction is what drives the sun and all other stars.
- **In our sun**, nuclei must meet at incredibly high temperatures—**roughly 10 million degrees Celsius—in order to fuse**.
- They have enough energy from the high temperature to overcome their electrical repulsion with one another.
- **The nuclei can fuse once they are very close to one another because the nuclear force between them will be stronger than the electrical repulsion.**

Advantages of Nuclear Fusion Energy

- **Abundant energy:** Controlled atom-to-atom fusion produces **up to four times the energy of nuclear fission processes** (at equal mass) and **roughly four million times the energy of chemical reactions like burning coal, oil, or gas.**
- **No CO₂:** Fusion doesn't emit harmful substances like carbon dioxide or other greenhouse gases into the atmosphere. **Helium is its main byproduct; it is a non-toxic, inert gas.**
- **No long-lived radioactive waste:** Nuclear fusion reactors **do not produce high activity, long-lived nuclear waste.** The activation of components in a fusion reactor is anticipated to be low enough for the materials to be **recycled or reused within 100 years.**
- **Limited risk of proliferation:** Proliferation risk is low because fusion **doesn't use fissile elements like plutonium and uranium.** Therefore, a fusion reactor like ITER does not include any enriched materials that may be used to produce nuclear weapons.
- **No meltdown risk:** A tokamak fusion device cannot have a nuclear accident such as the one that occurred at Fukushima. **The reaction ends, and the plasma cools in a matter of seconds if there is any disruption.** There is **no chance of a chain reaction** because the amount of fuel in the vessel at any given time is sufficient for a few seconds only.
- **Cost:** The type of fusion reactor that is anticipated to be built in the future is expected to have a power output of 1–1.7 gigawatts, which is comparable to that of a fission reactor. Costs will initially be higher when the technology is new, as is the case with many new technologies, and then **progressively decrease as economies of scale reduce the costs.**

Disadvantages of Nuclear Fusion Energy

- **Technical challenges:** Achieving controlled nuclear fusion on Earth presents numerous scientific, engineering, and economic challenges.
- **High Temperature and Pressure Requirements:** Maintaining such conditions for a sufficient duration to achieve a net positive energy output is a significant hurdle.
- **Materials Degradation:** High temperatures, powerful neutron radiation, and corrosive environments leading to radiation-induced embrittlement, corrosion, and stress corrosion cracking.
- **High Initial Costs and Long Development Time:** Long-term dedication and a significant financial investment are needed for the development of fusion technology.
- **Competition from renewable energy:** The economic feasibility of fusion energy is challenged by the **dramatic drop in the price of renewable energy sources like solar and wind.**
- **Radioactive Waste:** Fusion creates intermediate-level

nuclear waste that needs to be controlled even though it doesn't produce long-lived radioactive waste like fission does.

- **Public Perception and Trust:** The acceptability of fusion technology may be impacted by the **public's opinion of nuclear energy**, which is shaped by past mishaps and its connection to nuclear weapons.

Nuclear Fission

- When a neutron strikes a larger atom, it **causes it to excite and split into two smaller atoms, which are referred to as fission products.**
- When each atom splits, a tremendous amount of energy is released. The energy released by fission in these reactors that heats water into steam.
- The steam is used to spin a turbine to produce carbon-free electricity.
- For instance, the heavy uranium nucleus breaks to generate barium-139 and krypton-94 with the emission of three neutrons when uranium-235 atoms are subjected to neutron bombardment.
- Because mass is transformed into energy, this reaction also generates a lot of energy.
- A chain reaction is created when heavy nuclei continue to fission as a result of the neutrons created in the nuclear fission reaction.
- However, boron can absorb neutrons thus, boron rods can be used to control nuclear fission reactions

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

- Q. Recently the term 'Tokamak' was seen in the news, it is related to:
- Inter Continental Ballistic Missile Developed by Russia
 - Nuclear fission reactor project
 - Newly launched satellite by ISRO
 - None of the above

(d) Answer

Descriptive Question

- Q. Discuss the potential of nuclear fusion as a sustainable energy source and the challenges associated with its implementation. [10 marks] [150 words]

EINSTEIN RING

Why in News: European Space Agency's (ESA) Euclid space telescope has discovered a rare ring of light, known as an Einstein ring, around a galaxy nearly 590 million light-years away from Earth.

Key Details

- Photos, which were taken by Euclid in September 2023, of the Einstein ring show a bright ball of light in the centre with a bright, cloudy ring around it.
- The ring was discovered around NGC 6505, a galaxy that was first found in the 19th Century.

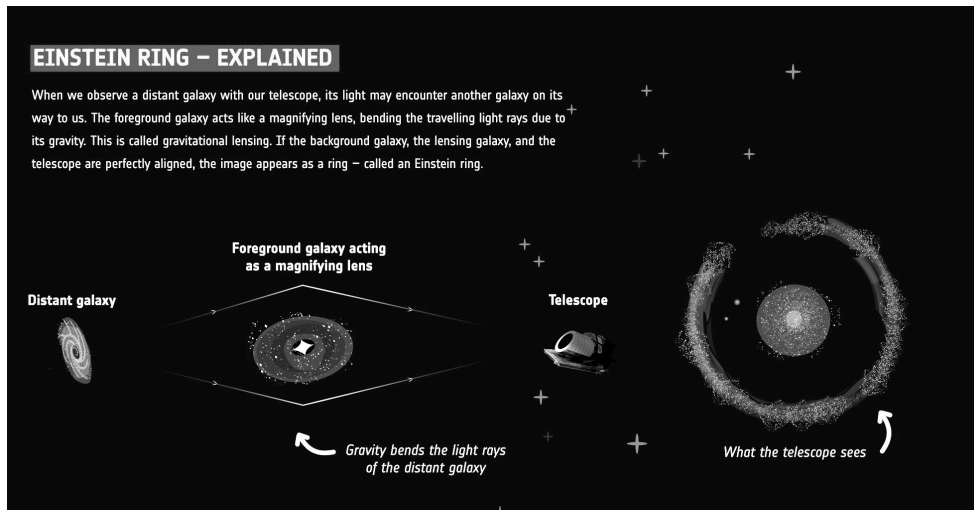
Einstein Ring

- An Einstein ring is a **ring of light around a form of dark matter, galaxy or cluster of galaxies**. It is essentially an example of gravitational lensing.
- **Gravitational lensing** is a phenomenon which occurs when a massive celestial body — such as a galaxy or cluster of galaxies — creates a gravitational field which distorts and amplifies the light from distant galaxies that are behind it but in the same line of sight.
- The body causing the light to curve is called a **gravitational lens**.
- Einstein rings are named after mathematician and physicist Albert Einstein, whose general theory of relativity predicted that light could bend and brighten around objects across the cosmos.
- The first Einstein ring was discovered in 1987, and since then, several more have been discovered.
- **Features**
 - **Bending of Light:** Caused by the warping of spacetime around massive objects as described by general relativity.
 - **Ring Diameter:** The size of the Einstein ring depends on the mass of the lens and the distances between the observer, the lens, and the background source.

- **Magnification Effect:** The gravitational lensing magnifies the background source, allowing astronomers to study distant objects in greater detail than would otherwise be possible.
- Einstein rings are **not visible to the naked eye** and can be observed only through space telescopes such as Euclid.

• **Significance**

- **Testing General Relativity:** Einstein rings provide direct visual evidence of the bending of light by gravity, as predicted by Einstein’s theory of general relativity. The observation of these rings confirms the theory’s predictions about the curvature of spacetime.
- **Measuring Masses of Galaxies and Clusters:** The size and shape of an Einstein ring can be used to estimate the mass of the lensing object, including dark matter, which doesn’t emit light. This is a crucial tool for studying the distribution of matter in the universe.
- **Discovering Distant Galaxies:** The magnification effect of gravitational lensing can make very faint and distant galaxies visible, allowing astronomers to study galaxies that would otherwise be too far away or too faint to observe. This provides insights into the early universe.
- **Studying Dark Matter:** Since dark matter also contributes to the gravitational lensing effect, Einstein rings can be used to map the distribution of dark matter in galaxies and galaxy clusters. This helps us understand the nature and distribution of this mysterious substance.



EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. What phenomenon is primarily responsible for the formation of an Einstein Ring in astronomical observations?

(a) A supernova explosion

(b) Collision of two black holes

(c) Gravitational lensing of light by a massive object

(d) Diffraction of light by interstellar dust

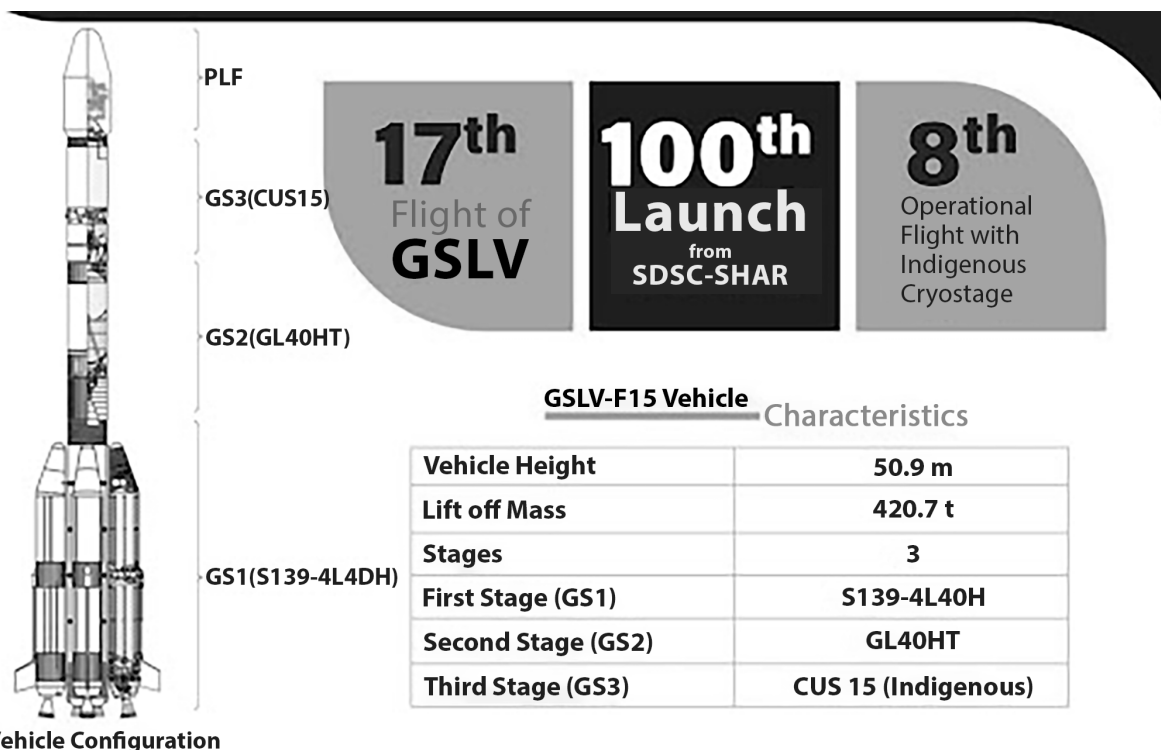
Answer: (c)

ISRO'S 100TH MISSION: GSLV-F15 LAUNCHED SUCCESSFULLY FROM SRIHARIKOTA

Why in News: Recently, ISRO successfully completed a century in the launches from its spaceport at Sriharikota with the 17th launch of GSLV.

Key Details

- The GSLV-F15 is the **11th flight of India's indigenous cryo stage** and the **17th flight of the country's geosynchronous satellite launch vehicle (GSLV)**.
- This is GSLV's eighth flight using an in-house cryogenic stage and the **100th launch from India's Spaceport Sriharikota**.
- GSLV-F15 payload fairing is a metallic version with a diameter of 3.4 meters.



Vehicle Configuration

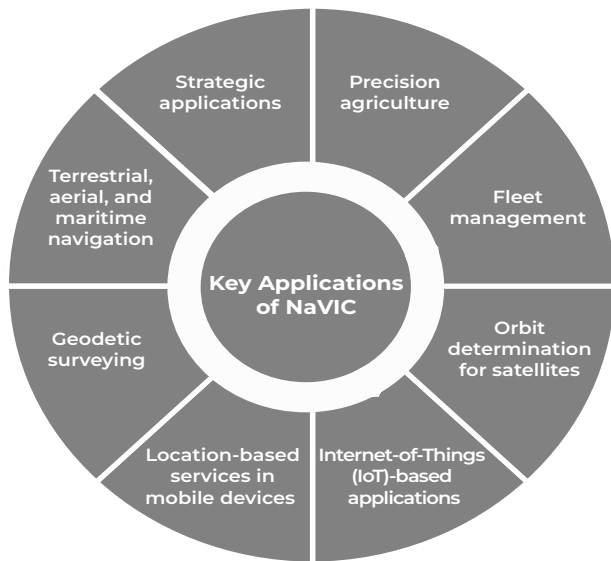
NVS-02 satellite

- The NVS-02 satellite was launched from the Second Launch Pad (SLP) at Satish Dhawan Space Centre, Sriharikota Range (SHAR), using the GSLV-F15 with an indigenous cryogenic stage, which will put it into a **geosynchronous transfer orbit**.
- It is **planned to add five second-generation NavIC satellites —NVS-01/02/03/04/05—** to the NavIC base layer constellation with improved characteristics to guarantee service continuity.
- The NVS series of satellites **incorporates L1 band signals additionally to widen the services**.
- Like its predecessor, NVS-01, NVS-02, the second satellite in the NVS series, is set up with a range payload in the C-band and a navigation payload in the L1, L5, and S bands.
- **It has a lift-off mass of 2250 kg** and a power handling capacity of about 3 kW when configured on the standard I-2K bus platform.
- It will take the place of IRNSS-1E at 111.75°E. For accurate time estimates, NVS-02 combines indigenous and procured atomic clocks.

Navigation with Indian Constellation (NavIC)

- ISRO has set up a regional navigation satellite system dubbed Navigation with Indian Constellation (NavIC) **to satisfy the country's positioning, navigation, and timing needs**.
- The Indian Regional Navigation Satellite System (IRNSS) was the previous name of NavIC.
- It is designed to provide **accurate Position, Velocity, and Timing (PVT)** service to users in India as well as to **regions extending about 1500 km beyond the Indian landmass**.
- The **seven satellites of the NavIC constellation** and the ground station network run around the clock 24 x 7.
- The constellation's **four satellites** are positioned in inclined **geosynchronous orbit** with equatorial crossings of 55°E and 111.75°E, respectively, with an inclination of 29° (two satellites in each plane), while the **three satellites** are positioned in **geostationary orbit** at 32.5°E, 83°E, and 129.5°E.
- The control centre, precision timing facility, range and integrity monitoring stations, two-way ranging stations, and other components make up the ground network.

- NavIC offers two services: **Standard Position Service (SPS)** for civilian clients and **Restricted Service (RS)** for strategic users.
- Both the L5 (1176.45 MHz) and S bands (2498.028 MHz) are used for these two services.
- NavIC signals are intended to give users a **positional precision of over 20 meters (2)** and a **timing accuracy of over 50 nanoseconds (2)**.
- **GPS, GLONASS, Galileo, and BeiDou** are the other global navigation satellite system (GNSS) signals that are compatible with NavIC SPS signals.



EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements regarding the Navigation with Indian Constellation (NavIC).

1. NavIC is the constellation of 9 satellites.
2. NavIC is designed to provide accurate Position, Velocity, and Timing (PVT) service to users in India as well as to regions extending about 1500 km beyond the Indian landmass.

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)

SHAKTI SEMICONDUCTOR CHIP

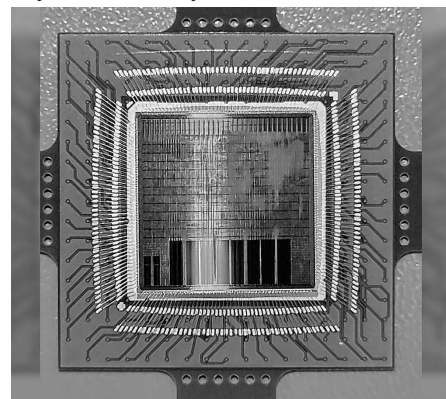
Why in News: Recently, the Indian Institute of Technology, Madras, and the Indian Space Research Organisation have developed an **indigenous aerospace-quality Shakti-based semiconductor chip**.

Shakti Semiconductor chip

- The Shakti Semiconductor chip is an **indigenous RISC-V controller for space applications that is developed from the Shakti processor baseline**.
- It can be applied to a variety of fields, including **computer systems and the Internet of Things for strategic purposes**.
- This is the third SHAKTI chip to be successfully manufactured in India, following **RIMO in 2018 and MOUSHIK in 2020**.
- In keeping with its push for independence in space technology, the development is a component of the endeavour to **indigenise semiconductors utilised by ISRO for its applications, command and control systems, and other vital activities**.

Shakti Microprocessor

- **RISC-V** (reduced instruction set computing), an **open-source instruction set architecture for creating bespoke processors, serves as the foundation for the Shakti class of systems**.
- Through its **Digital India RISC-V project (DIRV)**, the **Ministry of Electronics and Information Technology** supports Shakti.
- It seeks to *encourage domestic production of microprocessor-based goods* that provide customers implementing RISC-V technology with the highest level of security and visibility.



Features and Significance

- **Made in India:** The **chip design, fabrication, packaging, motherboard design and fabrication, assembly software, and boot are entirely done in India**, boosting the Make in India initiative of the government.
- It is aimed at **low-power and low-compute applications** and is capable of running basic RTOSs like FreeRTOS and Zephyr.
- **Fault tolerant:** The fault-tolerant internal memory helps in ensuring **higher reliability, especially in harsh space conditions**.
- **RISC-V-based controller:** It is a **free and open architecture driven by open collaboration**, thus enabling freedom of design across many industries and applications.

- **Multi-booting:** It allows a computer to **load and run multiple operating systems, giving the user the flexibility to choose which one to use.**
- Strengthens India's **self-reliance in space technologies.**

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements regarding Shakti Semiconductor chip:

1. It is a fully Made in India chip.
2. The IIT Delhi played an important role in its making.
3. It allows the user to load and run multiple operating systems.

Which of the statements given above are correct?

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

Answer: (c)

INDIGENOUS AI MODEL

Why in News: The Union Minister for Electronics & Information Technology announced that India is set to launch its own safe & secure indigenous AI model at an affordable cost.

Key Details about the Indian AI Model

- **Infrastructure & Cost**
 - Backed by 18,693 GPUs (12,896 H100, 1,480 H200, 7,200 MI200/300), exceeding global benchmarks (e.g. DeepSeek's 2,000 GPUs and ChatGPT's 25,000 GPUs).
 - Affordable access: Cost reduced to < ₹100/hour after a 40% government subsidy (global rate: \$2.5–3/hour). Competitive half-yearly/annual plans further lower costs.
- **Focus on Local Context**
 - Tailored for India's linguistic diversity (22 official languages) and socio-cultural needs.
 - Aims to eliminate biases, ensure fairness, and promote inclusivity.
- **Safety & Ethics**
 - IndiaAI Safety Institute established to address risks, with 8 safety projects:
 - ◆ Machine Unlearning (IIT Jodhpur)
 - ◆ Synthetic Data Generation (IIT Roorkee)
 - ◆ AI Bias Mitigation Strategy (NIT Raipur)
 - ◆ Explainable AI Framework (Defence Institute of Advanced Technology, Pune & Minecraft Technologies)

- ◆ Privacy Enhancing Strategies (IIT Delhi, IIIT Delhi, IIT Dharwad & Telecom Engineering Centre, TEC)
- ◆ AI Ethical Certification Framework (Tool Nishpaksh being developed at IIIT Delhi & TEC)
- ◆ AI Algorithm Auditing Framework (Tool Parakh being developed by Civic Data Labs)
- ◆ AI Governance Testing Framework (Amrita Vidyapeetham & Telecom Engineering Centre)
- Adopts a techno-legal approach for ethical AI governance.
- **Timeline:** Expected to be ready within 6–10 months, with foundational models under development by scientists, researchers, and startups.

Need for an Indigenous AI Model

- **Trust & Sovereignty:** India is a globally trusted partner; a homegrown AI model ensures data sovereignty and reduces reliance on foreign platforms.
- **Cultural & Linguistic Relevance:** Global models often lack contextual understanding of India's diversity. Indigenous AI will address local languages, dialects, and regional nuances.
- **Economic Empowerment:** PM's vision to democratize access to AI for grassroots empowerment (e.g. farmers, MSMEs).
- **Ethical AI:** Mitigate risks like algorithmic bias, deepfakes, and privacy breaches through localized governance frameworks.
- **Strategic Advantage:** Position India as a global AI powerhouse with cost-effective, ethical solutions for critical sectors (agriculture, healthcare, governance).

Initiatives to Develop Indigenous AI

- **IndiaAI Mission**
 - **Budget:** ₹10,372 crore (approved March 2024).
 - **7 Pillars:** Compute infrastructure, foundational models, datasets, startups, AI applications, safety, and talent development.
- **Compute Infrastructure**
 - Common Compute Facility with 10,000+ GPUs empaneled via CSPs (e.g., Jio, Tata Communications, Yotta).
 - Partners offer NVIDIA, AMD, and Intel GPUs at competitive rates.
- **Collaborative Ecosystem**
 - **Call for Proposals:** The government invited startups/researchers to build India-specific AI models (e.g., LLMs, SLMs) using local datasets.
 - **Funding Models:** Grants, equity investments, and co-financing with VCs/government schemes.
- **Sector-Specific Applications:** Focus on agriculture (soil health), healthcare (disease prediction), disaster

management (cyclone forecasting), and governance (railway optimization).

- **Global Recognition:** Lauded at forums like Davos for affordable, scalable solutions. Stanford ranks India among the top nations in AI education (240+ universities offer AI courses).
- **Semiconductor Synergy:** Aligns with India's \$30 billion semiconductor mission for long-term sustainability.
- **Future Roadmap**
 - **Hub-and-Spoke Model:** IndiaAI Safety Institute to collaborate with academia/industry.
 - **4-Year Plan:** Focus on industrial AI (oil rigs, agritech) alongside real-time deepfake detection and risk management.

Conclusion

- Balancing rapid AI adoption with safeguards against risks like algorithmic bias and deepfakes requires a multi-pronged approach. While AI presents immense opportunities for economic growth, governance, and societal empowerment, its unchecked deployment can lead to ethical concerns, misinformation, and privacy breaches. A robust regulatory framework, continuous research in AI safety, and public-private collaboration are essential to ensuring responsible AI development. India's focus on an indigenous AI model, with strong ethical and governance mechanisms, is a step in the right direction.

EXPECTED QUESTION FOR UPSC CSE

Descriptive Question

Q. Examine the challenges and opportunities in ensuring responsible AI adoption while mitigating risks such as algorithmic bias and deepfakes. [10 marks] [150 words]

SAMUDRAYAAN: MATSYA-6000

Why in News: Matsya-6000, the submersible vehicle set to transport three Indians into the deep sea in 2026, has successfully completed wet tests and facilitated multiple manned dives in the Bay of Bengal.

Samudrayaan Mission

- Samudrayaan Mission is aimed to develop a self-propelled manned submersible to carry 3 human beings to a water depth of 6000 meters in the ocean with a suite of scientific sensors and tools for deep ocean exploration.
- The manned submersible will allow scientific personnel to observe and understand unexplored deep-sea areas by direct interventions. Further, it will enhance the capability for deep sea man-rated vehicle development.
- The projected timeline is five years for the period 2020-2021 to 2025-2026.

- Samudrayaan mission is aimed at sending three personnel to 6000-metre depth in a vehicle called 'MATSYA 6000' for the exploration of deep-sea resources like minerals.
- Samudrayaan is a project under the Deep Ocean Mission.
- Deep Ocean Mission has been launched w.e.f. 07.09.2021, as a Central Sector Scheme of the Ministry of Earth Sciences.

TO THE DEEP

The manned vehicle will take three people 6,000m underwater

Sphere carrying three people (two lying prostrate and one operator) to be made of titanium alloy to withstand water pressure

Researchers will communicate through acoustic waves

At 6,000m, pressure will be 600 time more than pressure at sea level

THE PROJECT

The manned submersible is developed by National Institute of Ocean Technology (NIOT)

The vehicle is developed as part Samudrayaan projet under the ₹4,077cr Deep Ocean Mission

First unmanned and manned sea trials at 500m depth likely in beginning of 2024

Critical parameters were reviewed after implosion of Titan submersible

Titan took 5 tourists to Titanic wreckage in North Atlantic Ocean in June 2023 when it imploded

Sensors will help explore deep sea resources

Matsya 6000 manned submersible

Matsya-6000: India's Fourth-Generation Deep-Ocean Submersible

- It is designed and developed by National Institute of Ocean Technology (NIOT), Chennai under Ministry of Earth Sciences.
- The manned submersible Matsya 6000 is likely to be realised by 2026.
- Made of 80mm-thick titanium alloy, it will be able to withstand a pressure 600 times greater than that at sea level.

- This cutting-edge submersible is engineered to accommodate three humans within its compact 2.1-meter-diameter spherical hull.
- It has an endurance of 12 hours under normal operation and 96 hours in case of emergency for human safety.
- **Components**
 - A main ballast system for diving
 - Thrusters for movement in all three directions
 - A battery bank for power supply
 - Syntactic foam for buoyancy
- It also includes a sophisticated power distribution network, cutting edge control hardware and software, along with advanced underwater navigation devices.
- **Communication Systems**
 - An acoustic modem
 - Underwater telephone
 - VHF for surface communication, supplemented by underwater acoustic positioning and GPS for precise surface location tracking.
- The Matsya 6000 **features the ultra-short baseline acoustic positioning system (USBL)**. This will allow the mothership carrying the transponder to send information and the submersible to respond, which will then let the mothership know where the submersible is.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

- Q. Which of the following best describes the primary function of the Matsya-6000?
- A manned nuclear-powered submarine designed for strategic deterrence.
 - An unmanned underwater vehicle (UUV) developed for deep-sea exploration and oceanographic research.
 - A high-speed surface combatant built for naval warfare and anti-piracy operations.
 - An aerial drone used for maritime surveillance and reconnaissance.

Answer: (b)

"IMAGINE A WORLD WITH MORE WOMEN IN SCIENCE" CAMPAIGN

Why in News: UNESCO launched the "Imagine a World with More Women in Science" campaign to promote gender equality in STEM globally.

Key Details of UNESCO's "Imagine a World with More Women in Science"

- **Objective**
 - Promote gender equality in science and STEM fields (Science, Technology, Engineering, Mathematics).
 - ◆ Encourage young women and girls to pursue careers in science and research.
 - ◆ Address the gender gap in STEM by raising awareness and inspiring change.
- **Focus Areas**
 - Highlight the achievements of women scientists globally.
 - Support educational programs and workshops to boost female participation in STEM.
 - Promote equal access to education, research opportunities, and leadership roles for women in scientific fields.
- **Global Alignment**
 - The campaign is aligned with the United Nations Sustainable Development Goal 5: Achieving gender equality and empowering all women and girls.
 - Aimed at achieving a more inclusive approach to science, contributing to sustainable global progress in technology and research.
- **Storytelling**
 - Showcase the stories of successful women scientists to inspire others.
 - Provide a platform for role models who have made significant contributions in their respective scientific fields.
- **Expected Impact**
 - Foster a new generation of women leaders in science and research.
 - Promote diversity and inclusion within the scientific community globally, ensuring more balanced representation.

Women in Science: The Indian Scenario

- While women constitute 43% of graduates in STEM fields globally, in India, only about 14% of women are employed in STEM roles, according to a recent survey by the World Economic Forum.
- Despite the fact that India produces a significant number of female STEM graduates—around 40% of STEM graduates in India are women—many do not enter or remain in STEM careers.
- Initiatives like the Department of Science and Technology's Women Scientist Scheme and the gender-specific policies of the Indian government show efforts to support women's participation in STEM fields. However, cultural and societal barriers still limit their career growth.

Why India Needs More Women in STEM?

- **Boost to Innovation & Research:** By encouraging more women to enter scientific fields, India can harness diverse perspectives for solving critical challenges.
 - Example: **India's Women Scientist Scheme (WOS)** offers support for women researchers in rural and urban areas to pursue innovation.
- **Addressing Gender Gap:** The campaign can contribute to closing the gender gap in India's scientific workforce, leading to more equitable representation in leadership roles.
- **Economic Growth:** Increased participation of women in STEM sectors could enhance India's economic potential. The World Bank estimates that closing gender gaps in labor force participation could boost India's GDP by up to 27%.
- **International Recognition:** India's efforts in promoting women scientists can further enhance the country's global standing in research and development.

Challenges Faced by Women in STEM in India

- **Gender Bias in STEM Fields:** Reports show that women in India face significant biases in research positions. According to a study by the **Indian National Science Academy**, women make up only 18% of all scientists in Indian research institutions. This disparity hampers career growth and development.
- **Lack of Support Systems:** Despite policies, there is a lack of mentorship and support systems for women scientists, particularly in rural areas. According to **UNESCO's 2020 report**, 50% of women in India face challenges due to societal expectations and lack of childcare support.
- **Cultural Barriers:** In India, cultural norms often discourage women from pursuing long-term careers in science, especially in male-dominated fields like engineering and technology. A report by **McKinsey India (2020)** notes that only 26% of women in India hold tech roles, and the figure drops dramatically as career progression continues.
- **Limited Access to Funding:** Women in science often face difficulties in accessing research funding. A **2021 report by the Science and Engineering Research Board (SERB)** revealed that women are awarded significantly fewer research grants compared to their male counterparts.

Way Forward: Strengthening Women's Role in Indian Science

- **Addressing Gender Bias in STEM Fields:**
 - **Promote Equal Representation in Research Institutions:**
 - ◆ Strengthen policies ensuring women's equal representation in research and leadership roles.
 - ◆ Implement affirmative actions and quotas where necessary to close the gender gap, like ensuring women represent at least 30% in leadership and decision-making roles.

- **Encourage Female Role Models:**
 - ◆ Promote the visibility of successful women scientists to inspire younger generations.
- **Building Support Systems and Mentorship Programs:**
 - **Establish Mentorship Networks:**
 - ◆ Develop national and regional mentorship programs where senior women scientists can guide younger women.
 - ◆ Provide dedicated mentorship platforms, particularly in rural areas, to help women overcome challenges specific to their regions.
 - **Create Childcare and Work-Life Balance Programs**
 - ◆ Implement robust support systems such as subsidized childcare facilities, flexible working hours, and family-friendly policies for women researchers and scientists.
- **Overcoming Cultural Barriers:**
 - **Promote STEM Education Among Girls**
 - ◆ Focus on early intervention to encourage girls to pursue STEM education by promoting STEM outreach programs, workshops, and awareness campaigns in schools, particularly in rural and underserved regions.
 - ◆ Campaign to Change Cultural Norms
 - ◆ Collaborate with local communities and educational institutions to shift societal attitudes towards women in science. Media campaigns can also play a role in changing public perceptions.
- **Ensuring Access to Research Funding:**
 - **Increase Funding for Women-Led Projects**
 - ◆ Allocate a higher proportion of research grants and funding specifically for women scientists. Set up women-specific funding opportunities in science and technology sectors.
 - ◆ Strengthen Gender-Sensitive Funding Policies
 - ◆ Institutions such as the Science and Engineering Research Board (SERB) should revise their funding mechanisms to ensure women have equal access to research grants.
 - ◆ Create an inclusive funding environment where women-led innovations are given priority consideration for funding.

Conclusion

- To bridge the gender gap in STEM, UNESCO's campaign offers a significant push toward inclusivity. India must strengthen policies, mentorship, and funding to empower women scientists. A diverse scientific workforce ensures innovation, economic growth, and global progress in research and technology.

DEFENCE & SECURITY

INDIA'S DEFENCE BUDGET 2025-26

Why in News: The Defence Ministry's total allocation for 2025-26 is ₹6,81,210 crore, reflecting a 9.53% increase from

the previous year. It accounts for 13.45% of the total Budget, the highest among all ministries.

Breakdown of Defence Budget

The defence budget is divided into four main parts:

Category	Amount (₹ Crore)	Purpose
Revenue Allocation	₹3,11,732.30	Day-to-day operational costs like salaries, maintenance, fuel, foo, etc
Capital Allocation	₹1.8 lakh crore	Buying new weapons, technology, infrastructure, and R&D.
Defence Pensions	₹1.6 lakh crore	Pensions for retired military personnel.
Civil	₹28,682.97	Administrative costs of the ministry.

Capital Allocation for Defence Ministry

- The **capital allocation** (money set aside for purchasing new weapons, infrastructure, and technology) increased by **only 4.65%** to **₹1.8 lakh crore**.
- This increase is quite small, especially when we consider inflation and changes in currency values, which reduce the actual purchasing power of the budget.
- The **armed forces** are expected to return **₹12,500 crore** from the previous budget (2024-25). This suggests delays in spending, often due to the **slow defence procurement process**.
- Out of the **₹1.8 lakh crore capital allocation, ₹1,48,722.80 crore** is for **modernisation of the Armed Forces** (new tanks, aircraft, warships, etc.).
- The remaining **₹31,277.20 crore** is for **R&D and infrastructure**, like research on advanced weapons and building new military facilities.
- **₹1.12 lakh crore** from the total capital budget is reserved for **domestic defence industries**. This means the government is **promoting indigenous defence manufacturing** under *Make in India* instead of depending on imports.

Indian Coast Guard Budget

- The **Indian Coast Guard (ICG)** received a **big increase** in budget:
 - **Overall budget increase: 26.5%**
 - **Capital budget increase (for new equipment): 43%**

- This increase is due to the government's focus on:
 - Strengthening **coastal security**.
 - Helping **neighboring countries** in emergencies.
 - Assisting **commercial ships** in distress.
- The Coast Guard's capital budget increased from **₹3,500 crore to ₹5,000 crore**.
- This will be used to buy:
 - Advanced Light Helicopters (ALH)
 - Dornier aircraft
 - **Fast Patrol Vessels (FPVs)**
 - **Training ships**
 - **Interceptor boats** for quick responses.

Defence Pensions

- The defence pension budget increased by **13.87%** to **₹1.6 lakh crore**.
- This increase ensures that pensions keep up with **inflation**, helping **ex-servicemen and their families maintain a better standard of living**.

Border Roads Organisation (BRO) Budget

- It got **₹7,146 crore under the capital head**, a **9.74% increase** from last year.
- These funds will be used for projects like:
 - LGG-Damteng-Yangtse road in Arunachal Pradesh
 - Asha-Cheema-Anita Road in Jammu & Kashmir

- These roads will serve two major purposes:
 - **Strategic benefit:** Quick troop movement in case of conflicts.
 - **Socio-economic development:** Improving local economies and infrastructure.
- BRO has also created **70,000 jobs for local youth**, boosting employment and skill development.

PRELIMS SPECIAL

Border Roads Organisation

Establishment: Founded in 1960 under the Ministry of Defence.

Purpose: Develop and maintain roads, tunnels, and bridges in border areas for strategic and socio-economic development.

Operations: Works in high-altitude, remote, and difficult terrains, especially in Ladakh, Arunachal Pradesh, J&K, and Northeast India.

Significance:

- Enhances **military mobility** along borders with China and Pakistan.
- Boosts **connectivity and development** in remote areas.
- Assists in **disaster relief and civilian projects**.

Recent Projects:

- **Sela Tunnel (Arunachal Pradesh)** – Enhances all-weather connectivity to Tawang.
- **Atal Tunnel (Himachal Pradesh)** – Reduces distance to Leh.
- **LGG-Damteng-Yangtse Road (Arunachal Pradesh)** – Strengthens border security.

Conclusion

- This budget reflects the government’s focus on domestic defence manufacturing, modernisation, and strategic infrastructure, but delays in procurement remain a challenge.

EXPECTED QUESTION FOR UPSC CSE

Descriptive Question

Q. Analyse the key allocations and priorities in India’s Defence Budget 2025-26. Discuss its implications for defence modernisation, border security, and domestic defence manufacturing. [15 marks] [250 words]

LEFT WING EXTREMISM IN INDIA

Why in News: The Union Home Minister recently declared that by March 31, 2026, India aims to completely eliminate Naxalism, ensuring no citizen loses their life to this insurgency.

Understanding Left Wing Extremism (LWE)

- Left Wing Extremism is an armed rebellion driven by Marxist-Leninist ideologies, advocating for the overthrow of the state to establish a communist society.

- **Terminology:** Known internationally as *Maoists*, in India they are commonly referred to as *Naxalites*, originating from the 1967 uprising in *Naxalbari*, West Bengal.
- **Affected Regions:** The area known as the **Red Corridor** spans across parts of Chhattisgarh, Jharkhand, Odisha, Bihar, West Bengal, Andhra Pradesh, Telangana, Maharashtra, Madhya Pradesh, and Kerala — though the intensity varies by region.

Evolution of Left-Wing Extremism in India

Stage 1: Emergence (1967 - 1973)

- Began in *Naxalbari village*, West Bengal, led by *Charu Mazumdar*.
- Formation of the **All-India Coordination Committee (AICC)** in 1967, later renamed **All India Coordination Committee of Communist Revolutionaries (AICCCR)** in 1968.
- Key ideological principles outlined by AICCCR:
 - Protracted People’s War
 - Guerrilla warfare tactics
 - Formation of rural revolutionary base areas
 - Encirclement of cities from the countryside
- AICCCR led to the creation of the **Communist Party of India (Marxist-Leninist)** in 1969.
- Initial support base included **peasants, tribal communities (Adivasis), unemployed youth, and students**.

Stage 2: Expansion (1973 - 2004)

- Spread from West Bengal to **Bihar, Odisha, Andhra Pradesh, and Chhattisgarh**.
- Formation of **People’s War Group (PWG)** in 1980, primarily operating from **Andhra Pradesh**.
- PWG was banned in 1992 but continued its activities clandestinely.
- Simultaneously, **Maoist Communist Centre of India (MCCI)** gained strength in Bihar.

Stage 3: Consolidation (2004 - 2014)

- **2004:** PWG and MCCI merged, forming the **Communist Party of India (Maoist)**.
- Intensification of violence, targeting **security forces, infrastructure, and local leaders**.
- Maoists expanded influence to new regions, especially among **tribal communities (Bheel, Gond), Dalits, and marginalized groups**.

Stage 4: Decline and Countermeasures (2014 onwards)

- **Security fortification:** 544 fortified police stations established in high-risk areas.
- **Violence reduction:** LWE incidents dropped from **16,463 cases (2004-2014)** to **7,700 cases (2014-2024)** — a **53% decline**.
- **Government funding:** Increased focus on **capacity building** for LWE-affected states.

- **Goal:** Eradicate Naxalism completely by **March 31, 2026**.

Causes Behind the Rise of LWE

1. Land-Related Issues:

- **Evasion of land ceiling laws** by affluent landlords.
- **Weak enforcement of Scheduled Tribe land protection laws.**
- **Non-recognition** of traditional land rights.

2. Displacement and Evictions:

- **Forced evictions** from ancestral lands.
- **Displacement** due to **dams, mines, and industrial projects** without adequate rehabilitation.
- **Large-scale land acquisitions** without proper compensation.

3. Economic and Livelihood Challenges:

- **Food insecurity** due to corruption in **Public Distribution System (PDS)**.
- **Loss of traditional livelihoods** — especially from restricted forest access.
- **The Forest (Conservation) Act, 1980** hindered tribal access to forest resources.

4. Social Exclusion:

- **Weak enforcement** of laws preventing atrocities against marginalized communities.
- **Social marginalization** and **relative deprivation** fueled resentment.

5. Poor Governance:

- **Corruption** and **lack of essential services** like health care, education, and infrastructure.
- **Understaffed, untrained, and demotivated local administration.**
- **Tri-junction Theory:** Governance gaps are most severe where three state borders converge, creating safe havens for insurgents.
- **State vs Central disconnect:** State governments often perceive Naxalism as a central issue, reducing proactive local efforts.

Recent Decline in Naxalism

- **73% reduction** in LWE incidents since **2010**.
- **86% drop** in related deaths (from **1005 deaths in 2010** to **138 in 2023**).
- **Geographical contraction:** Affected districts reduced from **126 (2013)** to **38 (2024)**.
- **Police stations reporting LWE violence** dropped from **465 (2010)** to **89 (2024)**.

Key Reasons for the Decline

- **Security Related Expenditure (SRE) Scheme:** Funding for **training, equipment, compensation, and rehabilitation** of surrendered militants.

- **Special Infrastructure Scheme (SIS):** Strengthened **Special Forces (SF)** and **District Police**.
- **Fortified Police Stations:** **537 out of 603 FPSs** built after 2014.
- **Improved telecom:** **2343 mobile towers** installed (Phase-I) and **2542 towers** planned (Phase-II).
- **Financial inclusion:** Establishment of **955 banks**, **839 ATMs**, and **4903 new post offices** in remote areas.
- **Skill development:** **48 ITIs** and **49 Skill Development Centres** established.
- **Quality education:** **130 Eklavya Model Residential Schools (EMRS)** made functional.
- **Decline in ideological appeal:** Naxalite ideology lost its appeal among locals.
- **Leadership vacuum:** Many top Naxalite leaders **killed, captured, or surrendered**.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ.

Q. Consider the following statements regarding Left Wing Extremism in India:

1. Currently, Left Wing Extremism in India is spread across 11 states.
2. Recently, there has been a rise in the deaths of security personnel in Naxal attacks.

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

(d) Answer

Descriptive question

Q. Discuss the factors contributing to the decline of Left-Wing Extremism in India and suggest a multi-pronged strategy to ensure its complete elimination by 2026. [10 marks] [150 words]

BRAHMOS NG: NEXT GENERATION CRUISE MISSILE

Why in News: The BrahMos NG (Next Generation) missile is set for its first flight in 2026, with production expected to start between 2027-28. This marks a significant advancement in India's missile capabilities.

About BrahMos Missiles:

- BrahMos is a supersonic cruise missile developed through a joint venture between India's Defence Research and Development Organisation (DRDO) and Russia's NPO Mashinostroyeniya, forming BrahMos Aerospace.
- **Two-Stage Design:**
 - **First Stage:** A solid propellant booster accelerates the missile to supersonic speed before detaching.

- **Second Stage:** A liquid ramjet engine propels the missile to speeds nearing **Mach 3** during the cruise phase.
- **Special Features:**
 - Stealth technology and advanced embedded software enhance precision and survivability.
 - Operates on the 'Fire and Forget' principle, meaning no further guidance is needed after launch.
 - Can perform various flight maneuvers, making interception challenging.
- **Flight Range:**
 - Up to **290 km** with sustained supersonic speed throughout the flight.
 - High speed ensures **shorter engagement times, lower target dispersion, and reduced chances of interception.**
- **Altitude and Payload:**
 - Cruising altitude: **up to 15 km**
 - Terminal altitude: **as low as 10 meters** for low-profile strikes.
 - Can carry conventional warheads weighing **200 to 300 kg.**
- **Versatile Configurations:**
 - Compatible with land, sea, and sub-sea platforms.
 - Uses a **Transport Launch Canister (TLC)** for easy transportation, storage, and launch.
- **Strategic Export:**
 - India has successfully exported the BrahMos missile to the **Philippines**, and **Indonesia** is set to become the **second foreign buyer.**

About BrahMos NG (Next Generation):

- **Sleeker, Smaller, but Just as Powerful:**
 - BrahMos NG retains the core capabilities of its predecessor but in a more compact design.
- **Range:**
 - Like the original BrahMos, the NG version has a range of **290 km.**
- **Key Improvements:**
 - **Lighter and Smaller:** BrahMos NG weighs **1.6 tonnes** (compared to the older version's **3 tonnes**) and measures **6 meters** in length (**3 meters shorter** than the original).
 - **Improved Aircraft Compatibility:** Its reduced size allows integration with advanced aircraft like the **Sukhoi-30MKI** and **Tejas Light Combat Aircraft (LCA)**, enhancing India's air strike capabilities.
 - **Stealthier Design:** BrahMos NG has a **reduced radar cross-section**, making it harder to detect and intercept.

Significance of BrahMos NG:

- **Enhanced Aerial Capabilities:** Smaller size allows more missiles to be carried on aircraft, increasing strike potential.
- **Faster Deployment:** Easier integration with multiple platforms ensures rapid operational readiness.
- **Boost to India's Defence Export:** The lightweight version, combined with proven performance, strengthens India's position in the global arms market.
- **Strategic Edge:** The stealth improvements, precision targeting, and faster response make it a potent weapon for modern warfare.

EXPECTED QUESTION FOR UPSC CSE

Descriptive Question

Q. How does the BrahMos NG offer greater advantages over the BrahMos missile? Also, explain the strategic importance of this weapon. [10 marks] [150 words]

BATTLEFIELD SURVEILLANCE SYSTEM

Why in News: The Defence Minister recently flagged off 'SANJAY' — an advanced Battlefield Surveillance System (BSS) designed to revolutionize the Indian Army's situational awareness and operational capabilities.

Key Details about SANJAY

About the System:

- **Integrated Battlefield Awareness:** SANJAY is an advanced, automated system that integrates data from both ground and aerial sensors. It processes this data to verify authenticity, eliminates duplicates, and consolidates all inputs into a comprehensive **Common Surveillance Picture (CSP)** of the battlefield.
- **Secure Communication:** The system operates over the **Army Data Network** and **Satellite Communication Network**, ensuring real-time data transfer and secure connectivity.
- **Cutting-Edge Technology:** Equipped with modern sensors and high-performance data analytics capabilities, SANJAY enhances the Indian Army's ability to monitor and assess battlefield scenarios with greater precision.

Development:

- **Indigenously Designed:** The system has been developed in collaboration between the **Indian Army** and **Bharat Electronics Limited (BEL)** — showcasing India's strides towards self-reliance in defense technology under the 'Aatmanirbhar Bharat' initiative.

Working Mechanism:

- SANJAY functions through a **Centralized Web Application**, providing real-time battlefield intelligence

to **Command Headquarters, Army Headquarters, and the Indian Army Decision Support System.**

- The system ensures **instantaneous dissemination** of battlefield data, enabling faster and more informed decision-making.

Significance of the SANJAY System:

1. Operational in All Combat Scenarios:

- SANJAY is designed to support commanders in both **conventional warfare** (large-scale, high-intensity battles) and **sub-conventional operations** (counter-terrorism, border skirmishes, etc.) within a **Network-Centric Environment**.

2. Enhanced Data Analysis for Armed Forces:

- The system facilitates advanced **data mining** — processing vast amounts of sensor data to identify patterns, predict enemy movements, and improve decision-making speed and accuracy.
- This marks a significant leap towards **data-driven warfare** and strengthens the Indian Army's transition to a **network-centric force**.

3. Improved Battlefield Performance:

- By offering **real-time, comprehensive battlefield transparency**, SANJAY enhances situational awareness, reducing the fog of war and enabling faster responses to emerging threats.

4. A True Force Multiplier:

- The system acts as a **force multiplier** by improving **Intelligence, Surveillance, and Reconnaissance (ISR)** capabilities.
- It helps monitor **extensive land borders, detect and prevent intrusions, track enemy movements, and assess battlefield situations with remarkable accuracy.**
- This empowers commanders with near-instantaneous battlefield insights, enhancing operational effectiveness and troop safety.

*SANJAY represents a groundbreaking advancement in the Indian Army's surveillance capabilities, aligning with modern warfare's shift towards **technology-driven, network-centric operations**. By integrating diverse battlefield inputs into a **unified, real-time picture**, SANJAY empowers commanders with superior situational awareness, faster decision-making, and enhanced operational effectiveness — a significant step towards ensuring India's **combat readiness and border security** in the 21st century.*

EXPECTED QUESTION FOR UPSC CSE

Descriptive Question

- Q. What do you understand about the Battlefield Surveillance System? Explain its Significance in light of the SANJAY system. [10 marks] [150 words]

PRALAY AND PINAKA: INDIA'S TACTICAL ARSENAL

Why in News: The Republic Day Parade in New Delhi showcased India's advancements in tactical weaponry with the display of the **Pralay** ballistic missile and the **Pinaka** rocket system — both indigenously developed, marking a significant step in strengthening the nation's defensive and offensive capabilities.

Pralay Missile

Pralay is a next-generation, canisterized, surface-to-surface short-range ballistic missile (SRBM), designed for quick deployment and high precision in battlefield scenarios.

Key Features:

- **Indigenous Development:** Pralay has been developed by the Defence Research and Development Organisation (DRDO) as a part of India's effort to bolster its strategic deterrence.
- **Range:** The missile boasts an operational range of **150 to 500 km**, making it suitable for targeting key enemy assets across tactical zones, especially along the **Line of Actual Control (LAC)** and **Line of Control (LoC)**.
- **Payload Capacity:** It can carry **50 to 1000 kg** of explosives, making it versatile enough to deliver different types of warheads.
 - **High Explosive Preformed Fragmentation Warheads** — designed to cause extensive damage to personnel and light structures.
 - **Penetration-Cum-Blast Warheads** — capable of breaching hardened structures.
 - **Runway Denial Submunitions** — specialized to cripple enemy airfields.
- **Advanced Guidance System:** Equipped with modern **navigation and integrated avionics**, ensuring high accuracy. It uses **Inertial Navigation Systems (INS)** with **GPS** for mid-course corrections.
- **Maneuverability:** Pralay stands out with its ability to **evade interceptor missiles** by altering its flight path mid-course — a feature known as **quasi-ballistic trajectory**, making it harder to track and neutralize.
- **Target Spectrum:** It is designed to neutralize high-value targets such as **enemy radar installations, communication centres, command and control hubs, and advanced airfields.**

Pinaka Multi-Barrel Rocket Launcher (MBRL)

Named after the divine bow of Lord Shiva, the **Pinaka** system is a state-of-the-art, battle-proven artillery rocket system designed to deliver massive firepower in a short duration.

Key Features:

- **Versatile Firepower:** Pinaka is an **all-weather, indirect area fire weapon system** capable of saturating large areas

with explosive payloads. It can suppress enemy troop concentrations, equipment, and infrastructure in rapid succession.

- **Rapid Fire Capability:** Each launcher carries **12 rockets** that can **simultaneously discharge** within **44 seconds**, ensuring overwhelming firepower on the battlefield.
- **Extended Range:** Pinaka variants now boast a range of **60 to 75 km**, providing deeper reach into enemy positions.
- **Advanced Targeting:**
 - Equipped with **onboard Inertial Navigation Systems (INS)** for precise targeting.
 - Can be operated using a **Fire Control Computer (FCC)** or independently by a **Launcher Computer (LC)** for flexibility.
- **Mobility and Deployment:** Mounted on a **highly mobile 8x8 vehicle**, Pinaka is designed for quick deployment, shoot-and-scoot operations, and survivability in high-intensity conflict zones.

Strategic Significance:

- **Force Multiplier:** Both Pralay and Pinaka serve as **force multipliers**, enhancing India’s deterrence capabilities and rapid response against potential adversaries.
- **Self-Reliance in Defense:** The indigenous development of these systems reinforces India’s **Aatmanirbhar Bharat** initiative, reducing dependency on foreign defense imports.
- **Operational Flexibility:** While Pralay ensures precision strikes on high-value enemy infrastructure, Pinaka excels at area saturation — creating a balanced tactical advantage.
- **Adaptability:** Both systems are designed to operate effectively in diverse combat scenarios — from conventional warfare to counter-insurgency and high-altitude engagements.

India’s continuous advancements in missile and artillery technology, exemplified by Pralay and Pinaka, reflect a decisive leap toward a modern, network-centric warfare environment — ensuring preparedness for future conflicts while asserting its position as a regional defense powerhouse.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements regarding Pralay missile system:

1. It is a surface-to-air short-range ballistic missile.
2. The missile has a range of 150-500 km.
3. It has been developed by the Defence Research and Development Organisation (DRDO).

How many of the statements given above is/are correct?

(a) Only one (b) Only two

(c) All three (d) None

Answer: (c)

VERY SHORT-RANGE AIR DEFENCE SYSTEM (VSHORADS)

Why in News: The Defence Research & Development Organisation (DRDO) recently conducted three successful flight trials of the Very Short-Range Air Defence System (VSHORADS) from the Integrated Test Range at Chandipur, Odisha.

Key Details: About the Trial

- **Target Performance:** The missile trials were conducted against high-speed targets flying at extremely low altitudes — simulating real-world scenarios like low-flying drones and fast-moving enemy aircraft.
- **Success Rate:** All three trials were successful, with the missiles intercepting and completely destroying the targets, showcasing precision and reliability.
- **Deployment Setup:** The tests were performed in the missile’s final deployment configuration, where two field operators managed the entire sequence — from weapon readiness and target acquisition to missile launch — reflecting actual battlefield conditions.

About Very Short-Range Air Defence System (VSHORADS)

- **Type:** VSHORADS is a Man-Portable Air Defence System (MANPADS), designed for rapid deployment by ground troops to counter low-altitude aerial threats.
- **Development:** It has been indigenously developed by the Research Centre Imarat (RCI), a key DRDO laboratory, in collaboration with other DRDO units and private Indian industry partners.
- **Technology Integration:**
 - The missile is equipped with **advanced avionics** and a **miniaturized Reaction Control System (RCS)** for enhanced maneuverability and targeting precision.
 - It features a **dual-thrust solid motor** that provides the necessary speed and agility to intercept fast, low-flying targets.
 - The launcher and missile design are optimized for **lightweight portability**, allowing for swift mobility and ease of use in challenging terrains.
- **Production Readiness:** The development phase is complete, and two production agencies have been selected under the **Development cum Production Partner (DcPP)** model to ensure efficient mass production and faster deployment.

Significance of VSHORADS

- **Quick Reaction Capability:** The system empowers troops with the ability to rapidly engage enemy aircraft, helicopters, and drones in close-range combat scenarios, ensuring enhanced air defence coverage for advancing infantry and key assets.
- **Indigenous Advancement:** VSHORADS represents a significant stride towards India's self-reliance in defence technology, reducing reliance on imported MANPADS systems.
- **Enhanced Tactical Edge:** Its lightweight, easy-to-carry design ensures that soldiers in forward areas can move quickly while staying equipped with cutting-edge air defence capabilities.

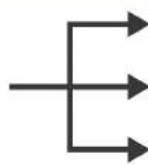
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NATIONAL HEALTH MISSION

Why in News: Cabinet was recently apprised of Achievements under National Health Mission (2021-24).

Key Details

- The National Health Mission (NHM) has significantly contributed to improving India's public health outcomes through its relentless efforts in expanding human resources, addressing critical health issues, and fostering an integrated response to health emergencies.

Achievements of the NHM

- NHM Engaged over **12 Lakh Additional Healthcare Workers** between FY 2021-24
- **220 Crore Covid-19 vaccine** doses administered nationwide under NHM
- **MMR declined by 83%** since 1990, which is higher than the global decline of 45%
- India demonstrated a higher decline of 75% in the reduction of **Under 5 Mortality Rate** in comparison to the global reduction of 60% since 1990
- **TB incidence reduced from 237 per 1,00,000 population in 2015 to 195 in 2023;** TB mortality rate decreased from 28 to 22 in the same period
 - **1.56 lakh Ni-kshay Mitra volunteers** are supporting over 9.4 lakh TB patients under the Pradhan Mantri TB Mukh Bharat Abhiyan
- **Ayushman Arogya Mandir Centers reach 1.72 Lakh** mark by FY 2023-24
- **National Sickle Cell Anemia Elimination Mission** screens over 2.61 Crore Individuals
- India achieves **97.98% Coverage in Measles-Rubella Vaccination Campaign**
- **Malaria Control Efforts Leads to Decreased Mortality and Cases**
- **Kala Azar Elimination** targets successfully met
- **U-WIN Pilot** Launched to Track Vaccination Events Across India
- **Pradhan Mantri National Dialysis Programme** has benefited over 4.53 lakh dialysis patients in FY 2023-24

National Health Mission: Evolution and Implementation Strategyn

- Evolution

- The **National Rural Health Mission** was launched in 2005 with the objective of building public health systems to provide accessible, affordable and quality health care to the rural population, especially the vulnerable groups, up to the District Hospitals (DH) level.
- In 2012, the National Urban Health Mission (NUHM) was conceptualized and the NRHM was rechristened as the National Health Mission (NHM) with the two Sub Missions viz. the NRHM and the NUHM.

Implementation strategy:

- The implementation strategy of the Ministry of Health and Family Welfare under NHM is to provide financial and technical support to States / Union Territories (UTs) enabling them to provide accessible, affordable, accountable, and effective healthcare up to District Hospitals (DHs), especially to the poor and vulnerable sections of the population.
- It has also aimed to bridge the gap in rural healthcare services through improved health infrastructure, augmentation of human resource and improved service delivery in rural areas and has envisaged decentralization of programmes to district level to facilitate need-based interventions, improve intra and inter-sectoral convergence and effective utilization of resources.

EXPECTED QUESTION FOR UPSC CSE

Descriptive Question

- Q. How has the National Health Mission been able to improve overall Health parameters in India? Discuss in light of Achievements under National Health Mission (2021-24). [10 marks] [150 words]

NATIONAL TRIBAL HEALTH CONCLAVE 2025

Why in News: The Ministry of Tribal Affairs (MoTA), in collaboration with the Ministry of Health and Family Welfare (MoH&FW), had organised the **National Tribal Health Conclave 2025** on 20th January 2025 at Bharat Mandapam, New Delhi.

Key details

- The National Tribal Health Conclave, 2025, was organized under the Dharti Aaba Janjatiya Gram Utkarsh Abhiyan.
- It sought to address the serious issues with health and well-being that India's tribal people suffer.
- The conclave was attended by representatives of the Ministries of Health and Family Welfare, Women and Child Development, AYUSH, Social Justice and Empowerment, senior state government officials, NHM representatives, AIIMS directors, tribal health specialists, leading institutions, UN agencies, non-governmental organisations, and more.
- MoTA and AIIMS Delhi exchanged letters of intent to adopt a tribal block in Odisha in order to carry out capacity-building initiatives, field research on health problems, and an etiological study.

Objectives of the Conclave

- Encourage dialogue to investigate cutting-edge approaches to healthcare delivery for indigenous areas.
- Determine the most important areas for research and policy actions.
- To improve health-seeking behaviour, create culturally relevant health strategies.
- Enhance healthcare systems by implementing monitoring systems, community involvement, and capacity building.
- Make a thorough action plan to enhance healthcare outcomes and access in native communities.

Health issues faced by the Tribals in India

- **Life expectancy:** As per the Lancet report, the life expectancy at birth for the ST population in India is 63.9 years as against 67 years for the general population.
- **Discriminatory behavior by health care providers:** Cultural differences between the tribal groups and non-tribal health care providers result in insensitive and discriminatory behavior.
- **Language barriers:** Many tribal groups face challenges while accessing health care benefits since their dialects are not easily understood.
- **National Family Health Survey (NFHS)-5:** The prevalence of stunting, wasting, and underweight is 40.9%, 23.2%, and 39.5%, respectively.
- **Communicable disease:** The tribal populations bear a disproportionate burden of communicable disease over and above the national average, which includes malaria, tuberculosis, skin infection, HIV, typhoid, and cholera.
- **Genetic disorders:** The prevalence of sickle cell disease and thalassaemia is high among different tribal communities.
- **Daily nutrition intake:** As per the National Nutrition Monitoring Bureau survey, only about 30% of tribal

children of different age groups consume diets that are adequate in both protein and energy.

- **Geographical factors:** Remote locations and difficult terrains make it difficult for authorities to deliver healthcare in tribal areas.
- **Tobacco and alcohol:** Alcohol consumption in India is disproportionately higher among the tribal population. For example, In Madhya Pradesh, around 29% of the tribal population consumes alcohol as compared to 13.3% of the non-tribal population.

Government initiatives for Tribal Health

- **National Sickle Cell Elimination Mission** by Prime Minister Shri Narendra Modi, targeting the eradication of sickle cell anemia by 2047.
- **Bhagwan Birsa Munda Chair of Tribal Health and Haematology:** A multidisciplinary platform for tribal health research and data gathering.
- **Centres of Competence (CoC):** In order to facilitate prenatal and advanced diagnosis of sickle cell anaemia, a common genetic disorder in tribal communities, 15 CoCs have been approved in 14 states.
- **Collaborative approach:** To provide efficient healthcare delivery, MoTA is collaborating closely with MoH&FW, MoAYUSH, MoWCD, NHM, AIIMs, CoCs, ICMR, UN agencies, NGOs, and state tribal welfare ministries.

Solutions

- **Strengthening Healthcare Systems:** Exploring telemedicine, mobile medical units, and capacity building.
- **Traditional Healers:** Appreciating and recognising the contributions that traditional healers provide to tribal communities and integrating them into mainstream healthcare.
- **Nutrition and Adolescent Health:** Addressing malnutrition, reproductive health, and traditional food practices via nutrition-centric initiatives.
- **Disease-Specific Interventions:** Targeting sickle cell disease, addiction, and mental health.
- **Cultural Sensitivity:** Balancing traditional lifestyles with improved health outcomes as well as reducing discriminatory gaps between tribal patients and non-tribal health care workers.
- **Strengthened public health infrastructure** with community participation and technology integration.

Conclusion

- The Government of India's dedication to the comprehensive development of tribal populations reaches a major turning point with the National Tribal Health Conclave 2025. This effort aims to provide sustainable healthcare solutions while protecting the unique cultural history of India's tribal inhabitants by encouraging cooperation, creativity, and inclusivity.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements regarding the National Tribal Health Conclave, 2025

1. It was held in New Delhi.
2. It was organized under the Dharti Aaba Janjatiya Gram Utkarsh Abhiyan.
3. It aims to create culturally relevant health strategies for tribals.

Which of the statements given above are correct?

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

Answer: (d)

Descriptive Question

Q. Examine the major health challenges faced by the Tribal population in India. Discuss the role of National Tribal Health Conclave in addressing those issues and suggest measures to enhance healthcare among tribals. [250 Words] [15 Marks]

STATES-LED PANELS TO DRAFT A COMPREHENSIVE SOCIAL SECURITY PLAN FOR WORKERS

Why in News: Recently, Labour Ministers and Secretaries of Union and State governments, decided to form committees to develop a sustainable model for comprehensive social security coverage for workers.

Key details

- Three committees comprising five states each were formed.
- These committees will consult with stakeholders and create a long-term plan for workers' comprehensive social security coverage.
- The ministry is also designing a dedicated Social Security and Welfare Scheme for gig and platform workers.

Current Status of the Social Security System in India

- **Code on Social Security, 2020:** For the first time, it defined 'aggregator,' 'gig worker,' and 'platform worker' and introduced legal provisions for their inclusion in social security measures.
- **Union Budget 2025-26:** Announced measures to facilitate the identification of unorganised labourers through unique identity cards, streamline their registration on the e-Shram portal, and ensure access to healthcare under PM Jan Arogya Yojana.

- **Aggregator Module:** To enable digital platforms to onboard themselves and their workforce onto India's national database for unorganised workers. As part of this pilot, four leading aggregators—Urban Company, Zomato, Blinkit, and Uncle Delivery—have already registered.
- **Budget Allocation:** The Union Budget has allocated a record ₹32,646 crore for the Ministry of Labour & Employment in FY 25-26—the highest ever and almost 80% higher than last year's revised estimates.

Various social security schemes

- **National Pension Scheme (NPS):** NPS is open to all Indian citizens between the ages of 18 and 60. **Post-retirement**, subscribers can withdraw up to 60 percent of the accumulated corpus as a lump sum, which is tax-free. The remaining 40 percent must be used to purchase an annuity to ensure a regular pension.
- **Rajiv Gandhi Shramik Kalyan Yojana:** Designed to provide financial assistance to workers and their families who have lost their jobs involuntarily.
- **Maternity Benefit Act, 1961:** Women in the organised sector get paid maternity leave of 26 weeks, up from 12 weeks, for the first two children. For the third child, the maternity leave entitlement will be 12 weeks.
- **Gratuity:** Establishments with 10 or more employees must provide the payment of 15 days of additional wages for each year of service to employees who have worked at a company for five years or more.
- **Pradhan Mantri Shram Yogi Maan-Dhan Yojana (PM-SYM):** A voluntary pension scheme for unorganised workers aged 18-40 years with an income below ₹15,000/month. Monthly contribution: ₹55-₹200. Assured pension of ₹3,000/month after 60 years. Spouse receives a 50% pension upon the beneficiary's death.
- **National Pension Scheme for Traders and Self-Employed Persons:** a voluntary pension scheme for shopkeepers, small traders, and self-employed persons aged 18-40 years with turnover ≤ ₹1.5 crore. Monthly contribution: ₹55-₹200. Provides ₹3,000/month pension post 60 years.
- **Pradhan Mantri Jeevan Jyoti Bima Yojana (PMJJBY):** Life insurance scheme for citizens aged 18-50 years with a bank account. Annual premium: ₹436. Provides ₹2 lakh coverage for death due to any cause.
- **Pradhan Mantri Suraksha Bima Yojana (PMSBY):** Accident insurance scheme for citizens aged 18-70 years with a bank account. Annual premium: ₹20. Provides ₹2 lakh for accidental death/full disability and ₹1 lakh for partial disability.
- **Atal Pension Yojana (APY):** Pension scheme for citizens aged 18-40 years with a bank account. Provides ₹1,000-₹5,000/month pension post 60 years. Contribution-based, with spouse or nominee receiving benefits after the death of the contributor.

Descriptive Question

Q. Critically analyze the challenges in implementing social security measures and suggest sustainable measures for social security of unorganised sector labourers. [150 words] [10 Marks]

NATIONAL COMMISSION FOR SAFAI KARAMCHARIS

Why in News: The Union Cabinet, chaired by the Prime Minister, has approved the extension of the tenure of the National Commission for Safai Karamcharis (NCSK) for three years beyond 31.03.2025 (i.e. up to 31.03.2028).

Key Details: About the Extension

- **Financial Cost:** The total financial implication for the extension for three years of the NCSK would be approximately Rs.50.91 crore.
- **Significance:** It would help in facilitating the socio-economic upliftment of sanitation workers, improving the working conditions in the sanitation sector and aiming to achieve zero fatalities while performing hazardous cleaning.

National Commission for Safai Karamcharis (NCSK)

- The National Commission for Safai Karamcharis (NCSK) was **constituted on 12th August 1994 as a statutory body by an Act of Parliament** viz. 'National Commission for Safai Karamcharis Act, 1993', for a period of three years i.e. up to 31st March, 1997.
- However, the validity of the Act was extended up to March 2002, and then up to February 2004 vide Amendment Acts passed in 1997 and 2001 respectively.
- With the lapsing of the "The National Commission for Safai Karamcharis Act, 1993" w.e.f. 29.2.2004, the Commission is acting as a **Non-Statutory body of the Ministry of Social Justice and Empowerment**.
- The Commission's tenure is **extended from time to time through Government Resolutions**.

Mandate of the National Commission for Safai Karamcharis

- Recommend to the Central Government specific programmes of action towards elimination of inequalities in status, facilities and opportunities of Safai Karamcharis.
- Study and evaluate the implementation of the programmes and schemes relating to the social and economic rehabilitation of Safai Karamcharis; and scavengers, in particular.
- Investigate specific grievances and take suo-motu notice of matters relating to **non-implementation of:**
 - programmes or schemes in respect of any group of Safai Karamcharis
 - decisions, guidelines or instructions, aimed at mitigating the hardships of Safai Karamcharis

- measures for the social and economic upliftment of Safai Karamcharis
- the provisions of any law in its application to Safai Karamcharis; and take up such matters with the concerned authorities or with the Central or State Governments
- To study and monitor the working conditions, including those relating to health, safety and wages of Safai Karamcharis working under various kinds of employers including Government, Municipalities and Panchayats, and to make recommendations in this regard.
- Make reports to the Central or State Governments on any matter concerning Safai Karamcharis, taking into account any difficulties or disabilities being encountered by Safai Karamcharis
- Any other matter which may be referred to by the Central Government.

Various Schemes for Safai Karamcharis

- **National Action for Mechanized Sanitation Ecosystem (NAMASTE) Scheme**
 - Formerly Self Employment Scheme for Rehabilitation of Manual Scavengers.
 - The Ministry of Social Justice and Empowerment in convergence with the Ministry of Housing and Urban Affairs have launched the National Action for Mechanised Sanitation Ecosystem (NAMASTE) scheme in July 2023 to ensure the safety and dignity of sanitation workers.
 - The focus is on the prevention of hazardous cleaning and the promotion of safe cleaning practices through trained and certified sanitation workers.
 - The objective of the scheme is to formalize and rehabilitate the persons engaged in hazardous cleaning of sewer and septic tanks.
- **Schemes Implemented By National Safai Karamcharis Finance & Development Corporation**
 - Mahila Samridhi Yojana (MSY)
 - Mahila Adhikarita Yojana (MAY)
 - Scheme for Pay and use community toilets
 - Sanitary Marts Scheme
 - Green Business Scheme
 - Swachhta Udyami Yojana (SUY)

National Safai Karamcharis Finance & Development Corporation (NSKFDC)

- National Safai Karamcharis Finance & Development Corporation (NSKFDC), an **Apex Corporation was set up for the socio-economic development of Safai Karamcharis/Scavengers** and their dependents through its various schemes.
- NSKFDC was incorporated on 24th January 1997 under **Section 25 of the Companies Act as a 'Not For Profit' Organization**.
- NSKFDC is a wholly owned Government Undertaking **under**

the aegis of the Ministry of Social Justice & Empowerment. NSKFDC commenced its operations in October 1997.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements regarding the National Commission for Safai Karamcharis (NCSK):

1. The National Commission for Safai Karamcharis (NCSK) was constituted as a statutory body by an Act of Parliament.
2. The NCSK has the power to investigate cases of atrocities against Safai Karamcharis and recommend appropriate action, including prosecution.

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: (c)

MENACE OF RAGGING IN INDIA

Why in News: The issue of ragging in Indian educational institutions once again captured national attention due to the recent ragging incident in Kerala.

What is Ragging?

- The **Supreme Court** defined ragging in the **Vishwa Jagriti matter (1999)**: *“Any disorderly conduct, whether by words spoken or written or by an act that has the effect of teasing, treating, or handling with rudeness any other student, engaging in rowdy or undisciplined activities that cause or are likely to cause annoyance, hardship, or psychological harm.”*

Key data and facts

- **RTI information:** 78 students named under **“List of the suicide/death cases alleged due to ragging”** from January 2012 to October 2023.
- **Rising complaints:** Over the course of ten years, the **UGC helpline received over 8,000 complaints of ragging**; statistics indicate that from 2012 to 2022, the number of complaints increased by 208%, from 358 in 2012—which peaked at 1,115 in 2019 before the epidemic struck—to 1103 in 2022 and 756 till October 2023.
- **Actions against colleges:** **Clause 9.4 of the UGC’s anti-ragging regulations** states that it can take action against colleges that do not adequately prevent ragging. However, UGC said that it has not invoked this provision against any college since 2009.

Challenges

- **Students affidavits on anti-ragging:** The UGC’s regulations state that students must submit affidavits

every academic year, committing on record that they will not indulge in any act of ragging. However, according to RTI statistics from the previous ten years, **just 4.49 percent of students turned in similar affidavits over their academic careers.**

- **Poor UGC Oversight:** The UGC regulations mandate the formation of Anti Ragging Squads to conduct surprise raids and inspections. But **UGC does not maintain any data regarding action taken by Anti Ragging Squads.**
- **Frivolous complaints:** Most of the complaints turn out to be **“random complaints or scuffles” between students** who prefer the helpline because it ensures anonymity.
- **Lack of awareness and sensitisation:** Many seniors are **unaware of the severe psychological and legal consequences** of ragging.
- **Fear of reporting:** Because of the **social stigma** attached to it and the **possibility of senior reprisal**, victims are reluctant to come forward.
- **Ineffective grievance redressal:** A lot of **anti-ragging committees are only formal entities with no actual power or initiative.** Frequently, complaints are disregarded or not promptly addressed.
- **Insufficient monitoring:** Transparency and accountability are diminished by **inadequate CCTV surveillance and a dearth of digital complaint tracking.**
- **Cultural Acceptance:** Ragging is seen by many seniors as a custom to strengthen relationships with juniors.

Combatting ragging

- **Creation of student safety committees:** Academic institutions must set up specialised committees devoted to student safety, with the authority to keep an eye on and swiftly **handle instances of ragging.**
- **Clear reporting procedures:** It’s critical to put in place **impartial reporting procedures for ragging accusations.** Because many victims are afraid of retaliation or don’t trust the reporting procedure. Universities must provide **privacy and prompt resolution of grievances.**
- **Comprehensive education and awareness initiatives:** Staff and students should both be required to participate in a **ragging prevention training program.** A culture of consciousness, empathy, and responsibility should be promoted throughout the college community by these programs.
- **Alternative orientation activities:** Universities should host alternative orientation events **for freshers during the first few weeks of the semester.** The danger of ragging events can be reduced by assigning student safety officers to offer additional support.
- **Public accountability:** The implementation of a **Student Safety Score (SSS) system**, which is assessed yearly and made public, **may educate stakeholders and potential students about the school’s dedication to student welfare.**

- **Technology:** Enhanced CCTV coverage and an ID-based victim dashboard to track the status of anti-ragging actions.

Policy Framework in India

- UGC guidelines, 2009:
- **Definition:** It includes 9 explanations of what could constitute ragging.
- Institutional level: UGC mandates that colleges take action to prevent ragging.
- Students must be required to **sign an agreement at universities promising not to participate in ragging activities.**
- **Helpline:** To assist victims of ragging, the Anti-Ragging Helpline is offered in **twelve different languages.**
- The **anti-ragging website**, <https://www.antiragging.in/>, keeps track of all the complaints that have been filed and the progress of the actions that have been taken in response.
- **Awareness: August 12–18** is designated as Anti-Ragging Week in all of the nation's educational institutions.
- **Separate regulations:** Under their different legislation, the **Medical Council of India and the All India Council for Technical Education (AICTE)** have established separate regulations.
- Bharatiya Nyaya Sanhita (BNS), 2023
- Ragging can be punished under a number of provisions of the BNS, even though it is not a specific offence under it:
 - **Section 329(1) (Wrongful Restraint):** Restricting someone from going in a direction they have the right to travel is punishable under Section 329(1).
 - **Section 329(2) (Wrongful Confinement):** The punishment for illegally detaining someone
 - **Section 351(2) (Criminal Intimidation):** Punishes threats or acts intended to frighten someone.
 - **Section 115(1) (Voluntarily Causing Hurt):** Physically harming someone is punishable under Section 115(1).
 - **Section 108 (Abetment of Suicide):** Offenders may face abetment charges if ragging results in suicide.
- **Supreme Court on Ragging:** In 2001, the Supreme Court banned ragging across India.
- **R K Raghavan Committee:** The Supreme Court formed the R K Raghavan committee in 2006 to identify ways to stop ragging and potential sanctions for individuals or organisations that engage in or neglect to stop it. **The UGC later codified the committee's recommendations.**

Conclusion

- Higher education institutions are still plagued by ragging, which compromises students' safety and dignity. Universities may establish more secure and welcoming learning environments by taking proactive steps. It's time to put students' welfare first and permanently ban ragging from our educational institutions.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements regarding UGC guidelines on anti-ragging.

1. The UGC guidelines designate August 12–18 as Anti-Ragging Week in all of the nation's educational institutions.
2. The UGC guidelines require students to sign an agreement at universities promising not to participate in ragging activities.

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

(c) : ANSWER

Descriptive Question

Q. Discuss the menace of ragging in India, its underlying causes, and the effectiveness of existing legal and institutional measures in curbing it. Suggest additional steps to eliminate ragging from educational institutions. [250 words] [15 marks]

RISE OF HATE SPEECH IN INDIA IN 2024

Why in News: Recently, Center for the Study of Organized Hate released the report 2024: Hate Speech Events in India.

Key details:

- This research covers a variety of mass gatherings and examines confirmed cases of in-person hate speech incidents in India in 2024.
- These consist of protest marches, religious processions, political rallies, election campaign events, protests, and events that are cultural or nationalist.
- A substantial percentage of hate speech occurrences in 2024 were sparked by the general election in India, the state elections in Maharashtra and Jharkhand, and rallies that followed attacks against Hindus in Bangladesh.
- In 2024, there were 1,165 hate speech incidents against religious minorities, a startling 74.4% rise from 668 in 2023.
- Anti-minority attitudes and animosity increased as a result of these rhetorical changes, which strengthened exclusionary narratives.
- State-level politicians topped the list in 2023, while national politicians were the main catalysts for communal discourse in 2024.

- In India and throughout the world, **social media** sites like Facebook, Instagram, WhatsApp, YouTube, Telegram, and X (previously Twitter) have played a significant role in **promoting, amplifying, and mainstreaming hate speech and extremist beliefs.**

Impact on Indian Society

- **Dissecting Democratic Principles:** India's democratic values are in grave danger due to the spread of hate speech, which creates a climate of fear and separation among groups.
- **Impunity of Hate Speech Perpetrators:** Those who propagate hate speech often operate with impunity, evading accountability for their harmful rhetoric. Their **unchecked actions undermine the principles of equality and justice enshrined in our legal system.**
- **Hate Speech's Impact on Indian Democracy:** Hate speech **exacerbates social divisions, undermining national unity** and undermining democratic norms in a diverse democracy like India.
- **Role of Social Media:** Social media platforms **amplify hate speech**, providing fertile ground for divisive rhetoric that fuels societal tensions and polarisation.
- **Impact on Marginalised Communities:** Hate speech disproportionately harms marginalised communities, **fostering fear, discrimination, and violence.**

As hate speech threatens to undermine India's democratic process, it is incumbent upon citizens to confront this issue. Normalising divisive rhetoric poses a grave risk to our values of equality and justice, necessitating stringent legal measures and a cultural shift towards tolerance and respect. **By addressing the role of social media and promoting inclusive education, India can continue to shine as a beacon of diversity and harmony.**

Legal provisions in India against hate speech

- **Section 196 of BNS:** Promoting animosity between various groups based on factors such as religion, race, place of birth, domicile, language, etc., and engaging in behaviours that undermine the preservation of peace is prohibited.
- **Section 197 of BNS:** Imputations and statements that are detrimental to national integration are prohibited.
- **Section 298 of BNS:** Wilful and malevolent attempts to offend the religious sentiments of any group by disparaging its faith or its convictions.
- **Section 302 of BNS:** Intentionally hurting someone's religious sentiments by using words, etc.
- **Sections 123(3A) and 125 of the Representation of People's Act (RPA), 1951,** prohibit the incitement of animosity or hostility amongst various Indian citizen groups based on caste, religion, community, race, or language in relation to elections and classify it as corrupt electoral practices.
- Hate speech directed towards Scheduled Castes or Scheduled Tribes is prohibited in public places by the **Scheduled Castes and Scheduled Tribes (Prevention of Atrocities) Act of 1989.**

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

- Q. Recently, the Report 2024: Hate Speech Events in India was published by?
1. Center for the Study of Organized Hate
 2. Ministry of Home Affairs
 3. US Commission on International Religious Freedom
 4. None of the Above

Answer: (a)

IRON AGE IN INDIA

Why in News: A groundbreaking study has pushed back the timeline of the Iron Age in India by over a millennium, suggesting it may have begun in present-day Tamil Nadu as early as 3,345 BCE — much earlier than previously believed.

Key Details of the Discovery

- **Location:** Sivagalai in Thoothukudi district, Tamil Nadu.
- **Evidence:** Burial urns containing iron objects and charcoal were analyzed using **radiometric dating**.
- **Revised Timeline:** This finding positions Tamil Nadu as potentially the **earliest known Iron Age civilization** in the world.
 - Previously, the **Hittite Empire** (modern-day Turkey) held this distinction with evidence dating back to **1,380 BCE**.
- **Institutions Involved:** The dating analysis was conducted by:
 - **Beta Analytics, USA**
 - **Physical Research Laboratory, Ahmedabad**
 - **Birbal Sahni Institute of Palaeosciences, Lucknow**
- **Historical Implications:**
 - This discovery suggests that **southern India** may have entered the Iron Age **independently** and **earlier** than northern India.
 - While regions **north of the Vindhyas** were still in the **Copper Age**, Tamil Nadu possibly transitioned to the Iron Age due to a **lack of copper ore deposits**, encouraging early adoption of iron.
 - The findings parallel the timeline of the **Indus Valley Civilization** in the northwest, indicating a **contemporary Iron Age civilization** in the south.
 - Previously, the earliest iron artifacts from Tamil Nadu dated to **2,172 BCE** (Mayiladumparai, Krishnagiri district).

Iron Age in India

- **Expanse:** The Iron Age in India was widespread, with evidence of iron usage found across diverse regions. The **spread reflects both indigenous development and regional adaptations, with iron technology** facilitating expansion into forested and previously inaccessible areas.
 - **Northern India:** Focused in the Gangetic plains (Uttar

Pradesh, Bihar), where cultures like the Painted Grey Ware (PGW) emerged.

- **Central India:** Sites in Madhya Pradesh and Rajasthan, such as Atranjikhhera and Jakhera.
- **Southern India:** Associated with megalithic cultures in Karnataka, Tamil Nadu, Kerala, and Andhra Pradesh (e.g., Hallur, Adichanalloor).
- **Eastern India:** Iron artefacts discovered in Odisha and Bengal.
- **Western India:** Evidence from sites in Maharashtra and Gujarat.
- **Chronology:** The Iron Age in India is broadly divided into phases, though dates vary regionally.
 - **Early Iron Age** (c. 1200–800 BCE): Marks the initial use of iron in the Ganges valley and parts of South India. Overlaps with the Late Vedic period, characterized by pastoral-agrarian societies.
 - **Middle Iron Age** (c. 800–400 BCE): Expansion of iron tools accelerates urbanization (e.g. Northern Black Polished Ware (NBPW) culture). Rise of mahajanapadas (early states) in the Gangetic plains.
 - **Late Iron Age** (c. 400 BCE–200 CE): Continuation into early historic periods under empires like the Mauryas.

Features of the Iron Age in India

- **Technological Advancements**
 - **Iron Artifacts:** Tools (axes, ploughshares), weapons (swords, arrowheads), and domestic items (nails, hooks).
 - **Smelting Techniques:** Use of furnaces and slag pits, indicating advanced metallurgy.
- **Agricultural Expansion**
 - Iron ploughs enabled the clearing of dense forests in the Gangetic plains, boosting agrarian productivity.
 - Surplus production supported urbanization and trade.
- **Cultural and Settlement Patterns**
 - **PGW Culture:** Distinctive pottery in North India linked to early Iron Age settlements.
 - **Megalithic Burials:** South India saw elaborate stone monuments (dolmens, cairns) with iron objects buried alongside the dead.

- **Socio-Political Changes**
 - The transition from tribal systems to janapadas (territorial states) and later mahajanapadas.
 - Social stratification intensified, as reflected in later Vedic texts and the Varna system.
- **Urbanization**
 - Emergence of fortified cities (e.g. Kaushambi, Ujjain) during the NBPW phase, marking the Second Urbanization.
 - Growth of trade networks and craft specialization.
- **Religious and Artistic Developments**
 - Continuation of Vedic rituals alongside new ascetic traditions (e.g. Jainism, Buddhism).
 - Artefacts like iron sculptures and inscriptions reflect evolving cultural practices.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements regarding the Iron Age in India:

1. Archaeological findings indicate that iron metallurgy in India developed indigenously, marking a significant transformation in agriculture, warfare, and socio-economic structures.
2. Evidence suggests that the technology for iron production in India was entirely imported from West Asian civilizations, with no local innovation.

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)

KALYANA CHALUKYA INSCRIPTIONS

Why in News: Three newly discovered Kannada inscriptions from the Kalyana Chalukya era were found for the first time in Kankal village, Pudur Mandal, Vikarabad district, Telangana.

Key Details of the Inscriptions

- **Dates:** The inscriptions are dated December 25, 1129 CE, October 5, 1130 CE, and January 8, 1132 CE.
- **Period:** These inscriptions belong to the 4th, 5th, and 6th regnal years of Emperor Someshwara III Bhulokamalla-deva of the Kalyana Chalukya dynasty.

1. First Inscription:

- Mentions the construction of the Bijjeswara temple and the consecration of a Shiva Linga.
- Records a donation of 100 martars (an old land measurement unit) by Bijjarasa, the local chieftain of Kankal village. Notably, the temple was named after the chieftain instead of the idol — a rare occurrence.

2. Second Inscription:

- Details land and cash donations made to the Bijjeswara temple by Somideva Peggada, a local Choudhary, and Karanam Bijjarasa.

3. Third Inscription:

- Documents contributions made by Somapermanadi, Choudhary Gundarasa, and other local leaders (Gavundas), including Bemminayaka, Nabhanayaka, and Bilanayaka, for the temple's maintenance.

About the Kalyana Chalukyas (Western Chalukyas)

- The Kalyana Chalukyas, also known as the Western Chalukyas, represent the later phase of the Chalukya dynasty.
- They emerged after the decline of the Rashtrakutas, with Tailapa II defeating the Rashtrakuta king Karka II in 973 CE, thus reviving Chalukya rule.
- **Capital:** Kalyani (modern-day Basavakalyana in Karnataka).

Historical Timeline

- **973 CE:** Tailapa II re-establishes Chalukya dominance.
- **Late 10th to 12th century:** Kalyana Chalukyas ruled for nearly 200 years.
- **1162-1182 CE:** Temporarily displaced by the Kalachuris.
- **1190 CE:** The dynasty finally dissolved due to the rise of the Hoysalas, Kakatiyas, and Seunas (Yadavas).

Conflicts and Rivalries

- The Kalyana Chalukyas frequently battled the Chola dynasty.
- Tailapa II fought against the **Gangas, Nolambas, and Cholas.**
- His son Satyashraya continued the conflict against **Rajaraja Chola I and Rajendra Chola I.**

Contributions to Art, Architecture, and Culture

1. Innovative Temple Architecture:

- Developed the **Vesara style**, blending elements of the northern **Nagara** and southern **Dravida** architectural styles.
- Temples featured intricately carved pillars, ornate shikharas (superstructures), and detailed sculptures.
- Notable examples: **Kasi Vishweshwara Temple (Lakkundi)** and **Dodda Basappa Temple (Dambal).**

2. Sculpture and Ornamentation:

- Commissioned exquisite bas-reliefs, murals, and life-like sculptures depicting mythological stories, daily life, and royal achievements.
- The sculptors mastered expressions, movement, and intricate detailing in stonework, setting new standards for later Deccan art.

3. Literary and Epigraphic Contributions:

- Patronized Kannada and Sanskrit literature. Prominent poets like **Ranna** and **Vijnaneshwara** flourished under their reign.
- Epigraphs and inscriptions provide valuable insights into administrative, social, and cultural life.

4. Religious Patronage and Cultural Syncretism:

- Supported Hinduism and Jainism alike, promoting temple construction for both traditions.
- Iconography blended Shaivite, Vaishnavite, and Jain themes, reflecting a spirit of religious inclusivity.

5. Enduring Legacy:

- Their architectural innovations influenced later dynasties, including the **Hoysalas** and the **Vijayanagara Empire**.
- The Kalyana Chalukya style marked a significant turning point in the evolution of South Indian temple architecture.

- The Hindu god of preservation, **Lord Vishnu**, took **10 incarnations**, which are referred to as Dashavatar.
- Matsya (a fish), Kurma (a tortoise), Varaha (a boar), Narasimha (a lion-man), Vaman (a dwarf), Parashuram, Ram, Krishna, Buddha, and Kalki are the 10 incarnations of Vishnu.
- It is performed **during the annual festival of the village deity** in the temple premises **after the paddy harvest**, towards the end of the Navratri fast in **October**, and **continues until May** the following year.
- The **poorva-ranga**, or first session, and the **uttar-ranga**, or second session, are the **two parts of the Dashavatar performance**.
- **Poorva-ranga**
 - The presentation that comes **before the actual performance** is called the poorva-ranga.
 - The tale of the demon **Shankhasur's killing** is told in the **Poorva-ranga**.
 - This act also includes the **characters of Lord Ganesha, Riddhi, Siddhi, a Brahmin, Sharada (the goddess of learning), Brahma dev, and Lord Vishnu**.
- **Uttar-ranga**
 - **One of Lord Vishnu's 10 incarnations is highlighted in the uttar-ranga**, also called akhyana, which is regarded as the primary performance based on Hindu mythology.
- The performance uses **bright make-up and costumes**.
- **Three musical instruments**—the **Zanj (cymbals)**, the **Tabla**, and a **paddle harmonium**—are used for Dashavatar plays.
- Dashavatar is popular in major localities like Sawantwadi, Kudal, Malvan, Vengurla, Kankavli, etc., in the **Sindhudurg district** of the South Konkan Region of Maharashtra as well as the **North Goa** district in the State of Goa.
- It is generally **practiced by agriculturists of the region**.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

- Q. Which of the following cities served as the capital of the Western Chalukyas?
- (a) Badami (b) Kanchipuram
(c) Kalyana (d) Vengi

Answer: (c)

Descriptive Question

- Q. Discuss the key contributions of Western Chalukyas in the development of art and culture in India. [10 marks] [150 words]

DASHAVATAR THEATRE: A TRADITIONAL ART FORM OF MAHARASHTRA AND GOA

Why in News: Recently, the Maharashtra and North Goa regions have witnessed the commencement of Dashavatar theatre performances.

About Dashavatar Theatre

- Dashavatar is a form of theatre that relies on improvisation around a **mythological narrative with a history of at least 800 years in Sindhudurg district and north Goa**.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

- Q. Dashavatar performances belong to the regions of?
- (a) Western coastal areas of India
(b) Eastern Ghats
(c) Himalayas
(d) North Indian plains

Answer: (a)

LEZIM DANCE

Why in News: The film *Chhaava* recently removed a Lezim dance scene following objections about historical accuracy, bringing renewed attention to this traditional dance form.

What is Lezim Dance?

Lezim, also known as *Lazium* or *Leziium*, is a vibrant and energetic folk-dance originating from Maharashtra. It derives its name from the musical instrument *Lezim* — a wooden stick with small metallic jingling cymbals attached. The rhythmic sound produced by the instrument forms the core of the dance's lively beat.

Historical Significance

Lezim is believed to have evolved from an ancient martial training exercise during the reign of Chhatrapati Shivaji Maharaj. It was initially performed by men to develop physical strength and endurance, resembling a fitness drill more than a dance. Over time, it transformed into a community performance, preserved and enriched by local traditions.

Two distinct versions emerged — one in Maharashtra and another in Gujarat — each adopting regional cultural elements.

When is Lezim Performed?

Lezim is predominantly performed during major festivals and public gatherings in Maharashtra, especially during the Ganesh Chaturthi celebrations and processions. The rhythmic dance is an expression of communal joy and devotion.

Musical Instruments

- **Lezim:** A wooden stick with jingling cymbals, swung rhythmically by the dancers.
- **Dholki:** A double-headed drum that provides the main percussion beat, setting the tempo for the performance.

Performance Style

Lezim is an energetic, physically demanding dance, often likened to a synchronized fitness drill. It showcases athleticism and precision. Some key features include:

- **Dynamic Movements:** Dancers perform a variety of steps — hopping, squatting, bending, and lunging — in synchronized patterns.
- **Rhythmic Precision:** Movements are executed in time with the jingling strikes of the *Lezim* sticks, following counts of four or eight beats.
- **Human Pyramid Formation:** A signature highlight is when dancers form a pyramid, adding spectacle and symbolism to the performance.
- **Group Coordination:** Typically performed by groups of 12 or more, the dance demonstrates collective strength and unity.

Traditional Attire

The dancers wear vibrant, color-coordinated costumes to enhance the visual appeal:

- **Men:** White kurta and pajama paired with a colorful belt and turban.
- **Women:** Bright sarees or traditional attire matching the group's color theme

Chhatrapati Sambhaji Maharaj

Who was Sambhaji Maharaj?

Chhatrapati Sambhaji Maharaj was the eldest son of the legendary Chhatrapati Shivaji Maharaj, founder of the Maratha Empire. He ascended the throne after his father's death and ruled from 1681 to 1689, earning admiration for his courage and relentless resistance against the Mughals.

His Legacy and Military Campaigns

Sambhaji Maharaj's reign was marked by continuous warfare, particularly against:

- **The Mughal Empire:** Led by Emperor Aurangzeb, who sought to expand his rule into the Deccan.
- **The Siddis of Janjira:** A naval power along the Konkan coast.
- **The Wadiyars of Mysore:** A regional power in southern India.
- **The Portuguese:** Colonial forces controlling coastal regions.

Major Campaigns

- **Burhanpur Raid (1681):** Sambhaji led a daring attack on the Mughal city of Burhanpur (now in Madhya Pradesh), a vital trade and administrative center. This strategic move disrupted Aurangzeb's plans to penetrate the Deccan.
- **Defensive Wars (1682–1688):** Sambhaji's forces engaged the Mughals in relentless skirmishes, successfully defending key Maratha forts despite intense pressure.

Capture and Martyrdom

In 1685, Aurangzeb intensified his campaign, gradually forcing Sambhaji's troops to retreat. After a prolonged struggle, Sambhaji was captured in 1689. He was brutally executed after refusing to convert to Islam, becoming a symbol of Maratha pride and unwavering patriotism.

EXPECTED QUESTION FROM UPSC CSE

Prelims MCQ

Q. Lezim folk dance is associated with which one of the following states in the country?

- (a) Manipur (b) Tamil Nadu
(c) Maharashtra (d) Himachal Pradesh

(c) Answer

GOVERNMENT SCHEMES

NATIONAL MANUFACTURING MISSION

Why in News: A 'National Manufacturing Mission' to cover small, medium and large industries for furthering Make in India was announced by the Union Minister for Finance and Corporate Affairs while presenting the Union Budget 2025-26 in Parliament.

Key Details: About the Mission

- The **National Manufacturing Mission emphasizes five focal areas.**
 - Ease and cost of doing business
 - Future-ready workforce for in-demand jobs
 - A vibrant and dynamic MSME sector
 - Availability of technology
 - Quality products
- The Mission will support **Clean Tech manufacturing** and aims to improve domestic value addition and **build the ecosystem for solar PV cells, EV batteries, motors and controllers, electrolyzers, wind turbines**, very high voltage transmission equipment and grid scale batteries.

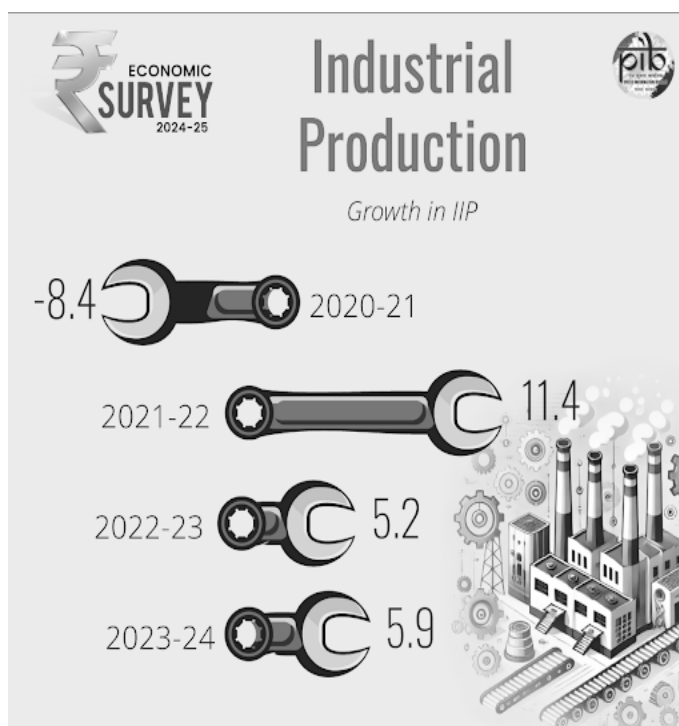
Manufacturing Sector in India

- The manufacturing sector is a **crucial pillar in India's growth story, acting as a catalyst for economic development, job creation and technological advancement.**
- Latest Index of Industrial Production (IIP)
 - The IIP growth rate for the month of November 2024 is **5.2%, which was 3.5% in the month of October 2024.**
 - The growth rates of the three sectors, **Mining, Manufacturing and Electricity, for the month of November 2024 are 1.9%, 5.8% and 4.4%, respectively.**
- This growth is further supported by India's increasing focus on high-value manufacturing, including mobile phone production, which has seen substantial export growth.
- Moreover, the government's initiatives, such as the Production-Linked Incentive (PLI) schemes, have been instrumental in boosting manufacturing output and attracting foreign investment.
- The **manufacturing sector contributes around 17% to the GDP**, supported by robust physical and digital

infrastructure, which is expected to grow to 21% in the next 6-7 years.

Economic Survey 2024-25: Manufacturing/Industrial Sector

- **The industrial sector grew by 6% in the first half of FY25** and is estimated to grow by 6.2 percent in FY25.
- Manufacturing exports **slowed significantly due to weak demand from destination countries and aggressive trade and industrial policies** in major trading nations.
- The **above-average monsoon had mixed effects** - while it replenished reservoirs and supported agriculture, it also disrupted sectors like mining, construction, and, to some extent, manufacturing.
- The variation in the timing of festivities between September and October in the previous and current years led to a modest growth slowdown in Q2 FY25.
- Despite various challenges, **India continues to register the fastest growth in manufacturing PMI, stated the Survey.**
- The latest Manufacturing PMI for December 2024 remained well within the expansionary zone, driven by new business gains, robust demand, and advertising efforts.



Initiatives in the Budget for Manufacturing Sector

- **Focus Product Scheme for the Footwear & Leather Sector**
 - The government has introduced a Focus Product Scheme to improve the footwear and leather sector's productivity, quality, and worldwide competitiveness in recognition of the potential of labor-intensive businesses.
 - This initiative aims to make India a leading manufacturer in the global footwear and leather industry.
 - **Key Features of the Scheme:**
 - ◆ Support for Non-Leather & Leather Footwear – The initiative will boost component manufacturing, design capabilities, and machinery production.
 - ◆ Employment Generation – The scheme is expected to create 22 lakh jobs.
 - ◆ Economic Impact – Projected turnover of ₹4 lakh crore and exports exceeding ₹1.1 lakh crore.
- **National Action Plan for Toys – Aiming for Global Leadership**
 - The government has announced a National Action Plan for Toys in an effort to establish India as a major global center for toy production.
 - The program seeks to lessen reliance on imports while supporting indigenous toy manufacturers, which is in line with the Atmanirbhar Bharat movement for self-reliance.
 - **Key Focus Areas**
 - ◆ Cluster Development – Establishing dedicated toy manufacturing zones.
 - ◆ Skill Enhancement – Training and upskilling workers to meet global quality standards.
 - ◆ Manufacturing Ecosystem – Encouraging the production of unique, innovative, and sustainable toys under the 'Made in India' brand.
- **Strengthening the Food Processing Sector**
 - Food processing is also given priority in the Union Budget 2025–2026 as part of the overall economic plan.
 - This move is expected to boost food processing activities and create a stronger ecosystem for agribusiness.
 - A National Institute of Food Technology, Entrepreneurship and Management will be established in Bihar, focusing on:
 - ◆ Enhancing agricultural value addition to increase farmer incomes.
 - ◆ Promoting skill development and entrepreneurship in food processing.
 - ◆ Providing employment opportunities in the eastern region under the 'Purvodaya' initiative.

Conclusion

- The National Manufacturing Mission aims to strengthen India's industrial base by enhancing ease of doing business, fostering innovation, and boosting domestic production. With strategic initiatives, it seeks to position India as a global manufacturing powerhouse.

EXPECTED QUESTIONS FOR UPSC CSE

Descriptive Question

- Q. "The National Manufacturing Mission aims to enhance India's industrial competitiveness by focusing on ease of doing business, technology, and workforce development". Discuss the key challenges faced by the manufacturing sector in India and suggest measures to strengthen its global standing. [250 Words] [15 Marks]

MUTUAL CREDIT GUARANTEE SCHEME FOR MSMEs

Why in News: Recently, the Government of India launched the **Mutual Credit Guarantee Scheme for MSMEs (MCGS-MSME)**.

Salient Features of the Scheme

- **Ministry:** Ministry of Micro, Small & Medium Enterprises
- The **loan amount insured must not exceed Rs. 100 crore**, and the borrower must be an MSME with a valid Udyam Registration Number.
- The **minimum equipment/machinery cost is 75% of the project's total cost**.
- The payback duration for loans up to Rs. 50 crore under the scheme is up to 8 years, with a **maximum 2-year moratorium** on principal payments.
- **Higher repayment schedules and principal installment moratoriums may be considered for loans exceeding Rs. 50 crore.**
- When applying for guarantee insurance, a **5% upfront (initial) payment of the loan amount must be made**.
- **No Annual Guarantee Fee:** During the year of approval, there would be no annual guarantee fee for loans made under the scheme. The loan balance as of March 31 of the prior year will be 1.5% annually for the next three years. After then, the annual guarantee fee will be equal to 1% of the loan balance as of March 31 of the prior year.

India's MSME Sector

- The MSME sector is an important part of India's industrial landscape, contributing to employment, exports, and manufacturing.

- **Assessment:** To strengthen quality training and assessments, a **national pool of one lakh assessors and trainers is being developed** across training centers.

Pradhan Mantri National Apprenticeship Promotion Scheme (PM-NAPS)

- It supports **both apprentices and establishments** in India.
- **Stipend:** With 25% of the stipend, **up to ₹1,500 per month per apprentice**, through Direct Benefit Transfer (DBT) during the training period.
- **Age criteria:** 14 to 25 years old.

Jan Shikshan Sansthan (JSS)

- It is a **community-centric skilling initiative** designed to make **vocational training** accessible, flexible, and inclusive, particularly for women, rural youth, and economically disadvantaged groups.
- **Age criteria:** 15 to 45 years old.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following schemes:

1. Pradhan Mantri Kaushal Vikas Yojana 4.0 (PMKVY 4.0)
2. Pradhan Mantri National Apprenticeship Promotion Scheme (PM-NAPS)
3. Jan Shikshan Sansthan (JSS)

How many of the above schemes are merged to create the Composite Skill India Programme by the Ministry of Skill Development and Entrepreneurship?

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

Answer: (c)

NATIONAL CRITICAL MINERAL MISSION

Why in News: The Union Cabinet, chaired by the Prime Minister, has approved the launch of the **National Critical Mineral Mission (NCMM)** with an expenditure of **Rs. 16,300 crore** and an expected investment of **Rs. 18,000 crore** by PSUs, etc.

Objectives of Mission

- The mission encompasses **all stages of the value chain**, including mineral exploration, mining, beneficiation, processing, and recovery from end-of-life products.
- It aims to **intensify the exploration of critical minerals** within the country and in its offshore areas.

- It aims to **create a fast-track regulatory approval process** for critical mineral mining projects.
- It aims to offer **financial incentives for critical mineral exploration**.
- It aims to **encourage Indian PSUs and private sector companies to acquire critical mineral assets abroad** and enhance trade with resource-rich countries.
- It aims to **develop a stockpile of critical minerals** within the country.
- It aims to **establish mineral processing parks** and support the recycling of critical minerals.
- It aims to promote research in critical mineral technologies and proposes **setting up a Centre of Excellence on Critical Minerals**.
- The mission will **work closely with relevant ministries, PSUs, private companies, and research institutions to achieve its objectives**.

Critical minerals

- Critical minerals are those that are **vital to national security and economic growth**; their scarcity or even concentration in a small number of places could result in supply chain disruptions for their extraction, processing, or existence.
- The government of **India has published a list of 30 critical minerals**. These minerals are Antimony, Beryllium, Bismuth, Cadmium, Cobalt, Copper, Gallium, Germanium, Graphite, Hafnium, Indium, Lithium, Molybdenum, Niobium, Nickel, PGE, Phosphorous, Potash, REE, Rhenium, Selenium, Silicon, Strontium, Tantalum, Tellurium, Tin, Titanium, Tungsten, Vanadium, Zirconium.

Importance of Critical minerals in strategic sectors

- Critical minerals and REEs are essential for strategic industries, including defence, semiconductors, quantum computing, energy, and space.
- Elements such as neodymium, praseodymium, and samarium are crucial for high-performance magnets used in missiles, fighter jets, and radars.
- Lithium, cobalt, and nickel power are used in advanced batteries for energy storage and electric vehicles, while gallium and indium are key in semiconductors and AI hardware.

Government initiatives

- **Mines and Minerals (Development and Regulation) Act, 1957:** The act has been amended in 2023 to increase exploration and mining of critical minerals.
- **The Geological Survey of India (GSI)** has carried out 368 significant mineral exploration projects in the last three years, and 195 of those projects are presently under progress for FS 2024–2025.
- A joint venture of the Ministry of Mines, **Khanij Bidesh India Ltd. (KABIL)**, has acquired around 15703 hectares

in Argentina’s Catamarca province for the purpose of exploring and extracting lithium.

- **Financial incentives:** The Government of India has already eliminated customs duties on the majority of critical minerals in the Union budget 2024-25.

India’s import of critical minerals

- For minerals that are critical to quickening its energy transition, India is **still heavily reliant on imports**.
- With the exception of copper and lithium-ion, **key mineral imports totalled 82,260 tonnes in FY24 and totalled ₹35,000 crore across 24 categories**.
- By 2030, India’s need for essential minerals is predicted to more than double, yet **it might take more than ten years for domestic mining companies to begin production**.
- India remains largely import-dependent for these minerals and their compounds, with **100% import reliance for minerals like lithium, cobalt, and nickel**.

Way forward

- **Mineral exploration:** India should strive to de-risk its critical mineral sourcing by **identifying new international resources and expediting domestic production**.
- **Bilateral efforts:** India can explore investment opportunities in resource-rich, friendly nations, such as Australia and Chile, as well as African countries like Ghana and South Africa.
- **Chinese imports:** India depends heavily on China for critical minerals, e.g., synthetic graphite and natural graphite, and it should explore cooperation initiatives with countries like Mozambique, Madagascar, Brazil, and Tanzania, which are some of the highest graphite-producing countries.
- **Domestic capacity:** Developing domestic lithium refining capacity **via critical mining block auctions** will help India integrate with the global lithium supply chain.”
- **Creation of Centre of Excellence for Critical Minerals (CECM):** It will focus on **identifying more efficient ways for discovering next-generation critical mineral deposits through geological knowledge, data analytics and modelling, and machine learning capability**.

Conclusion

- The National Critical Mineral Mission is a crucial step toward securing India’s mineral supply chain. By reducing import dependence, enhancing domestic exploration, and fostering international partnerships, India can achieve self-reliance and ensure sustainable access to critical minerals.

Q. Consider the following minerals:

1. Antimony	2. Beryllium
3. Bismuth	4. Cadmium
5. Cobalt	

How many of the above minerals are termed as Critical Minerals by the Ministry of Mines?

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

(d) Answer

Descriptive Question

Q. The National Critical Mineral Mission (NCMM) aims to strengthen India’s mineral security by reducing import dependence and enhancing domestic exploration. In this context, discuss the key challenges in securing critical mineral supplies and suggest measures to achieve self-reliance in critical mineral sourcing. [250 Words] [15 Marks]

PRADHAN MANTRI ANNADATA AAY SANRAKSHAN ABHIYAN (PM-AASHA)

Why in News: The Government of India approved the continuation of the integrated Pradhan Mantri Annadata Aay Sanrakshan Abhiyan (PM-AASHA) Scheme during the 15th Finance Commission Cycle up to 2025-26.

Key Details: About PM-AASHA

- It is an **umbrella scheme that is aimed towards ensuring remunerative prices to farmers for their produce**.
- The total financial outgo will be Rs. 35,000 crore during 15th Finance Commission Cycle up to 2025-26.
- **Change in the Scheme:** The Government has converged the Price Support Scheme (PSS) & Price Stabilization Fund (PSF) schemes in PM AASHA to serve the farmers and consumers more efficiently.
- **Components of the Scheme**
 - Price Support Scheme (PSS)
 - Price Deficiency Payment Scheme (PDPS)
 - Pilot of Private Procurement & Stockist Scheme (PPPS)

Price Support Scheme (PSS)

- The Price Support Scheme (PSS) is being implemented by the Government of India in states.
- **Main crops of the states** like Bajra, Jowar, Maize, Paddy, Cotton, Tur, Moong, Urad, Groundnut, Sesamum Wheat, Gram, Mustard, and Sugarcane, etc., are covered.
- The Department of Agriculture & Cooperation implements the PSS for procurement of oil seeds, pulses and cotton through NAFED, which is the Central nodal agency, at the MSP declared by the government.
- NAFED undertakes procurement when prices fall below the MSP. Procurement under PSS is continued till prices stabilize at or above the MSP.

Price Deficiency Payment Scheme (PDPS)

- It is aimed to ensure a remunerative price to the producer

of oilseeds whose MSP are notified by the Government of India and when sold in the harvest season without the actual procurement by the government agencies.

- It envisages direct payment of the difference between the MSP and the market price to the farmers selling their produce in the notified APMC yard through a transparent auction process.
- The state Govts/UTs have to send an option for implementation of the PDPS for one or more oilseeds for the marketing season for the whole of the state in place of Price Support Scheme (PSS).

Pilot of Private Procurement & Stockist Scheme (PPPS)

- There is a need to tap into the private sector expertise and efficiencies for procurement operations. Therefore, it is essential to test the workability of the Private Procurement Stockist Scheme on a pilot basis for oilseeds.
- A well-designed and closely monitored private sector intervention can be made to serve the cause of farmers' welfare without an additional burden on the government exchequer.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following:

1. Price Support Scheme (PSS)
2. Price Deficiency Payment Scheme (PDPS)
3. Pilot of Private Procurement & Stockist Scheme (PPPS)

Which of the above are components of the Pradhan Mantri Annadata Aay Sanrakshan Abhiyan (PM-AASHA) umbrella scheme?

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

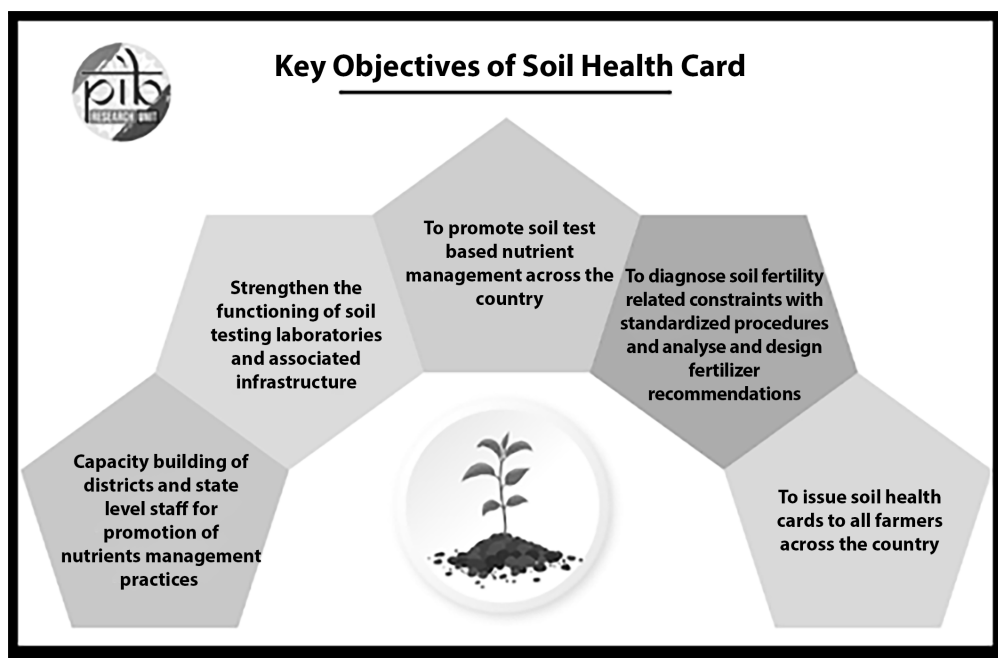
(d) Answer

SOIL HEALTH CARD SCHEME

Why in News: The Soil Health Card Scheme completed 10 years.

Achievements Under the Scheme

- 24.74 crore Soil Health Cards (SHC) generated.
- 8272 Soil testing labs have been set up.
- Rs. 1706.18 crore have been released to various states/UTs
- Soil and Land Use Survey of India has generated 1,987 village-level soil fertility maps for 21 States and Union Territories.
- **Village Level Soil Testing Labs (VLSTLs):** As of February 2025, 665 Village-level Soil Testing Labs have been established in 17 States.
- **School Soil Health Programme:** As of 2024, 1020 schools are implementing the School Soil Health Programme, with 1000 soil testing labs set up and 125,972 students enrolled.

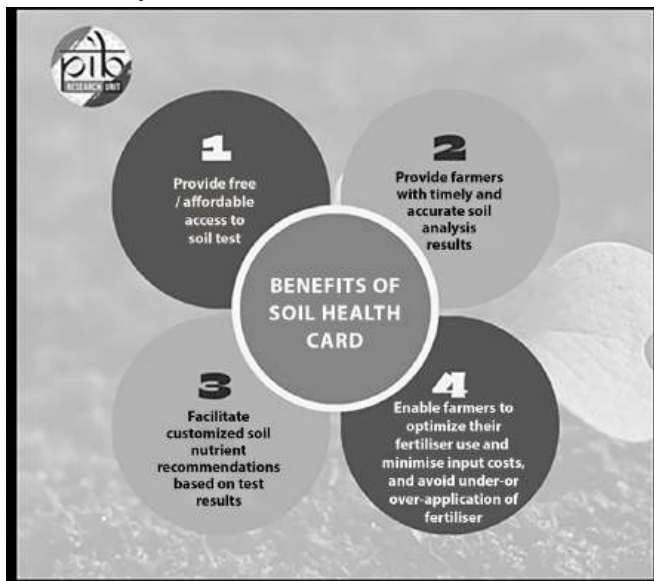


About the Scheme

- The scheme was launched to assist State Governments to **issue soil health cards to all farmers in the country.**

- **Soil health card (SHC)** provides information to farmers on the nutrient status of their soil, along with recommendations on appropriate dosages of nutrients to be applied for improving soil health and its fertility.

- The Soil Health Card contains the status of the soil with respect to 12 parameters
 - Macro-nutrients: N, P, K, S
 - Micro-nutrients: Zn, Fe, Cu, Mn, Bo
 - pH (Acidity or Basicity)
 - EC (Electrical Conductivity)
 - OC (Organic Carbon)
- Based on this, the card will also indicate fertilizer recommendations and soil amendment required for the farm.
- **Guideline for Village Level Soil Testing Labs (VLSTLs)** was issued in June 2023. VLSTLs can be set up by individual entrepreneurs i.e. rural youth and community-based entrepreneurs, including Self Help Groups (SHGs), Schools, Agriculture Universities etc.
- **School Soil Health Programme:** It aims to make students aware of soil health for sustainable agriculture practices.
- Soil Health Card scheme has been merged in Rashtriya Krishi Vikas Yojana (RKVY) scheme as one of its components under the name 'Soil Health & Fertility' from the year 2022-23.



BETI BACHAO BETI PADHAO

Why in News: This year, the Ministry of Women and Child Development is set to celebrate the 10th anniversary of the **Beti Bachao Beti Padhao (BBBP)** scheme.

Key achievement of the scheme

- **Gross Enrolment Ratio:** The gross enrolment ratio of secondary school-aged girls increased from 75.51% in 2014–15 to **78% in 2023–24**.
- **Sex Ratio at Birth:** The national Sex Ratio at Birth (SRB) improved from 918 in 2014–15 to **930 in 2023–24**.
- **Institutional deliveries:** The institutional deliveries increased from **61% to 97.3%**.

- **Pregnancy registration:** The first-trimester antenatal care registrations significantly improved from **61% to 80.5%**.
- **Kanya Shiksha Pravesh Utsav:** It re-enrolled over **100,000 out-of-school girls**.
- **Yashaswini Bike Expedition:** It showcased **women's empowerment**.
- **Collaborations:** Partnership with the **Doree TV Show**, which raised awareness about the abandonment of girl children.
- **The National Conference on Skilling: Betiyan Bane Kushal:** It emphasises workforce involvement.

Beti Bachao Beti Padhao

- **Launched in January 2015** with the aim to address sex selective abortion and the declining child sex ratio.
- **Nodal ministry:** Ministry of Women and Child Development, Ministry of Health and Family Welfare and Ministry of Education.
- **Centrally Sponsored Scheme.**
- **Objectives:**
 - Improve the child sex ratio.
 - Ensure gender equality and women's empowerment.
 - Prevent gender-biased, sex-selective elimination
 - Ensure the girl child's survival and safety.
 - Promote education as well as participation among girl children.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements regarding the Beti Bachao and Beti Padhao Scheme:

1. It is a central sector scheme.
2. The scheme aims to improve the child sex ratio.
3. It was launched in the year 2019.

How many of the statements given above is/are correct?

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

Answer: (a) (2 only)

SUKANYA SAMRIDHI YOJANA

Why in News: This year marks **10 years of the Sukanya Samridhi Yojana**, encouraging families to invest in the bright futures of their daughters, fostering a culture of inclusion and progress.

Key Details

- **Ministry:** Ministry of Finance.
- **Launch date:** 22nd January, 2015.
- **Accounts opened:** 4.1 crore+ as of November 2024.
- **Age criteria:** After birth till age of 10 years.

- Only 1 account per child.
- **Parents can open a maximum of two accounts. But** there is an exception for twins and triplets.
- The accounts **can be transferred to anywhere in India.**
- **Documents required:**
 - Sukanya Samridhi Account Opening Form
 - Birth certificate of girl child
 - Identity proof (as per RBI KYC guidelines)
 - Residence proof (as per RBI KYC guidelines)
- **Deposit required: Minimum ₹250** with subsequent deposits in multiples of ₹50; **Maximum ₹150,000 per financial year.**
- **Account management:** By the **guardian until the girl child attains the age of eighteen;** afterwards, the account holder can take control of the account.
- **Interest rate: 8.2% per annum.** At the end of each financial year, the interest is credited to the account.
- **Maturity of account:** The account matures **upon the completion of twenty-one years of the account holder from its opening date.** However, there are a few situations in which early closure is allowed, especially if the account holder plans to get married before the account matures.
- **Withdrawals: Up to fifty percent** of the balance at the end of the preceding financial year, **specifically for educational purposes.** This withdrawal is permissible **only after the account holder turns eighteen or completes the tenth standard,** whichever comes first.
- **Premature Closure: If the account holder passes away,** the account can be terminated right away by filing an application and the death certificate from the appropriate authority. The guardian will get the remaining amount and interest that have accumulated up until the date of death.

Conclusion

- The Sukanya Samridhi Yojana embodies a **transformative initiative aimed at securing the future of young girls in India.** By fostering financial discipline among families and prioritising education and empowerment, the scheme has emerged as a powerful catalyst for social progress.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

- Q. Consider the following statements regarding Sukanya Samridhi Yojana.
1. The scheme was launched in the year 2015.
 2. Maximum ₹5,00,000 deposits can be made in the account in one financial year.
 3. The age criteria for opening a bank account is 0 to 6 years of age.

Which of the statements given above is/are correct?

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

(b) Answer:

NAMASTE SCHEME

Why in News: Recently, the Union Minister distributed PPE kits and Ayushman cards to Sewer and Septic Tank Workers (SSWs) under the NAMASTE scheme in Jammu.

Key details

- The government has formulated the **National Action for Mechanised Sanitation Ecosystem (NAMASTE) scheme** with the objective of **providing dignity to Safai Karamcharis and empowering them** socially and economically.
- **Ministry:** Jointly initiated by the Ministry of Social Justice and Empowerment and the Ministry of Housing and Urban Affairs.
- **Launch date:** July 2023.
- **Implementation Agency:** National Safai Karamcharis Finance and Development Corporation (NSKFDC).
- **Time period:** From FY 2023-24 to FY 2025-26.
- **Budget allocation:** 349.73 crores.
- **Scheme components:**
 - **Profiling of Sewer and Septic Tank Workers (SSWs)** in ULBs through digital tools (~ 1 lakh SSW to be identified).
 - **Health Insurance of SSW** under PM-Jan Aarogya Yojana.
 - **Occupational safety training** of SSWs and Sanitation Response Units for NAMASTE.
 - **Capital subsidy up to Rs. 5 lakh** to procure vehicles and equipment related to sanitation.
 - **Distribution of PPE kits** to SSWs.
 - Providing the **Emergency Response Sanitation Unit (ERSU)** with safety equipment.
 - **Information, Education, and Communication (IEC) Campaign** for awareness on SSW safety and dignity.
 - **Empowering waste pickers engaged in solid waste management.**
- The NAMASTE initiative **includes elements of the former Self Employment Initiative for Rehabilitation of Manual Scavengers (SRMS),** such as upfront capital subsidies for self-employment ventures, skill development training, and health insurance under Ayushman Bharat-PMJAY.

- **Intended outcomes of the NAMASTE scheme:**
 - **Zero fatalities** in sanitation work.
 - **Formalization and skilling** of sanitation workers.
 - **Elimination of direct contact** with human faecal matter.
 - Establishment, strengthening, and capacitation of Emergency Response Sanitation Units (ERSUs).
 - **Empowerment** of sanitation workers **via self-help organisations and entrepreneurship**.
 - Access to **alternate livelihood options**.
 - **Occupational safety training** to all sewer and septic tank workers (SSWs).

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

- Q. Recently, the NAMASTE Scheme was seen in the news; it is associated with?
- Promotion of tribal crafts
 - Religious tourism
 - International student exchange programme
 - Sanitation ecosystem

(d) :Answer

DIAMOND IMPREST AUTHORIZATION SCHEME

Why in News: The Department of Commerce has introduced the Diamond Imprest Authorization (DIA) Scheme, aiming to enhance the global competitiveness of India's diamond sector.

About the Scheme

- The scheme provides a streamlined mechanism for the **duty-free import of Natural Cut and Polished Diamonds**, thereby promoting value addition and boosting exports.
- The Scheme will be implemented with effect from 01.04.2025.
- Key Features of the Scheme
 - This scheme allows the duty-free import of Natural Cut and Polished Diamonds, of less than ¼ Carat (25 Cents).
 - This scheme mandates export obligation with a value addition of 10%.
 - All Diamond exporters holding Two Star Export House status and above and having US \$15 Million exports per year are eligible for availing the benefit under this scheme.

- The scheme is made in **response to Beneficiation policies undertaken in several natural diamond mining countries like Botswana, Namibia, Angola** etc where Diamond manufacturers are obliged to open cut and polishing facilities for a minimum percentage of value addition.
- This scheme is **aimed towards retaining India's position as a global leader in the entire value chain of the Diamond industry**.
- The scheme is designed to provide a **level playing field for Indian diamond exporters, particularly MSME exporters**, enabling them to compete effectively with larger peers.
- It aims to prevent the potential flight of investments by Indian diamantaires to diamond-mining destinations.
- Additionally, the **scheme is expected to generate more employment opportunities, particularly for diamond assorters** and in the processing of semi-finished diamonds in factories.
- By facilitating Indian exporters, it seeks to protect the domestic diamond processing industry and sustain the associated employment.

Diamond Industry in India

- The diamond industry is a **significant contributor to India's economy, accounting for around 7.5% of the country's Gross Domestic Product (GDP)** and 14% of its total merchandise exports.
- India stands as the global leader in cut and polished diamonds, with an annual export value of US\$ 23 billion. **14 out of every 15 diamonds set in jewellery worldwide are processed in India**, demonstrating the country's expertise in the sector.
- Indian diamond exports, including diamond-studded jewellery, **reach markets across the globe, including the United States, Europe, the Middle East, and Asia**.
- The industry directly **employs about 1.3 million workers, particularly in the cutting, polishing, trading, and exporting of diamonds**, with the city of Surat alone providing jobs to nearly 800,000 workers, making it the largest hub for diamond cutting and polishing in the world.
- **Millions of indirect jobs are supported** through related industries such as logistics, transport, retail, and diamond tool manufacturing.
- India's dominance in the global diamond trade is huge, as the country is responsible for **nearly 75% of the world's cut and polished diamonds**.
- This success can be attributed to the numerous cutting and polishing centres established across the country, as well as **India's rich history of diamond craftsmanship dating back to 500 BC**.
- Indian traders have **established a strong presence in key global markets such as Dubai and Antwerp (in Belgium)**, where most of the global diamond trade takes place.

“STATUS OF DEVOLUTION TO PANCHAYATS IN STATES” REPORT

Why in News: The report titled “Status of Devolution to Panchayats in States—An Indicative Evidence-Based Ranking” was unveiled by the Union Minister of State of Ministry of Panchayati Raj .

Key Details

- The paper examines in detail **how well-equipped Panchayats are to carry out their constitutional duties in each state** and identifies the remaining tasks necessary to achieve full functionality as local self-government entities.
- Alongside indices that **measure the overall performance of states in devolving powers and resources to panchayats**, sub-indices have been created for various dimensions and indicators.
- Through these sub-indices, each state can view its relative standing in various devolution-related areas.
- States/UTs were ranked according to the overall Panchayat devolution index as well as by each of the following six dimensions: **1. Framework, 2. Functions, 3. Finances, 4. Functionaries, 5. Capacity Enhancement, 6. Accountability**

Highlights of the report

- **Devolution has increased from 39.9% to 43.9% between the period 2013-14 and 2021-22.**
- With the launch of the Rashtriya Gram Swaraj Abhiyan (RGSA) on 21.4.2018, the **capacity enhancement component of the Index during this period has increased substantially from 44% to 54.6%, i.e., an increase of more than 10%.**
- The component of the index pertaining to **functionaries has seen a substantial jump of more than 10% (from 39.6% to 50.9%).**
- **The top 10 states in the Panchayat Devolution Index (DI Score > 55) are Karnataka, Kerala, Tamil Nadu, Maharashtra, Uttar Pradesh, Gujarat, Tripura, Rajasthan, West Bengal, and Chhattisgarh.**
- **Medium scoring states:** With the score in between 50 and 55, Andhra Pradesh, Himachal Pradesh, Madhya Pradesh, and Odisha.
- **Success Stories: Uttar Pradesh from 15th to 5th place and Tripura from 13th to 7th place** in Panchayat Devolution Index.

- **Dimension-wise top states**
 - **Framework:** Kerala ranks first in this indicator related to the mandatory framework. Followed by Maharashtra and Karnataka.
 - **Functions:** Tamil Nadu sets the benchmark in functional devolution. Followed by Karnataka and Odisha.
 - **Finances:** Karnataka demonstrates exemplary financial management practices. Followed by Kerala and Tripura.
 - **Functionaries:** Gujarat leads in personnel management and capacity building. Followed by Tamil Nadu and Kerala.
 - **Capacity Enhancement:** Telangana shows the way in institutional strengthening. Followed by Tamil Nadu, Gujarat.
 - **Accountability:** Karnataka establishes new standards in transparency. Followed by Kerala and Maharashtra.

Devolution problems faced by local bodies

- **Function overlap:** Nearly every subject included in the 11th Schedule is state concurrent, meaning that there is overlap and duplication. For instance, water supply, elementary education, etc.
- **Inadequate Fiscal Empowerment:** Panchayats have a low level of internal (own) resource creation and rely largely on government grants. This is caused in part by a small tax domain and in part by the Panchayat’s own hesitancy to collect taxes.
- **Funding Release Delays:** State administrations frequently postpone giving panchayats access to funding.
- **Funds’ tied nature:** A significant amount of grants from the federal government and state governments are **scheme-specific**. Panchayats have little leeway or discretion over how much money they spend.
- **Growth of Special Purpose Agencies:** As the number of special purpose agencies in the nation increases, ULBs’ authority is being increasingly undermined. For ex., **the Smart Cities Mission’s establishment of Special Purpose Vehicles (SPVs).**
- **Problems with State Finance Commissions (SFCs) operate:**
 - **Many states do not routinely form SFCs, and some SFCs still fail to submit their reports on time** even after being constituted.

- **SFCs frequently provide ad hoc recommendations** that are not grounded in good public finance principles.
- The financial autonomy of ULBs has been impacted by the **state governments' frequent failure to properly execute the recommendations** of successive State Finance Commissions.
- **Election Delays:** A number of problems identified by the administration have caused elections to ULBs to be postponed in a number of states, which has an impact on the democratic operation of these bodies.

Way Forward

- **States should devolve the subjects listed in the eleventh schedule** in order to strengthen local authorities.
- **States' prompt release of funds:** Regular local audits by panchayats should be encouraged in order to prevent delays in Finance Commission grants.
- **Empowerment and Autonomy:** To guarantee that local governments have the independence and resources required for efficient governance, implement the Triple F's Paradigm (**'Functions, Finances, and Functionaries'**)
- **Principle of subsidiarity:** Centre and state should handle only those tasks that are ineffectively handled at the local level.
- Reform property tax systems and **create a municipal bond market for infrastructure projects.**

Conclusion

- Strengthening Panchayati Raj Institutions is crucial for grassroots governance. Addressing fiscal constraints, functional overlaps, and autonomy issues through timely fund release, devolution of powers, and institutional reforms can enhance their effectiveness in fostering decentralized and participatory development.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements regarding the "Status of Devolution to Panchayats in States" Report:

1. Kerala topped the overall Panchayat Devolution Index.
2. The report evaluates states in 6 dimensions namely, framework, functions, finances, functionaries, capacity enhancement, and accountability.

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)

Descriptive Question

Q. Discuss the key findings of the 'Status of Devolution to Panchayats in States' report and enlist challenges and suggest measures to enhance the effectiveness of PRIs in India. [250 words] [15 marks]

ESTIMATION AND MEASUREMENT OF INDIA'S DIGITAL ECONOMY REPORT

Why in News: Recently, the **Ministry of Electronics & Information Technology** released a report on 'Estimation and Measurement of India's Digital Economy.'

Key findings of the report:

- India's digital economy is estimated at **11.74% of the national income in 2022-23.**
- The GDP of the digital economy in 2022-2023 was INR 31.64 lakh crore, or about **USD 402 billion, in absolute terms. Digital-enabling industries**, which include sectors such as ICT-related services, manufacturing of electronic components, computers, and communication equipment, account for **7.83% of GVA.**
- **New digital industries**, which include **big tech players, digital platforms and intermediaries**, and firms dependent on digital intermediaries, account for **2% of GVA.**
- The digital contribution of **Banking Financial Services and Insurance (BFSI), trade, and education** amounts to **2% of GVA.**
- India's digital economy is expected to grow to nearly **one fifth of national income by 2030.**
- **Employment creation:** In 2022-23, the digital economy accounted for **14.67 million workers, or 2.55% of India's estimated workforce.**
- **Cloud Market:** India's cloud market (public) accounted for **1.1-1.2% of the global market in 2020-23** and is estimated to have grown at a CAGR of 29% to reach USD 8.3 billion.
- **Global Capability Centres (GCCs):** GCCs are offshore hubs created by global firms to offer a range of services to their parent companies, such as business process management, IT support, and research and development. **India is home to almost 55% of the world's GCCs in 2022.**
- The expansion of digital platforms and intermediaries is anticipated to have the greatest growth in the near future, followed by more digital intermediaries and the digitalisation of the rest of the economy.
- **Over 95% of payment transactions for public and private sector banks are now digital.**

Suggestions for Accelerating India's Digital Transformation Path

- Encourage **improvement in outcomes of basic education** and literacy in primary and secondary schools as a **prerequisite for strengthening digital literacy**.
- Implement well-designed and curated **programs** that help **improve employability**.
- Incorporate the use of edge technologies like **AI and robotics in digital education**.
- Bring **regulatory clarity on the use of emerging technologies** such as **cryptocurrencies, gaming, and generative AI**, and remove frictions in the operation of digital platforms.
- **Increase cybersecurity awareness**, making it a key component of digital skilling programmes
- Build **cross-country collaborations** for the identification and mitigation of cybercrimes.
- **Invest in R&D** to build stronger and more secure IT networks.
- Enhance **coordination among key government departments**, such as the **Department of Commerce, MeitY, and Telecom**, to provide comprehensive policies and targeted fiscal schemes that help reduce cost disabilities.
- **Invest in high-quality physical infrastructure**, such as logistics and energy resources, that lowers the cost of doing business.
- Improve Centre-State coordination, and provide **friendly terms to investors, both foreign and domestic**.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements regarding the Estimation and Measurement of India's Digital Economy Report:

1. It is released by the Ministry of Communications.
2. As per the report, India's digital economy is expected to grow to nearly one-fifth of national income by 2030.
3. As per the report, over 95% of payment transactions for public and private sector banks are now digital.

How many of the statements given above is/are correct?

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

Answer: (b) (Options 2 & 3)

Descriptive Question

Q. Discuss the key findings of the 'Estimation and Measurement of India's Digital Economy' report. What are the major challenges in India's digital transformation journey, and suggest measures to accelerate the growth of the Indian economy. [250 Words] [15 Marks]

FISCAL HEALTH INDEX 2025

Why in News: Chairman of the 16th Finance Commission launched the inaugural issue of NITI Aayog's report titled Fiscal Health Index (FHI) 2025.

About the Fiscal Health Index Report

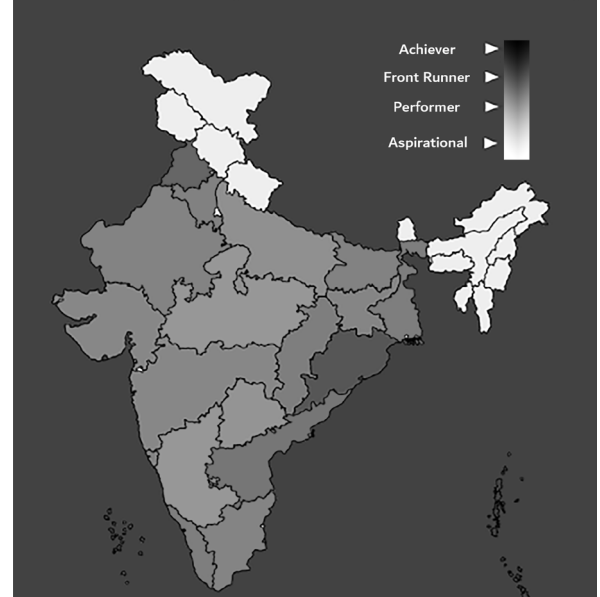
- The report provides a **comprehensive assessment of the fiscal health of 18 major States**.
- The report ranks States on the basis of a composite fiscal index, which is based on five major sub-indices.
- The FHI aims to throw light on the fiscal status at the sub-national level and guide policy reforms for sustainable and resilient economic growth.
- The data used to calculate the Fiscal Health Index (major variables & sub-components under each variable) is sourced from the Comptroller and Auditor General (CAG).
- States are categorised into: Achiever; Front Runner; Performer; Aspirational

Major Sub-Indices	Minor Sub-Indices
Quality of Expenditure	Total Developmental Expenditure/ Total Expenditure
	Total Capital Outlay/ GSDP
Revenue Mobilization	State Own Revenue/ GSDP
	State Own Revenue/ Total Expenditure
Fiscal Prudence	Gross Fiscal Deficit/ GSDP
	Revenue Deficit/ GSDP
Debt Index	Interest Payments/ Revenue Receipts
	Outstanding Liabilities/ GSDP
Debt Sustainability	Growth Rate of GSDP – Growth Rate of Interest Payments

Key Highlights from the Report

- With a cumulative score of 67.8, **Odisha tops the ranking in fiscal health among 18 major States**, followed by Chhattisgarh and Goa with scores of 55.2 and 53.6, respectively.
- The achiever States display strong fiscal health, excelling in revenue mobilization, expenditure management, and debt sustainability.
- **Improvements are seen in states like Jharkhand**, which has strengthened fiscal prudence and debt sustainability, while Karnataka faces a decline due to weaker performance in expenditure quality and debt management.
- These interstate disparities highlight the need for targeted reforms to address specific fiscal challenges and ensure sustainable growth.

State-wise Composite FHI Score Heatmap



Achiever	Front Runner	Performer	Aspirational
1. Odisha	6. Maharashtra	11. Tamil Nadu	15. Kerala
2. Chhattisgarh	7. Uttar Pradesh	12. Rajasthan	16. West Bengal
3. Goa	8. Telangana	13. Bihar	17. Andhra Pradesh
4. Jharkhand	9. Madhya Pradesh	14. Haryana	18. Punjab
5. Gujarat	10. Karnataka		

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Which of the following is the top performer state in the Fiscal Health Index 2025 released by NITI Aayog?

(a) Gujarat (b) Maharashtra
(c) Tamil Nadu (d) Odisha

Answer: (d)

EXPANDING QUALITY HIGHER EDUCATION THROUGH STATES AND STATE PUBLIC UNIVERSITIES

Why in News: Recently NITI Aayog launched a policy report titled **Expanding Quality Higher Education through States and State Public Universities**.

Key Details: About the Report

- The report is a **first-of-its-kind policy document** in the higher education sector focused specifically on States and State Public Universities (SPUs).
- It provides a **detailed quantitative analysis on vital indicators of Quality, Funding and Financing**,

Governance and Employability over the last decade across the themes.

- It provides the distilled essence of the insights **gained from extensive stakeholder consultations held with State Government Officers of Higher and Technical Education Departments** from over 20 States and Union Territories, Vice Chancellors, and senior academicians of 50 SPUs, and Chairpersons of several State Higher Education Councils.
- The policy report provides a **detailed policy roadmap including nearly 80 policy recommendations, short-, medium, and long-term implementation strategies**, actors responsible for implementing the recommendations and over 125 Performance Success Indicators.
- The recommendations assimilated from the consultation process are **aimed at improving the quality of research, pedagogy and curriculum, augmenting institutional and systemic funding and financing capacity, upgrading and empowering institutional governance structures**, and strengthening the industry-academia interface to boost student employability.

Key Highlights of the Report

- **Education as a percentage of GDP:** Among all states and Union Territories, Jammu and Kashmir spends the most on education as a percentage of GDP at 8.11%, followed

by Manipur (7.25%), Meghalaya (6.64%), and Tripura (6.19%).

- Delhi (1.67%), Telangana (2%), and Karnataka (2.01%) allocate significantly less towards higher education.
- **Mean per youth expenditure** on higher education rose from ₹2,174 to ₹4,921 between 2005-06 and 2019-20. However, within this increase, the divergence between states has risen significantly.
 - Kerala, Tamil Nadu, Maharashtra, Andhra Pradesh, and Telangana continue to be the top spenders on per youth spending on higher education, with states like Rajasthan, Punjab and Chhattisgarh lagging.
- **Budget Allocation:** Maharashtra leads in higher education funding with a budget of ₹11,421 crore, followed by Bihar (₹9,666 crore) and Tamil Nadu (₹7,237 crore).
 - States like Sikkim (₹142 crore), Arunachal Pradesh (₹155 crore), and Nagaland (₹167 crore) have the lowest higher education budgets.
- **Higher education expenditure:** When considering higher education expenditure as a percentage of Gross State Domestic Product (GSDP), **Bihar ranks highest at 1.56%, followed by Jammu & Kashmir at 1.53% and Manipur at 1.45%.**
 - Telangana has the lowest percentage at 0.18%, while Gujarat and Rajasthan allocate 0.23% each.
- **Average university density:** The national average university density is 0.8. Sikkim has the highest density of 10.3, followed by Arunachal Pradesh, Ladakh, Himachal Pradesh, Meghalaya and Uttarakhand.
 - In the highly populated states of Bihar, Uttar Pradesh, West Bengal and Maharashtra, density at the state level is below the national average, with Bihar recording the lowest at 0.2.
- **Male-Female Enrolment:** States like Kerala, Chhattisgarh and Himachal Pradesh have higher female enrolment rates than males.
 - Geographically smaller states and UTs like Chandigarh, Mizoram, and the Andaman and Nicobar Islands have relatively balanced male-female enrolments.

State Public Universities (SPUs)

- There are 495 State Public Universities, serving over 3.25 crore students.
- With the National Education Policy (NEP) 2020 aiming to double enrollment by 2035, SPUs will continue to educate the majority of students.
- Enrollment trends
 - **State Public Universities (SPUs) enrollment:** Increased from 2.34 crore students in 2011-12 to 3.24 crore students in 2021-22.
 - **PwD Enrollment in SPUs:** Increased from 52,894 students in 2011-12 to 53,921 students in 2016-17 (2% growth) and

further to 56,379 students in 2021-22 (4.6% growth from 2016-17 and 6.6% growth from 2011-12).

- **State Public Universities (Teaching departments and Constituent Units/Off-campus Centres)** maintain the largest share of enrolments, growing from 24.5 lakhs in 2011-12 to nearly 29.8 lakhs in 2021-22, marking a decadal increase of 21.8%.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. The policy report 'Expanding Quality Higher Education through States and State Public Universities' is prepared by:

- (a) Ministry of Education
- (b) Pratham Education Foundation
- (c) NITI Aayog
- (d) University Grants Commission (UGC)

Answer: (c)

ANNUAL STATUS OF EDUCATION REPORT, 2024

Why in News: Recently, NGO Pratham released the Annual Status of Education Report (ASER), 2024, on school learning outcomes in rural India.

Key highlights of the report

- **6.5 lakh students from 605 villages** nationwide were surveyed, and their basic reading and math skills were assessed.
- **Thirty villages from each district** and twenty households from each village were chosen at random for the ASER survey using the **2011 census** methodology.
- **Children from five to sixteen years old were evaluated.** There has been a **slight improvement in schoolchildren's foundational literacy and numeracy (FLN)** following a protracted decrease brought on by learning deficits during the COVID-19 pandemic, but the **overall situation is still dire.**
- **32.5%** of students in **Class 8**, **55.2%** of students in **Class 5**, and **76.7%** of students in **Class 3** still **struggle with reading texts of Class 2 level.**
- **54.2%** of students in **Class 8**, **69.3%** of students in **Class 5**, and **67%** of students in **Class 3** are still **struggling with basic mathematics** despite marginal improvement as compared to previous years.
- **State Wise performance**

- The percentage of students who could read the Class 2 text **increased by 10 percentage points in Gujarat, Uttar Pradesh, Uttarakhand, Tamil Nadu, Sikkim, and Mizoram.**
- The percentage of children with basic skills increased by **6 to 9.9 percentage points in states including Odisha, Haryana, West Bengal, and Jharkhand,** and by **4 to 5.9 percentage points in Himachal Pradesh and Bihar.**
- **Digital literacy**
 - **Among older kids aged 14 years to 16 years, 89% had access to cellphones at home.** 31.4% of people in this group own a phone.
 - Of the 82% of kids who own a smartphone, 76% reported using it to explore social media, and 57% reported using it for educational purposes.
 - Among older teens, 87% of students were able to **locate a video on a certain topic**, 79.3% were able to explore for information, and 76.9% were able to set an alarm. and 92.1% of them were able to share the video with their friends and family on Telegram or WhatsApp.
 - **Boys were more conscious of the safety features** on their phones than girls. 55.2% of respondents knew how to make a profile private, 57.7% knew how to change a password, and 62% knew how to report or ban a profile.

Annual Status of Education Report (ASER)

- The ASER is an annual, **citizen-led household survey** that aims to understand whether children in rural India are enrolled in school and whether they are learning.
- **Since 2005, ASER has been carried out annually in all of India's rural districts.** It is India's biggest citizen-led survey.
- At the national, state, and district levels, ASER surveys yielded representative estimates of the enrolment status of children aged 3–16 and the basic reading and math proficiency of children aged 5–16.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements regarding Annual Status of Education Report (ASER), 2024:

1. NGO Pratham carries out Annual Status of Education Report in all districts of India.
2. The Foundational Literacy and Numeracy preparedness among students has been rising consistently since the last 10 years.
3. More than 50% class 8 students lag in solving basic numeracy equations.

Which of the statements given above is/are correct?

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

(b) : Answer

INDIA'S INVESTMENT AND EXTERNAL COMMERCIAL BORROWINGS LANDSCAPE

Why in News: A report by the State Bank of India (SBI) has highlighted trends in investment announcements, the private sector's contribution, and the role of ECBs in corporate financing.

Investment Announcements

- Investment activity in India continues to grow at a rapid pace, with significant contributions from the private sector.
- **Total Investment Announcements in the nine months of FY25 (April-December 2024) [9MFY25] is Rs. 32.01 lakh crore.**
- This marks a **39% increase from ₹23 lakh crore in 9MFY24**, reflecting a positive investment outlook.
- The private sector accounted for nearly 56% (FY24) and nearly 70% (9MFY25) of these announcements, signalling strong corporate confidence.

Gross Block of Indian Corporates

- Gross block is the **total value of a company's physical assets, like buildings, machinery, and equipment, before accounting for depreciation.**
- As of March 2024, the gross block of Indian corporates reached ₹106.50 lakh crore, compared to ₹73.94 lakh crore in March 2020.
- Over the last five years, an average of more than ₹8 lakh crore has been added annually to the corporate gross block.
- Additionally, capital work in progress stood at ₹13.63 lakh crore in March 2024, indicating strong ongoing project development.

Household Net Financial Savings

- Household Net Financial Savings (HNFS) in India **improved to 5.3% of GDP in FY24 from 5.0% in FY23.**
- Additionally, savings in physical assets increased from 12.9% of GDP in FY23 to 13.5% in FY24.

Investment as a Percentage of GDP

- Investment as a share of GDP has improved in recent years, led by both government and private sector contributions.
- In FY23, government investment reached 4.1% of GDP, the highest since FY12.

- Private corporate investment rose to 11.9% of GDP in FY23, its highest level since FY16.
- The share of private investment is projected to further increase to around 12.5% in FY24, reflecting improved business sentiment.

External Commercial Borrowings (ECBs)

- ECBs have emerged as a **key source of funding for Indian corporates, enabling capital expansion and modernisation.**
- The total outstanding ECBs stood at \$190.4 billion as of September 2024.
- Of this, the non-Rupee and non-FDI components accounted for approximately \$154.9 billion.
- The private sector held 63% (\$97.58 billion), while the public sector accounted for 37% (\$55.5 billion).
- Hedging remains a critical aspect, with private companies hedging approximately 74% of the total hedged corpus.

External Commercial Borrowings

- External Commercial Borrowings (ECBs) refer to funds raised by Indian companies from foreign sources through loans, bonds, or other financial instruments.
- **Purpose:** ECBs can be utilized for various objectives, such as business expansion, asset acquisition, and refinancing existing debt.
- **Regulation:** The Reserve Bank of India (RBI) regulates ECBs by imposing limits on the amount that can be borrowed and specifying permissible end-uses.
- **Types:** ECBs may be rupee-denominated, requiring repayment in Indian rupees, or foreign currency-denominated, which are repaid in a foreign currency.
- **Sources:** These funds can be secured from foreign banks, international financial institutions, or the overseas subsidiaries of Indian companies.

CORRUPTION PERCEPTION INDEX

Why in News: Recently, **Transparency International** released the Corruption Perception Index (CPI), 2024.

Key findings of the report

- More than **two-thirds of countries scoring below 50 out of 100 show serious corruption levels across the globe.**
- The **global average** on the index has remained unchanged at **43.**
- On a scale of **0 (extremely corrupt) to 100 (very clean)**, 180 nations and territories are ranked by the CPI according to their perceived levels of public sector corruption.
- **Nearly 6.8 billion people reside in nations with CPIs below 50.** This amounts to 85% of the 8 billion people on the planet.

- **Denmark** has the highest index score (90) for the eighth consecutive year, followed closely by **Finland** (88) and **Singapore** (84).
- **South Sudan** (8), Somalia (9), Venezuela (10), Syria (12), Libya (13), Eritrea (13), Yemen (13), and Equatorial Guinea (13), among other weak and conflict-affected nations, get the lowest rankings.
- **India had a score of 38, placing it 96th out of 180 nations.**

Corruption and climate linkages

- By impeding the implementation of bold measures, **corruption is impeding effective climate action.**
- Corrupt powers **silence journalists, activists, and anyone else battling for sustainability and equality** by dictating policies and destroying checks and balances.
- The CPI draws attention to the billions of dollars in climate funding that might be lost or misappropriated.
- **The majority of nations with the most climate change vulnerability score lower than 50 on the CPI.**
- Climate programs intended to safeguard people are being hampered by corruption, putting countless numbers of people at unnecessary danger. **Ex.** The former CEO of South Africa's state-owned electricity company, **Eskom**, claims that every month, almost a billion rand (more than US\$56 million) is stolen.
- The CPI report's authors contend that **corruption is compromising the efficacy of multilateralism, including the COP meetings**, and it has also exposed the degree to which important participants in climate diplomacy are grappling with it. **Ex.** Only 22 points went to Azerbaijan, the site of **COP29, where at least 1,773 lobbyists for fossil fuels were allowed entry.**
- **Human cost of climate corruption:** In the battle against the climate disaster, land and environmental defenders are often at the front, yet their work puts them at risk for **harassment, assault, and even homicide.** **Nearly all of the 1,013 killings of environmental defenders since 2019 have occurred in nations with CPI ratings below 50,** indicating that this is particularly prevalent in nations with significant corruption issues.

Transparency International

- It is an international non-governmental organisation founded in 1993, based in **Berlin, Germany.**
- Its non-profit goal is to stop criminal activity that stems from corruption and to fight corruption worldwide through civil society **anti-corruption initiatives.**
- The **Corruption Perception Index** and the **Global Corruption Barometer** are two of its most well-known publications.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements regarding Corruption Perception Index:

1. It is published by Transparency International biannually.
2. In the recent edition India ranked 96 among 180 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: (b)

GOLD DEMAND TRENDS

Why in News: India's gold consumption increased 5% to 802.8 tonnes in 2024 from 761 tonnes despite a 27% surge in prices, according to the World Gold Council.

Gold Demand Trends: Full Year 2024

- Gold demand hit a new record in 2024. Central banks and investors drive market strength.
 - Global Central Banks added 1,045 tonnes to global gold reserves in 2024
- **Gold demand in India witnessed a 5% on-year rise at 802.8 tonnes in 2024** supported by the reduction in import duty, high investment demand and big purchases by the Reserve Bank of India.
- High prices dented jewellery demand by 2% to 563.4 tonnes. The total investment demand for 2024 increased by 29% to 239.4 tonnes.
- **Reason for High Gold Investment:** Gold investment gained momentum **due to rising gold prices and relatively lacklustre performance of other assets, with domestic stock markets** generating mediocre returns in the first half of the year and ending the year with a notable downward correction after touching record highs in the September quarter.
- **The Reserve Bank of India (RBI)** added a whopping 73 tonnes to its foreign exchange reserves. The share of gold in forex reserves rose to its highest ever at 11%.
- **Future Outlook:** Going ahead, the consumption of gold in 2025 is likely to be between 700-800 tonnes.

PRELIMS SPECIAL

World Gold Council

- It is an international trade association and a membership organisation that champions the role gold plays as a strategic

asset, shaping the future of a responsible and accessible gold supply chain.

- The World Gold Council was formed in **1987** by some of the world's most forward-thinking mining companies.
- **Members:** The World Gold Council's 32 Members are some of the world's most forward-thinking gold mining companies. They are headquartered across the world and have mining operations in over 45 countries.
- **Headquarters:** London

INDIA GAS MARKET REPORT: OUTLOOK TO 2030

Why in News: Recently, the International Energy Agency released a report titled 'India Gas Market Report: Outlook to 2030.'

Key Details

- **Natural gas demand:** The country's gas consumption is rising by 60% to 103 billion cubic meters (bcm) annually by the end of the decade.
- **Sector-wise consumption:** The city gas distribution sector is expected to lead consumption growth in India between now and 2030, followed by heavy industry and manufacturing sectors.
- **Domestic gas production:** Met 50% of India's gas demand in 2023 with around 35 bcm. The Krishna Godavari basin accounts for nearly 25% of India's gas production.
- **Compressed biogas production:** India's compressed biogas potential is estimated at approximately 87 bcm/year, while the installed capacity is less than 1 bcm/year.
- **India's LNG imports:** Set to more than double between 2023 and 2030 due to rising demand and much slower domestic production.

Challenges highlighted in the report

- **Limited offtake:** Currently, oil marketing companies are not legally obligated to buy Compressed Bio Gas; thus, plant owners face the **risk of the unsold inventory**.
- **Unstable feedstock supply:** Seasonal biomass availability, inadequate logistics, stubble burning, and organic municipal solid waste ending up in a landfill.
- **Cost of land:** High cost can be a **barrier to establishing biogas production units** in rural areas.
- **Policy hurdles at the state level:** Currently, **only Uttar Pradesh, Haryana, Bihar, and Gujarat have bioenergy policies that actively support CBG**, while states like Karnataka, Madhya Pradesh, and Maharashtra focus primarily on electricity generation from biogas rather than biomethane.

Policy recommendations

- **Increasing domestic supply:** By encouraging the entry

of more private players, exploring new potential sites and increasing the capacity of existing sites.

- **Gas pricing freedom:** Gradually extending gas pricing freedom to all fields, as recommended by the **Kirit Parekh Committee in 2022**, could **stimulate greater investment in the upstream sector and improve the long-term availability of gas for India's consumers.**
- **Unbundling of transport and marketing operations** could lead to the **standardisation of gas sales agreements (GSAs) and gas transmission agreements (GTAs).**
- **Independent gas transmission system operator:** To ensure **infrastructure access is provided fairly, transparently, and in a non-discriminatory manner.**
- **Increasing gas market competition:** Increasing **transparency on available capacities and pipeline tariffs**, promoting a transparent and **efficient gas trading platform**, ensuring effective, **non-discriminatory third-party access to infrastructure**, and **levelling the playing field for gas across the economy.**
- **Harmonise the taxation system:** Adjusting the tax structure to support the use of gas as a transport fuel, similar to the **favourable tax treatment** for electric vehicles, could encourage its adoption and **reduce emissions compared to diesel and gasoline vehicles.**
- **Import duties:** Revising import duties on natural gas to align with those applied to crude oil and **rationalising the GST on compressed natural gas (CNG) vehicles** to reflect their lifecycle environmental advantages over diesel could further promote gas use in the transportation sector.

Conclusion

- Enhancing India's gas sector requires policy reforms, infrastructure expansion, and investment incentives. Addressing pricing challenges, improving transmission access, and promoting domestic production will ensure a more sustainable and competitive gas market for the future.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

- Q. Which of the following organizations published the India Gas Market Report: Outlook to 2030?
- International Energy Agency (IEA)
 - World Energy Council (WEC)
 - International Renewable Energy Agency (IRENA)
 - Organization of the Petroleum Exporting Countries (OPEC)

Answer: (a)

Descriptive Question

- Q. Discuss key hurdles in India's natural gas sector and suggest policy measures to enhance gas production, distribution, and consumption. [10 marks] [150 words]

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PERSONALITIES IN NEWS

RAS BIHARI BOSE (1886 - 1945)

Context: Rash Behari Bose was a **prominent Indian revolutionary** who played a pivotal role in the Indian independence movement, particularly in organising anti-British activities and laying the **groundwork for the Indian National Army (INA)**.

**Early Life and Education**

- Born in Subaldaha, **West Bengal**, on May 25, 1886.
- While attending Dupleix College at Chandernagore, a French colony at the time, he was **inspired by the principles of the French Revolution**.

Revolutionary activities

- **Attack on Viceroy Lord Hardinge:** He took daring acts against British rule, including planning Viceroy Lord Hardinge's 1912 murder. Despite the failure of the effort, it established him as a serious danger to British interests.
- **The Ghadar Movement:** The movement was aimed to instigate a mutiny in the **British Indian Army during World War I**, was another example of Bose's revolutionary actions.

Exile to Japan

- He **escaped to Japan in 1915** after the Ghadar movement failed, where Pan-Asian organisations helped him.
- In 1923, he married a Japanese lady there and obtained Japanese citizenship, protecting him from British extradition attempts.
- **Formation of the Indian National Army**
 - Bose was instrumental in mobilising Japanese support for India's independence struggle during World War II.
 - He established the **Indian Independence League in March 1942**, which served as a forerunner to the **Indian National Army (INA)**, which Subhash Chandra Bose subsequently headed.

Legacy

- The Japanese awarded him the **"Order of the Rising Sun"** in recognition of his achievements.
- Rash Behari Bose left a lasting impact on India's struggle for independence when he died of TB on January 21, 1945.

EXPECTED QUESTIONS FOR UPSC CSE**Prelims MCQ**

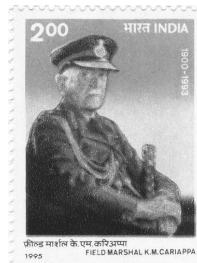
Q. The Indian Independence League in 1942 was established by?

1. Ras Bihari Bose
2. Jawaharlal Nehru
3. Subhash Chandra Bose
4. Sarojini Naidu

Answer: (a)

FIELD MARSHAL K.M. CARIAPPA

Why in News: The birth anniversary of **Field Marshal Kodandera M. Cariappa**, the first Commander-in-Chief of the Indian Army, is celebrated on **January 28**.

About Field Marshal Kodandera M. Cariappa

- **Birth:** 28th January, 1899 in Coorg Province, Karnataka.
- He had a distinguished **military career** spanning more than **3 decades from 1919-1953**.
- Initially he became a **temporary first lieutenant in the 2/88 Carnatic Infantry**.
- After **graduating from Quetta's Staff College as the first Indian commander**, Cariappa took command of the 1/7 Rajputs, making him the **first Indian to command a battalion**.
- Before rising to the position of Commander-in-Chief of the Indian Army, he held a number of staff positions and assignments.
- Cariappa received praise for his leadership qualities while **serving in the Middle East and Burma during World War II**.
- **Post-Independence**, Cariappa assumed the role of **deputy chief of the general staff**. And subsequently became **commander in chief of the Indian army on 15th January 1949**.
- He played a crucial role in the **Indo-Pak war (1948)** by organizing three successive attack operations—Kipper, Easy, and Bison—with the aim of reclaiming strategic

areas like Naushera, Jhangar, Poonch, Zoji La, Dras, and Kargil.

- He was appointed as the **high commissioner of India to Australia and New Zealand** till 1956, after his retirement in 1953.
- Cariappa, who is renowned for his commitment to the welfare of former military members, was instrumental in the **creation of the Directorate of Resettlement and created the Indian Ex-Servicemen's League (IESL) in 1964.**
- In recognition of his exceptional contribution to the nation, the Government of India awarded Cariappa the **rank of field marshal on April 28, 1986.**
- He **died on May 15, 1993**, and was cremated in Madikeri, Karnataka.
- **Values:** By emphasising the significance of **discipline, leadership, and dedication** in serving the country, his legacy will continue to motivate upcoming generations of military members.

EXPECTED QUESTION FOR UPSC CSE

Prelims PYQ

Q. Consider the following statements regarding K.M. Cariappa:

1. He was the first Indian Commander-in-Chief of the Indian Army.⁷
2. He was awarded the rank of field marshal post his death.
3. He played a crucial role in the Indo-Pak war in 1965.

How many of the above given statements are correct?

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

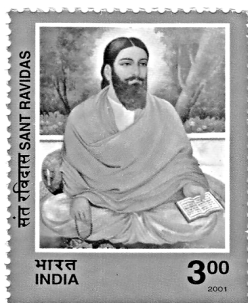
Answer: (a) (1 only)

SANT RAVIDAS

Why in News: The President of India and Prime Minister greeted fellow citizens on the eve of the birth anniversary of Guru Ravidasji.

About Guru Ravidas

- Guru Ravidas is popularly known by different names like Raidas, Rohidas, and Ruhidas. He was born in 1377 CE in Seer Govardhanpur in Uttar Pradesh.



- Since his birth, Guru Ravidas devoted his life to advocating for human rights and equality.
- He was a **revered poet and a renowned philosopher.**
- A few of his compositions were also included in Guru Granth Sahib Ji.
- His place of birth is now known as Shri Guru Ravidass Janam Asthan.
- He is one of the most famous personalities of the **nirguna sampradaya** (sant parampara) and was one of the prominent leaders of the **North Indian Bhakti movement.**
- He also became a symbol of opposition to untouchability in society by the higher caste people for lower caste people.

Teachings, Contributions and Legacy

- **Rejection of Caste System:** Sant Ravidas rejected the Hindu caste system and promoted the idea of equality and dignity for all people, regardless of their caste or social status.
- **Bhakti Movement:** Sant Ravidas was a key figure in the Bhakti movement, a religious and spiritual movement that emphasized devotion and love for God.
 - He is considered one of the greatest Bhakti saints in India.
- **Poetry and Songs:** Sant Ravidas composed numerous poems and songs in the local dialect i.e. Bhojpuri, which spread his teachings and message of love and equality.
- **Message of Universal Love:** Sant Ravidas taught that God is present in all things and that all people, regardless of their caste or status, are equal in the eyes of God.
- His message of universal love and equality was revolutionary in a society that was deeply divided by the caste system.
- **Influence on Sikhism:** Sant Ravidas had a significant influence on Sikhism, and his teachings are revered by the Sikh community.
 - His hymns are included in the Guru Granth Sahib, the holy scripture of Sikhism.
- **Miracles:** Sant Ravidas is said to have performed many miracles during his lifetime, including healing the sick and feeding the poor.
- **Places of Worship:** There are numerous places of worship dedicated to Sant Ravidas throughout India, including the Ravidas Temple in Varanasi and the Ravidas Darbar in Delhi.
- **Ravidas Jayanti:** The birth anniversary of Sant Ravidas is celebrated every year on Maghi Purnima, which falls in January or February, by his followers and devotees.
- **Legacy:** Sant Ravidas' legacy continues to this day, and his teachings and message of universal love and equality continue to inspire people throughout India and the world.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Which of the following texts includes hymns composed by Saint Ravidas?

- (a) Ramcharitmanas (b) Bijak
- (c) Sakhi Granth (d) Guru Granth Sahib

Answer: (d)

MAHARISHI DAYANAND SARASWATI

Why in News: The Prime Minister paid tributes to the great thinker, social reformer and ardent nationalist Maharishi Dayanand Saraswati on his birth anniversary.



About Maharishi Dayanand Saraswati

- Maharishi Dayanand Saraswati was a social reformer who founded Arya Samaj in 1875 to counter the then-prevalent social inequities.
- He was born in 1824 and was named Mulshankar. He was initiated into Sannyas by Paramanand Saraswati, a Dandi Swami from Maharashtra, and was named Dayanand Saraswati.
- **Founding of the Arya Samaj**
 - On April 7, 1875, Dayanand Saraswati established the Arya Samaj, a reform movement of Vedic dharma that aimed to promote ideas and behaviours based on the Vedas.
 - The Arya Samaj disapproved of idolatry and held that God was far higher. The Vedas were considered the ultimate source of knowledge.
 - Arya Samaj has played a key role in cultural and social awakening of the country by its emphasis on social reforms and education.
- **Contributions**
 - Dayanand Saraswati emphasised the importance of education, women’s equality, and the rejection of idol worship.
 - The Arya Samaj also fought against social evils such as casteism, untouchability, and superstitions.
 - Dayanand Saraswati’s work represented a form of national awakening of the Indian people and drew to its fold hundreds of thousands of people.
- **Books Authored**
 - Satyarth Prakash
 - Rigvedadi Bhashya Bhumika

- Vyavahar Bhanu
- Gokaruna Nidhi
- **Legacy and Significance**
 - Dayanand Saraswati’s contributions to Indian society were immense, and his teachings continue to be relevant today. His emphasis on education, social equality, and the rejection of superstitions and empty ritualism has had a lasting impact on Indian society.
 - The Arya Samaj, under his guidance, established a chain of DAV educational institutions for the education of both boys and girls.
 - His followers include Sri Aurobindo and S Radhakrishnan.
 - Dayanand Saraswati’s work and the Arya Samaj’s principles have played a significant role in the earlier stages of national awakening and the civil rights movement in India.

Values from the Life of Maharishi Dayanand Saraswati

- **Truthfulness:** Demonstrated through his ardent love of truth.
- **Integrity:** He resisted temptations and upheld the purity of a public man’s life.
- **Resilience/Steadfastness:** Grew stronger in his convictions despite efforts to dissuade him.
- **Commitment to Social Reform:** He worked to eradicate social ills prevalent in his time.
- **Dedication to Education:** Rendered significant service to the cause of education.
- **Social Responsibility:** Actively addressed societal challenges and injustices.
- **Courage**
- **Selflessness**

JAGDISH CHANDRA BOSE

Why in News: The Anusandhan National Research Foundation (ANRF) has announced the launch of the J. C. Bose Grant (JBG), a new scheme, to recognise the outstanding performance and contributions of senior Indian scientists and engineers through this extra-mural funding opportunities to enhance their research in cutting-edge scientific and technological areas.



Key Details: About the Grant

- The J. C. Bose Grant is designed to support senior-level researchers who have demonstrated exceptional achievements, with evidence of excellence such as publications records and research outcomes, patents, technology transfers, awards, and grants etc. across various domains of science and technology (S&T) including agriculture, medicine, as well as humanities and social sciences at the interfaces of S&T.

CHHATRAPATI SHIVAJI MAHARAJ



Why in News: The Prime Minister paid homage to Chhatrapati Shivaji Maharaj on his Jayanti.

About Chhatrapati Shivaji Maharaj

- Chhatrapati Shivaji Maharaj (1630-1680) carved out an independent Maratha kingdom from various Deccan states in the 17th century. He was born to a general who served different Deccan Sultans throughout his life.
- His first direct encounter with the Mughals was during Aurangzeb's Deccan campaigns of the 1650s. As Aurangzeb went North to fight for the Mughal throne, Shivaji was able to seize further territory.
- In 1665, Shivaji was besieged in the Purandar hill fort by the Mughal forces.
- Aurangzeb put him under house arrest in Agra. Far away from home and help, Shivaji realised he needed to escape to save himself and his territories. He began to plot a plan to return home and keep up his fight against the Mughals. The story of Shivaji's subsequent escape is now part of common lore.
- By 1669, Shivaji had regrouped and raised an effective army. Using his old guerilla tactics, he would swiftly descend into static Mughal and Bijapuri strongholds, looting and pillaging the shocked Mughals.
- In 1674, he crowned himself Chhatrapati, officially creating an independent Maratha kingdom.

Guerilla Tactics

- Limitations faced by Shivaji's armed forces:
 - He did not have the man or horsepower compared to most of his enemies, especially during the early stages of his life.
 - He was heavily reliant on obtaining supplies such as muskets and gunpowder from the Europeans, mainly the Portuguese.
- So, Shivaji adopted guerilla tactics. Through this tactic, his men would travel in small, highly mobile and heavily armed attachments, wreak havoc in the often sluggish Mughal or Adil Shahi armies, loot supplies and treasure, and quickly retreat.

Hill Forts

- Shivaji was born and raised in the hill fort of Shivneri (around 100 km from Pune), which was given to his grandfather by the Sultan of Ahmadnagar in lieu of his services as a military commander.
- Over his storied life, he captured multiple such forts, including Torna (when he was only 16), Rajgad, Sinhagadh and Purandar.
- Shivaji realised that the key to holding power in the

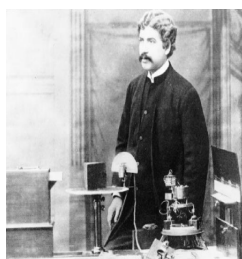
- **Participants** must be active, senior Indian scientists or researchers with a proven track record of excellence, holding at least a Professor-level position or equivalent at an Indian institution/ university.
- **Benefits and Provisions**
 - This grant provides an annual research funding of Rs. 25 lakhs for a duration of five years.
 - Additionally, an annual overhead of Rs. 1 lakh will be provided to the implementing institution.
 - If the Principal Investigator (PI) superannuates during the term of the grants, it can be continued subject to the host institutions willingness to host the PI.
 - The grant can be availed until the age of 68.

About Jagdish Chandra Bose

- **Birth:** Born on November 30, 1858, in Mymensingh, Bengal Presidency (now in Bangladesh).
- **Early Education:** He attended a vernacular school established by his father, Bhagaban Chandra Bose, emphasizing the importance of learning one's mother tongue and culture.
- **Higher Studies:** Pursued higher education in physics in London.
- Founded the Bose Institute in Kolkata (1917), a pioneering interdisciplinary research center.

Key Contributions

- **Pioneer in Radio and Microwave Optics**
 - Demonstrated wireless communication using radio waves (1895), predating Marconi's work.
 - Invented the coherer, a radio wave receiver, and studied properties of microwaves (e.g. refraction, polarization).
- **Plant Physiology and Biophysics**
 - Proved plants exhibit responses to stimuli (e.g. touch, light, injury) akin to animals, using the crescograph (his invention to measure microscopic plant growth).
 - Authored Response in the Living and Non-Living (1902), bridging biology and physics.
- **Innovative Instruments:** Developed tools like the resonant recorder and photosynthetic bubbler to study organic and inorganic matter.
- **Science Fiction and Literature:** Penned Niruddeshar Kahini (1896), among the earliest Bengali science fiction works.
- **Advocate for Open Science**
 - Rejected patents, sharing inventions freely; critiqued commercialized science.
 - Promoted gender equality by involving women in research at his institute.



Deccan was to capture and hold important forts. Thus, his strategies would be centred around taking control of forts in strategic locations, often on hilltops.

- Hill forts were also constructed so that they were perfect vantage points to keep a lookout for any threat.
- Hill forts effectively allowed Shivaji to project his power beyond what would have been possible through conventional means.

Naval Power

- Shivaji's empire reached the west coast after 1656-57, when his dominions touched Kalyan.
- During this time, he decided to establish a navy in order to protect his territory from the Siddis and secure ports and merchant ships, which would ensure maritime trading, which brought in revenue and customs duty, went on smoothly.
- **Shivaji's Belief:** Jalameva yasya, balameva tasya (He who rules the seas is all powerful)
- Between 1661 and 1663, the Maratha Navy came into existence, and at its peak, it included 400-odd ships of various kinds and sizes.
 - These included both larger battleships and other vessels of varying shapes and purposes, such as the gurab, tarande, galbat, shibad, and pal.
- **Naval Forts:** Between 1653 and 1680, Shivaji ordered the construction of multiple naval forts, starting with the Vijaydurg in 1653, followed by the likes of Sindhudurg and Kolaba.
 - These forts, many of them unconquered, were used for strategic purposes, to keep a watch on enemies approaching via the seas.
- Marathas never really challenged European naval power in the high seas. While they could hold their own in littoral waters, Maratha merchant vessels heading towards West Asia, just like any other merchant ship at the time, paid a special tax to the Portuguese, the preeminent maritime power of Shivaji's time.

Council of Eight Ministers: Ashtapradhdna

- This Council of eight ministers, Ashtapradhdna, acted as Shivaji's secretaries and their function was purely advisory.
- **Peshwa or Mukhya Pradhan (Prime Minister):** He was in charge of the whole administration of the kingdom. He was to work with the counsel and cooperation of his colleagues. In times of war, he was to bravely lead the army, subjugate new kingdoms and make necessary arrangements for the administration of the newly-acquired territories. All state papers and charters had to bear his seal below that of the king.
- **Amatya or Majumdar (Finance Minister):** He had to check all the accounts of public income and expenditure and report them to the king, and countersign all statements of accounts both of the kingdoms in general and of the particular districts.

- **Mantri or Waqianavis (Political secretary):** His duties were to compile a daily record of the king's doings and court incidents and to watch over the king's invitation lists, meals, and companions, to guard against murderous plots. The invitation and intelligence departments were under him. He was also to serve in the war. His seal was to be put on official documents.
- **Sachiv or Shurunavis (Superintendent):** He had to see that all royal letters were drafted in the proper drafted. He also had to check the accounts of the mahals and parganas.
- **Sumant or Dabir (Foreign Secretary):** He was the king's adviser on relations with foreign States, war, and peace. It was also his duty to keep intelligence about other countries, to receive and dismiss foreign envoys, and maintain the dignity of the State abroad. He was to receive and entertain foreign envoys and maintain the dignity of the state abroad.
- **Senapati or Sar-i-Naubat (Commander-in-chief):** He maintains the army, makes war, and leads expeditions. He should preserve the newly acquired territories, render an account, report to the king the requirements and grievances of the army, and obtain lands and rewards for the meritorious.
- **Pandit Rao and Danadhyaksa (The ecclesiastical head):** It was his function to honour and reward learned Brahmans on behalf of the king, to decide theological questions, to fix dates for religious ceremonies, to punish impiety and heresy, and to order penances. He was a Judge of Canon Law, Royal Almoner, and Censor of Public Morals combined.
- **Nyayadhish (The chief justice):** He tried civil and criminal cases according to Hindu law and endorsed all judicial decisions, especially about rights to land, village headman ship, etc.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following ranks in Medieval India:

- | | |
|---------------|-----------|
| 1. Peshwa | 2. Amatya |
| 3. Nyayadhish | 4. Sumant |

How many of the above were members of Shivaji Maharaj's Ashtapradhdna?

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

(d) Answer

SAROJINI NAIDU

Why in News: Sarojini Naidu is remembered on her 146th birth anniversary.



About Sarojini Naidu

- A poet, women’s rights activist and freedom fighter, Sarojini Naidu is recognised and remembered for her multifaceted contribution to Indian society and the freedom movement.
- She was born on 13 February 1879 in Hyderabad.

Contribution to the Indian National Movement

- Sarojini Naidu joined the Indian National Movement in the wake of the 1905 partition of Bengal.
- Her interactions with stalwarts of the Indian Independence Movement like Gopal Krishna Gokhale, Rabindranath Tagore and Mahatma Gandhi inspired her to actively work towards the cause of freedom and social development.
- Between 1915 and 1918, she delivered lectures on social welfare, women’s empowerment and nationalism in various parts of the country.
- She helped to establish the **Women’s Indian Association** in 1917.
- In 1917, along with Annie Besant, she went to London to represent the case for women’s franchise before the Joint Select Committee.
- She went to London in 1919 as a part of the **All India Home Rule League**.
- In 1920, she returned to join Gandhi ji’s Satyagraha Movement amidst the growing national movement.
- Sarojini Naidu was jailed in 1930 for her participation in the Salt Satyagraha.
- In 1931, she participated in the **second round-table conference** with Mahatma Gandhi and Madan Mohan Malaviya.

- Sarojini was one of the major figures to have led the Civil Disobedience Movement and the Quit India Movement.
- She was arrested again in 1932 and 1942, and she spent 21 months in jail.
- Sarojini Naidu was elected as the **President of the Indian National Congress** in 1925 (Kanpur), the first woman to assume that position.
- She believed in the Gandhian philosophy of non-violence and was instrumental in disseminating Gandhian principles to the rest of the world.
- **Post Independence**, she became the Governor of the United Provinces in 1947, becoming the first woman to hold the office of Governor in the Dominion of India.

Poetry Contribution

- The Golden Threshold (1905)
- Bird of time (1912)
- In the Bazaars of Hyderabad (1912)
- In 1914, she was elected a fellow of the Royal Society of Literature.
- Her collected poems, all of which she wrote in English, have been published under the titles **The Secptraed Flute** (1928) and **Feather of the Dawn** (1961).
- Her work as a poet earned her the sobriquet ‘the **Nightingale of India**’, or ‘**Bharat Kokila**’ by Mahatma Gandhi because of the color, imagery and lyrical quality of her poetry.
- Naidu’s poetry includes both children’s poems and others written on more serious themes, including patriotism, romance, and tragedy.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

- Q. The Bird of Time poetry work is authored by ...
- (a) Annie Besant (b) Jawaharlal Nehru
- (c) Sarojini Naidu (d) Kamala Nehru

(c) Answer

SMART CITIES MISSION AND THE ROLE OF ENERGY EFFICIENCY IN URBAN DEVELOPMENT

1. Introduction

- Cities contribute **50-60% of global greenhouse gas (GHG) emissions**, necessitating a **low-carbon economy** through efficient energy use.
- India is the **third-largest energy consumer**, with **80% of energy sourced from conventional means**, primarily **coal-based generation** (accounting for **70% of emissions**).
- Government initiatives promote **energy-efficient practices** under the **Nationally Determined Contributions (NDC)** and **Long-Term Low Emission Development Strategy (LT-LEDS)**.
- **Smart city frameworks leverage ICT (Information and Communication Technology)** for energy efficiency, reducing costs and emissions.
- India's **power demand is expected to double by 2030**, posing challenges for **DISCOMs (Distribution Companies)** in providing **reliable, affordable power**.
- India's **Smart Cities Mission (SCM)** (launched in 2015) integrates **infrastructure and technology** for sustainable urban growth, emphasizing **energy efficiency**.

2. Key Sectors for Energy Efficiency in Smart Cities

(i) Energy-Efficient Buildings

- Buildings account for **over a third of national energy consumption**, with **40% of future building stock yet to be constructed**.
- High-density commercial and residential construction will drive future urban energy demand.
- **Key Energy Efficiency Measures:**
 - **Retrofitting** aging buildings with energy-efficient HVAC (Heating, Ventilation, and Air Conditioning), lighting, and water management.
 - Adoption of **Green Building Standards** like **GRIHA** and **LEED** to promote sustainability.
 - **The National Programme for Climate Change and Human Health (NPCCHH)** mandates energy efficiency in hospitals (**14% of total energy use**).
 - **Future-ready public health infrastructure:** 525 smart city projects focus on **energy efficiency and renewable energy**.

- **Green public procurement** can further lower the energy footprint.

(ii) Energy-Efficient Water Management

- **CSCAF 2.0 (Climate Smart Cities Assessment Framework)** includes energy efficiency in water supply management.
- Technological Interventions:
 - **SCADA (Supervisory Control and Data Acquisition)** automation for optimized water use.
 - **Variable Frequency Drives (VFDs)** for pumping system efficiency.
 - **Real-time monitoring and hydraulic modeling** to reduce **Non-Revenue Water (NRW)**.
 - Integration of **IoT, AI, and ML** to optimize water demand management.
 - Use of **bulk metering, water accounting, and pressure management** for better energy utilization.
 - **Renewable energy (solar, micro-hydro) integration** in water systems.

(iii) Energy-Efficient Waste Management

- Urban waste generation rises **5.5% annually**, projected to reach **436 MMT by 2050**.
- Key Strategies for Energy Efficiency in Waste Management:
 - **IoT-enabled waste collection:** GPS navigation, **RFID (Radio Frequency Identification)** for real-time tracking.
 - **AI-based waste pyrolysis** and logistics optimization to reduce energy use in waste transportation.
 - Adoption of **Refuse-Derived Fuel (RDF)** and **Mechanical Biological Treatment (MBT)** systems.
 - **Energy-from-waste technologies** (bioreactor landfills, sanitary landfills, solar integration).
 - **Recycling and reuse:** Lower energy demand in construction through material recovery (**steel, wood, concrete**).

(iv) Energy-Efficient Transportation

- **Transport sector: Third-largest GHG emitter in India**, consuming **94 MTOE (Million Tonnes of Oil Equivalent)** and producing **14% of energy-related CO₂ emissions**.
- **Strategies for Sustainable Urban Transport:**

- **Multimodal transport networks** integrating **renewable energy**.
- Expansion of **electric vehicles (EVs)** and charging infrastructure.
- **Public transport optimization** through AI-based traffic management.
- **Non-motorized transport** (cycling, walking infrastructure) to reduce dependency on fossil fuels.
- **Autonomous vehicles, drones, and ride-sharing models** for energy-efficient logistics.

3. Policy and Regulatory Framework

- **Energy Conservation Act (2001)** has evolved towards consumer-centric and industry-oriented energy efficiency programs.
- The **policy trajectory** aligns **energy efficiency with sustainability, climate resilience, and low-carbon urban development**.

4. Future Roadmap: Strategies for Energy Efficiency in Urban Development

(i) Co-Production of Knowledge for Policy and Governance

- Establishing **knowledge-sharing platforms** involving:
 - **Think tanks, academic institutions, technology hubs.**
 - **NGOs, CBOs, regulatory bodies, public utilities.**
 - **International organizations, funding agencies.**
- **NAPCC (National Action Plan on Climate Change)** and **NMEEE (National Mission for Enhanced Energy Efficiency)** need integration into **city and regional master plans**.
- **Strengthening urban local bodies (ULBs)** for effective decentralized governance.
- **Inter-sectoral coordination** to streamline energy efficiency across urban planning sectors.

(ii) Adoption of Cutting-Edge Technologies

- Strengthening **energy efficiency research** through **DST (Department of Science and Technology), BEE (Bureau of Energy Efficiency), and MNRE (Ministry of New and Renewable Energy)**.
- Encouraging development of **smart grids, advanced energy storage, AI-driven predictive systems, GIS, GPS, and integrated public utilities**.
- Scaling up **sector-specific technologies**, including:
 - **Waste-to-energy solutions.**
 - **Building-Integrated Photovoltaic (BIPV) and smart lighting.**
 - **EV charging infrastructure and automated traffic systems.**

(iii) Strategic Financing for Energy Management

- **Hybrid financing models** for urban energy efficiency:
 - **Energy Efficiency Financing Platform (EEFP).**
 - **Venture Capital Fund for Energy Efficiency (VCFEE).**
 - **Partial Risk Guarantee Fund for Energy Efficiency (PRGFEE).**
 - **Green Growth Equity Fund (GGEF).**
- **Market-based mechanisms:**
 - **Green bonds** for sustainable urban energy projects.
 - **Perform, Achieve, and Trade (PAT) scheme** for high-energy-consuming sectors.
- **Leveraging international partnerships** to fund clean energy adoption in cities.

(iv) Performance Measurement and Monitoring

- **Defined performance targets** for measuring urban energy efficiency:
 - **Facility upgrades, awareness campaigns.**
 - **Quantifiable targets:** Energy reduction, renewable energy penetration, GHG emission reduction.
- **Robust data management:** MIS, city-level **sectoral reports** for accountability.
- **Scaling up Smart Cities Mission (SCM) initiatives** through:
 - **Policy support, advanced technologies, and innovative financing mechanisms.**

BIOFUELS AS A PROMISING SUBSTITUTE FOR HIGH CARBON ENERGY SOURCES

1. Introduction

The global demand for energy is rising at an unprecedented rate, driven by industrialization, urbanization, and population growth. However, reliance on fossil fuels as the primary energy source has led to environmental degradation, climate change, and energy insecurity. Renewable energy sources such as wind and solar power have gained prominence, but biofuels offer a distinct advantage due to their ability to provide sustainable and cleaner fuel alternatives. India's National Policy on Biofuels (NPB) 2018 underscores the significance of biofuels in reducing dependence on imported fossil fuels and ensuring energy security.

2. The Growing Need for Biofuels

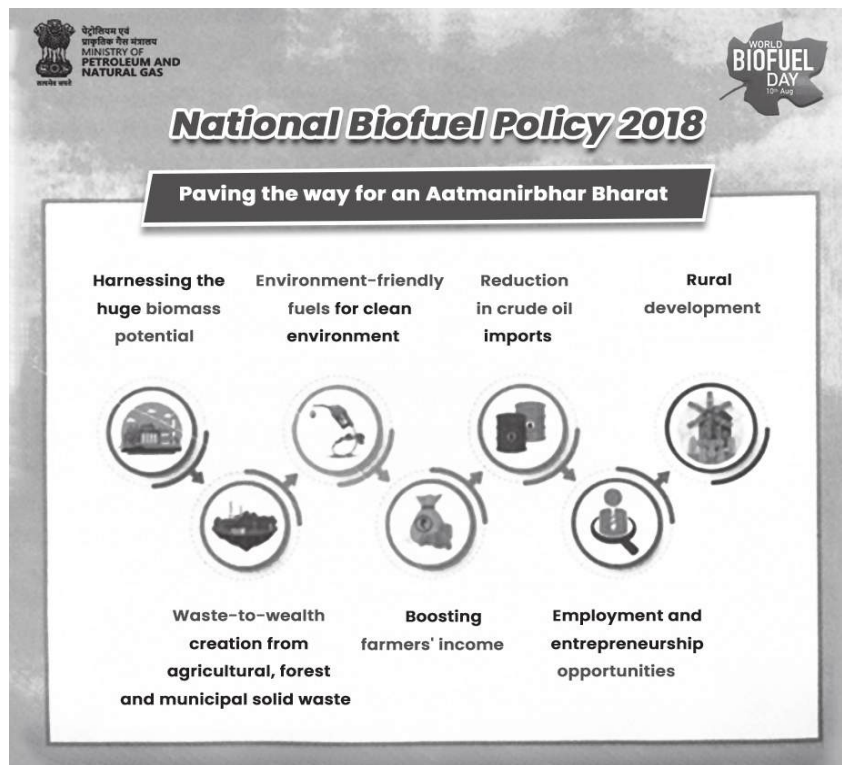
- **Environmental Sustainability:**
 - Biofuels contribute to reducing greenhouse gas (GHG) emissions.
 - They help in mitigating air and water pollution associated with fossil fuels.

- **Energy Security:**
 - India imports approximately 85% of its crude oil, leading to high foreign exchange outflow.
 - Biofuels reduce reliance on imported fossil fuels, promoting self-sufficiency.
- **Rural Development and Economic Growth:**
 - Cultivation of biofuel crops such as Jatropha and sugarcane provides employment opportunities.
 - Farmers receive additional income through biofuel feedstock cultivation.
- **Waste Management:**
 - Agricultural and municipal waste can be converted into biofuels, aiding waste management and reducing landfill dependency.

3. Types of Biofuels

- **First-Generation Biofuels:**
 - Derived from food crops (e.g., corn, sugarcane, soybean).

- Major examples: Ethanol and biodiesel.
- Concerns: Potential competition with food supply, leading to food price inflation.
- **Second-Generation Biofuels:**
 - Produced from non-food biomass such as agricultural residues, forest waste, and municipal waste.
 - More sustainable and avoids food-versus-fuel conflicts.
- **Third-Generation Biofuels:**
 - Derived from algae and other microorganisms.
 - Higher yield potential per unit area compared to first and second-generation biofuels.
- **Fourth-Generation Biofuels:**
 - Advanced biofuels that use genetically modified organisms (GMOs) to enhance biofuel production.
 - Includes biohydrogen and solar biofuels.
 - India's Biofuel Policy Framework
- **National Policy on Biofuels (NPB) 2018:**



- Targets 20% ethanol blending in petrol and 5% biodiesel blending by 2030.
- Encourages the use of advanced biofuels from agricultural waste and non-food sources.
- **Ethanol Blending Programme (EBP):**
 - Focuses on increasing ethanol blending in petrol to reduce crude oil dependency.
 - Sugarcane-based ethanol is widely used for blending.
- **Biodiesel Production Initiatives:**

- Promotes non-edible oilseeds (e.g., Jatropha, Pongamia) for biodiesel production.
- Involves the use of used cooking oil (UCO) for biodiesel production.
- **GOBAR-DHAN Scheme:**
 - Converts cattle dung and agricultural waste into biogas and bio-CNG.
 - Promotes rural entrepreneurship and organic manure production.

➤ **Jatropha Curcas: A Key Biofuel Feedstock**

Jatropha Curcas has been identified as a crucial non-edible feedstock for biodiesel production due to its numerous advantages:

- Can be grown on degraded and arid land with minimal water requirements.
- Resistant to pests and adaptable to different soil types.
- Provides high oil content suitable for biodiesel production.
- Contributes to carbon sequestration and soil conservation.
- Supports honeybee population, aiding biodiversity conservation.
- Challenges in Biofuel Adoption
- Feedstock Availability and Competition:
 - Dependence on agricultural feedstock may lead to competition with food production.
 - Uncertainty in yield and market price affects farmer participation.
- **High Production Costs:**
 - Infrastructure for biofuel refining and distribution is expensive.
 - Advanced biofuels require significant research and development investment.
- **Policy and Regulatory Challenges:**
 - Inconsistent policy implementation hinders long-term investment.
 - Need for clear incentives and subsidies for biofuel producers and farmers.

• **Technological Limitations:**

- Need for improvements in conversion efficiency for second and third-generation biofuels.
- Lack of adequate refueling infrastructure for biofuels.
- Way Forward: Sustainable Biofuel Adoption in India

• **Scaling Up Research and Development:**

- Investment in genetic modification and biotechnology for high-yield biofuel crops.
- Development of cost-effective conversion technologies for agricultural and municipal waste.

• **Policy Reforms and Incentives:**

- Strengthening of the National Biofuel Policy with long-term vision and implementation roadmap.
- Incentivizing farmers through subsidies for biofuel feedstock cultivation.

• **Public-Private Partnerships (PPPs):**

- Collaboration between government, private enterprises, and research institutions for infrastructure development.
- Encouraging foreign investments in biofuel technology.

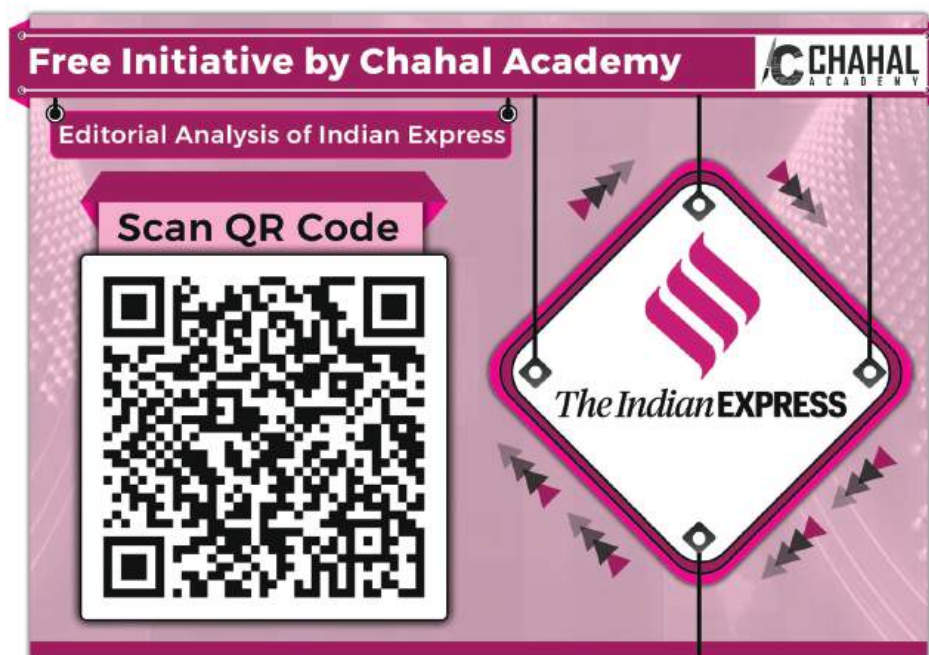
• **Decentralized Biofuel Production:**

- Promoting village-level biofuel production units to ensure energy self-sufficiency.
- Encouraging waste-to-energy projects for localized energy generation.

• **Blending Targets and Expansion:**

- Achieving and exceeding the ethanol blending target of 20% by 2030.

Expanding the use of bio-CNG and biohydrogen as transport fuels.



ARTICLES FROM KURUKSHETRA (FEBRUARY 2025)

NUTRITIONAL AND HEALTH SECURITY THROUGH HORTICULTURE

1. Introduction

- **Definition:** Horticulture refers to the branch of agriculture that deals with the cultivation of fruits, vegetables, nuts, seeds, herbs, sprouts, mushrooms, algae, flowers, seaweeds, and non-food crops such as grass and ornamental trees.
- **Importance:** Plays a crucial role in ensuring nutritional security, improving health, and enhancing economic well-being.
- **Relevance:** With increasing malnutrition and non-communicable diseases, horticulture serves as a sustainable solution to improve diet diversity and health outcomes.

2. Role of Horticulture in Nutritional Security

A. Essential Nutrients from Horticultural Crops

1. Fruits:

- Rich in **vitamins (A, C, E, and K)**, minerals (**potassium, calcium**), and fiber.
- Examples: Mango (Vitamin A), Citrus fruits (Vitamin C), Banana (Potassium).

2. Vegetables:

- Provide **fiber, antioxidants, and micronutrients** (iron, folate, magnesium).
- Examples: Spinach (Iron, Folate), Carrots (Beta-carotene), Tomatoes (Lycopene).

3. Nuts and Seeds:

- High in **healthy fats, proteins, and essential minerals**.
- Examples: Almonds (Vitamin E), Walnuts (Omega-3 fatty acids), Sunflower seeds (Magnesium).

4. Herbs and Spices:

- Contain **bioactive compounds with medicinal properties**.
- Examples: Turmeric (Curcumin), Ginger (Gingerol), Garlic (Allicin).

5. Mushrooms:

- Provide **Vitamin D, antioxidants, and amino acids**.

- Example: Shiitake (Lentinan for immune function).

B. Contribution to Balanced Diet and Malnutrition Reduction

- **Reduces Micronutrient Deficiencies:** Addresses anemia, night blindness, and scurvy.
- **Enhances Gut Health:** High fiber content promotes digestion and prevents gastrointestinal diseases.
- **Boosts Immunity:** Phytochemicals and antioxidants improve disease resistance.

3. Role of Horticulture in Health Security

A. Preventing Non-Communicable Diseases (NCDs)

1. Cardiovascular Diseases:

- **Solution:** Potassium-rich fruits and vegetables regulate blood pressure.
- **Examples:** Avocado, Bananas, Citrus fruits.

2. Diabetes Management:

- **Solution:** Low glycemic index (GI) foods maintain blood sugar levels.
- **Examples:** Leafy greens, berries, nuts.

3. Cancer Prevention:

- **Solution:** Antioxidant-rich foods reduce oxidative stress.
- **Examples:** Broccoli, Garlic, Green tea.

4. Obesity Control:

- **Solution:** High-fiber diets promote satiety and weight management.
- **Examples:** Whole grains, Legumes, Apples.

B. Medicinal Properties of Horticultural Crops

- **Turmeric:** Anti-inflammatory, boosts liver function.
- **Aloe Vera:** Supports skin health and digestion.
- **Basil (Tulsi):** Reduces stress, regulates blood sugar.

4. Economic and Sustainable Benefits of Horticulture

A. Livelihood Generation

- **Employment:** Horticulture provides jobs in farming, processing, packaging, and distribution.
- **Entrepreneurship Opportunities:** Small-scale agribusiness in organic farming, herbal products, and food processing.

B. Environmental Sustainability

- **Water Conservation:** Drip irrigation and hydroponics reduce water wastage.
- **Climate Resilience:** Certain crops (e.g., moringa, amla) withstand harsh climatic conditions.
- **Agroforestry Integration:** Enhances biodiversity and soil fertility.

5. Government Initiatives to Promote Horticulture

A. National and International Policies

1. **Mission for Integrated Development of Horticulture (MIDH):** Promotes area expansion, technology dissemination.
2. **National Horticulture Mission (NHM):** Supports farmers with infrastructure and market linkages.
3. **PM-Kisan Samman Nidhi:** Financial aid to farmers for horticultural growth.
4. **Eat Right India Movement (FSSAI Initiative):** Encourages consumption of healthy horticultural produce.
5. **FAO's Global Initiative on Nutrition and Agriculture:** Endorses diversified cropping for food security.

B. Technology Interventions

- **Precision Farming:** IoT-based irrigation, soil sensors for optimized crop yields.
- **Greenhouse and Hydroponics:** Year-round production of nutrient-rich crops.

- **Biofortification:** Genetic improvement of crops for higher vitamin and mineral content.

6. Challenges in Ensuring Nutritional and Health Security through Horticulture

A. Supply Chain and Market Issues

- **Post-Harvest Losses:** Over 30% of horticultural produce wasted due to lack of cold storage.
- **Price Fluctuations:** Seasonal supply-demand gaps affect farmer income.
- **Market Access:** Limited direct-to-consumer channels, reliance on intermediaries.

B. Environmental and Climate Constraints

- **Water Scarcity:** Horticulture is water-intensive; climate change affects yield.
- **Pest and Disease Management:** Dependence on chemical pesticides affects food safety.
- **Land Degradation:** Overuse of fertilizers impacts soil fertility.

C. Nutritional Awareness and Dietary Habits

- **Lack of Consumer Awareness:** Limited knowledge about balanced diets and nutritional benefits.
- **Changing Food Preferences:** Increasing dependence on processed and fast food.
- **Affordability and Accessibility:** Nutrient-rich horticultural produce is often expensive for low-income groups.

7. Strategies to Enhance Nutritional and Health Security through Horticulture



RICE FORTIFICATION

From food security towards nutrition security

Rice enriched with 3 micronutrients to fight nutritional deficiencies

To reach all beneficiaries through TPDS, PM-POSHAN, ICDS and other welfare schemes



IRON

Fights Anemia



FOLIC ACID

Foetal Development & Blood Formation



VITAMIN B12

Normal Functioning of Nervous System

Deficiency of vitamins & essential micronutrients leads to **'HIDDEN FORMS OF MALNUTRITION'**

Vitamin B & C.

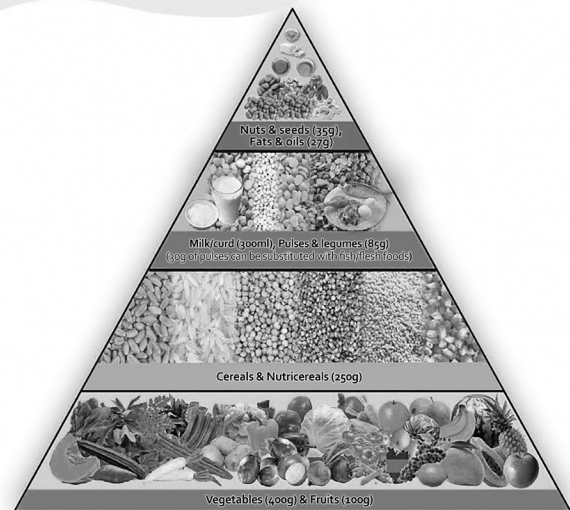
Fruits & Vegetables

Whole Grains (pulses), Millets, Soy, Nuts & Oil Seeds,

Folic Acid, Magnesium - Leafy Vegetables

Iron, Vitamin A, Zinc, Calcium

Milk & Milk Products



FOOD PYRAMID FOR BALANCED DIET FOR 2000 KCAL

Reference : ICMR-National Institute Of Nutrition : Dietary Guidelines For Indian 2024

A. Policy and Institutional Interventions

- Promotion of Local Horticultural Farming:** Encouraging kitchen gardens, urban farming.
- Infrastructure Development:** Cold chains, storage facilities to reduce post-harvest losses.
- Public-Private Partnerships (PPP):** Collaboration for research, innovation, and market linkages.

B. Research and Technological Advancements

- Development of Climate-Resilient Crops:** Bioengineering crops for improved nutrition and stress tolerance.
- Organic and Sustainable Farming:** Minimizing chemical use, promoting natural fertilizers.
- Nutritional Literacy Programs:** Educating consumers on diet diversity and food choices.

C. Community-Based Approaches

- School and Community Nutrition Programs:** Mid-day meals incorporating diverse horticultural crops.
- Women Empowerment in Horticulture:** Encouraging female farmers and entrepreneurs in agribusiness.
- Rural and Urban Horticultural Integration:** Terrace gardening, community farms in urban spaces.

8. Conclusion

- Horticulture as a Key Driver of Nutritional Security:** Ensures dietary diversity, health benefits, and economic stability.
- Need for Policy and Technological Integration:** Addressing supply chain, environmental concerns, and awareness.
- Way Forward:** Strengthening research, infrastructure, and consumer awareness to maximize the potential of horticulture in health and nutrition security.

FOOD PROCESSING IN HORTICULTURAL CROPS

1. Introduction

Food processing in horticultural crops refers to the various techniques and methods used to enhance the shelf life, nutritional value, and marketability of fruits, vegetables, and other horticultural produce. It includes preservation, value addition, and post-harvest management to reduce wastage and improve economic viability.

2. Importance of Food Processing in Horticultural Crops

- Prevention of Post-Harvest Losses:** Minimizes wastage due to spoilage and damage.
- Increased Shelf Life:** Enhances storage and transportability.

- Value Addition:** Converts raw produce into more profitable processed products.
- Nutritional Enhancement:** Fortification and enrichment improve health benefits.
- Market Expansion:** Processed foods cater to domestic and international markets.



3. Methods of Food Processing in Horticulture

A. Primary Processing

- Sorting and Grading:** Based on size, color, and quality.
- Cleaning and Washing:** Removal of dirt, pesticides, and contaminants.
- Blanching:** Partial boiling to inactivate enzymes before freezing or dehydration.

B. Secondary Processing

- Dehydration:** Reducing moisture content to extend shelf life (e.g., dried fruits, vegetables).
- Canning:** Heat treatment and sealing in airtight containers (e.g., canned tomatoes, mango pulp).
- Freezing:** Quick freezing at low temperatures to retain freshness (e.g., frozen peas, berries).
- Pickling and Fermentation:** Using brine, vinegar, or natural fermentation (e.g., pickles, kimchi).
- Juicing and Beverage Processing:** Fruit and vegetable juices, nectars, and concentrates.
- Pulping and Pureeing:** Conversion into pastes or purees for various uses (e.g., tomato paste, mango puree).

PLIS for developing Global Champions in Food Sector

The Central Sector Scheme - Production Linked Incentive Scheme for Food Processing Industry (PLISFPI) of MoFPI

- ◆ Has an outlay of Rs. 10900 crore.
- ◆ Will create employment opportunities for nearly 2.5 lakh people by the year 2026-27.
- ◆ Food Product Segments covered in the scheme via
 - **Ready to Cook/Ready to Eat (RTC/RTE)** food including Millet based Products
 - Processed Fruits & Vegetables
 - Marine Products
 - Mozzarella Cheese
 - **Innovative/Organic products** of SMEs including Free Range Eggs, Poultry Meat, Egg Products



C. Advanced Processing Technologies

1. **High-Pressure Processing (HPP):** Preserves nutrients and extends shelf life.
2. **Irradiation:** Kills pathogens without affecting quality.
3. **Modified Atmosphere Packaging (MAP):** Controls gases to enhance storage duration.
4. **Cold Plasma Technology:** Emerging technique for microbial safety.
5. **Freeze-Drying (Lyophilization):** Retains original taste and nutrients.

4. Value-Added Products from Horticultural Crops

A. Fruits

- Jams, jellies, marmalades
- Dehydrated fruits (e.g., banana chips, apple slices)
- Squashes, syrups, and RTS (ready-to-serve) beverages

B. Vegetables

- Dehydrated vegetables (e.g., onion flakes, garlic powder)
- Tomato ketchup, puree, and sauces
- Pickles and chutneys

C. Plantation and Medicinal Crops

- Herbal teas and essential oils
- Spices processing (e.g., turmeric powder, dried chilies)
- Cocoa and coffee processing


5. Challenges in Food Processing of Horticultural Crops

- **Perishability:** High moisture content leads to rapid spoilage.
- **High Initial Investment:** Infrastructure and technology costs.
- **Quality Control:** Maintenance of hygiene and safety standards.

- **Market Fluctuations:** Price volatility affects profitability.
- **Supply Chain Gaps:** Need for better cold storage and logistics.

6. Government Initiatives and Policies

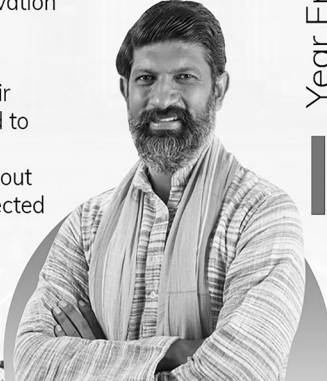
- **Pradhan Mantri Kisan SAMPADA Yojana (PMKSY)** – Financial support for food processing.
- **Mega Food Parks Scheme** – Infrastructure for food processing units.
- **Operation Greens** – Price stabilization for perishable crops like tomatoes, onions, and potatoes.
- **National Horticulture Mission (NHM)** – Promotes post-harvest management and value addition.



Achievements

UNDER PRADHAN MANTRI KISAN SAMPADA YOJANA (PMKSY)

- 143 projects have been approved under various component schemes of PMKSY, since January 2024.
- 69 projects have been operational resulting in processing & preservation capacity of 14.41 Lakh MT.
- The approved projects, on their operationalization, are expected to leverage investment of Rs 2303.24 Crore benefiting about 3.53 lakh farmers and are expected to result in more than 0.57 lakh direct/indirect employment.



Year End Review 2024

FOR SETTING UP OF MULTIPRODUCT FOOD IRRADIATION UNITS
 MINISTRY OF FOOD PROCESSING INDUSTRIES

IS PROVIDING FINANCIAL SUPPORT

- Grants-in-aid/ subsidy @ 35% of eligible project cost for projects in General Areas
- @50% of eligible project cost for project in Difficult Areas and projects of SC/ST, FPOs and SHGs*



MOFPI
 MINISTRY OF FOOD PROCESSING INDUSTRIES
 GOVERNMENT OF INDIA


NEW TECHNOLOGY IN FOOD PROCESSING INDUSTRIES #2

IRRADIATION

It is the process by which an object is exposed to radiation. An irradiator is a device used to expose an object to radiation, notably gamma radiation, for a variety of purposes.

Uses:

1. Sterilisation of army rations and other shelf stable foods.
2. Extension of shelf life of various foods to be distributed and stored at refrigerated temperatures, eg. fresh fish, meats, milk, eggs.
3. Inhibition of sprouting in onions and potatoes, and delay in ripening of fruits.



7. Future Prospects of Food Processing in Horticulture

- **Smart Packaging Solutions:** Use of biodegradable and intelligent packaging.
- **Blockchain in Food Supply Chain:** Ensures traceability and safety.
- **Superfoods and Functional Foods:** High-demand processed foods with added health benefits.
- **Export Potential:** Growth in global demand for processed Indian horticultural products.



8. Conclusion

Food processing in horticultural crops plays a crucial role in minimizing post-harvest losses, enhancing food security, and improving farmers’ incomes. With technological advancements, policy support, and increasing consumer demand, the sector holds vast potential for sustainable growth and economic prosperity.

Free Initiative by Chahal Academy

Daily quiz of 10 MCQs from The Hindu and Indian express

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ARTICLES FROM DOWN TO EARTH (FEBRUARY 2025)

THE TRIBAL DEVELOPMENT PARADOX

Context: Despite the PVTG status, the Madia tribe continues to suffer from severe neglect, particularly regarding essential infrastructure like road connectivity. The article stresses upon the importance of legal frameworks that facilitate easier access to justice, advocating for the empowerment of local courts.

Rising democratic activism in Madia tribes

- Madias have emerged as a beacon of democratic activism for the protection of their fundamental rights.
- Their concerted efforts underline the transformative potential of constitutional activism as a legitimate and powerful means to enforce the rights of marginalised communities.
- They have chosen to utilise the accessible avenue of “letter petitions” to assert their fundamental rights and address the ongoing deprivation they are experiencing.
- This paradigmatic shift not only challenges deeply rooted systems of oppression but also highlights the effectiveness of grassroots mobilisation through democratic channels in bringing substantive change within society.

Challenges of Madia PVTG in Gadchiroli

- **Lack of access to Social amenities:** The absence of adequate healthcare facilities, quality education, and proper road connectivity.
- **Danger of losing Socio-cultural and Economic Rights:** In addition, they are also struggling to protect their sociocultural and economic rights, in the face of extractivism.
- **Poor road connectivity:** In parts of Gadchiroli during every monsoon season for more than six months these communities face complete isolation due to the absence of bridges and roads connecting them to the outside world. To reach these villages, one must navigate across a vast expanse of water formed by the dam and traverse over five water streams thus making access to basic health and education facilities a tedious task.

Implications of missing road connectivity

- **Impinges upon social justice when viewed from the lens of fundamental rights.** Access to transportation is not about moving from one place to another; it encompasses

access to vital services such as healthcare and education that are essential for a dignified life.

- **Restricts quality of Life:** In contemporary times, mobility is integral to maintaining livelihoods and enhancing quality of life. Mobility enhances opportunities for social mobility and wealth generation, whereas immobility is a driver of exclusion.
- **Reduces Dignity of Life:** The lack of connectivity infringes upon their rights undermining their ability to lead dignified lives as guaranteed by the Constitution under Article 21

Outcome of Democratic Activism of Madia tribe of Gadchiroli

- The high court compelled the state to adopt a proactive stance (Court on Its Own Motion v State of Maharashtra and Ors 2022) prompting **continuous visits from officials** keen to grasp the challenges first-hand.
- A budget of **₹38 crore** was allotted for the construction of over 10 bridges and roads connecting these remote villages.
- **The construction of roads and bridges has commenced,** and to improve healthcare accessibility, the state has approved the establishment of a sub-centre in the village.
- **Model example:** This outcome has now set an example for other villages grappling with similar issues.

Way forward

- The decades-long struggle of the Madia community for their rights could have been mitigated if they had adequate and easier access to the justice system.
- To ensure social justice and uphold the rights of all citizens, it is imperative to prioritise and guarantee access to justice for all.

CASTE DIVERSITY IN CORPORATE GOVERNANCE

Context: A Blau Index based on caste affiliation finds that boards with greater caste diversity demonstrate a positive effect on corporate scores related to human rights, corporate social responsibility, and philanthropy.

Global Practices on Diversity in Corporate Market

- **The Cadbury Report** (Corporate Governance’s Report with Code of Best Practice, 1992) popularised the concept

of independent directors free from shareholding ties (owners), management influence, and any business or personal relationships that could compromise independence.

- This has allowed to increase diversity in Corporate boards with long term positives in work efficiency.

India's Case Study

- **High Caste Dominance:** Multiple studies have revealed a dominance of forward castes, raising questions about genuine independence.
- **Reduced Firm value:** This homogeneity has been linked to diminished firm value .
- **Inertia for Status Quo:** Despite evidence of a lack of caste diversity on boards and its negative impact on firm value, reforms addressing this issue, as well as efforts to conduct a caste census, have struggled to overcome entrenched status quo biases.
- **Slow response from SEBI:** While SEBI has been proactive in other areas of reform, progress on caste diversity has lagged.
- **Similar data in Audit Firms:** Research also shows that audit firms are similarly dominated by forward castes, which undermines their monitoring role in corporate governance.

Argument for Diversity

- **Brings Distinct Resources:** The resource dependence theory argues that gender diversity can be advantageous as men and women contribute distinct cognitive, relational, and experiential resources.
- **Improvement in CSR:** Importantly, different demographic

characteristics on boards may impact specific Corporate Social Responsibility components in varied ways.

- **Caste influences multiple factors:** It influences multiple aspects of life, including education, occupational mobility, and lending, and reflects social divisions within corporate boards.
- **Improve Corporate Values:** Caste diversity on boards could be particularly beneficial for advancing corporate social values such as human rights and philanthropy.
- **Better decision making:** Caste diversity can introduce a broader range of perspectives and resources aligned with personal and social backgrounds of board members Leading to broader approach to decision making.

Way Forward

- Research suggests that companies can drive meaningful change not only in financial performance but also in their contributions to social welfare.
- Future research could build on these findings by exploring additional aspects of board diversity, including the interplay between gender, caste, and other social factors, to deepen our understanding of how diverse board compositions shape CSR in India's unique sociocultural context.

EXPECTED QUESTION FOR UPSC CSE

Descriptive Question

- Q. How can diversity in Corporate Boards including caste diversity can help in creating better socio economic value for overall Corporate market [10 marks] [150 words]

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Editorial Analysis of The Hindu

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THE HINDU

ARTICLES FROM EPW (FEBRUARY 2025)

ADAPTING TO CLIMATE CHANGE IS LIMITED BY PEOPLE'S BEHAVIOUR: HOW SOCIAL INNOVATION CAN HELP

Introduction: Climate change demands immediate action, with technical solutions (e.g. drought-resistant seeds) proving insufficient due to socio-economic barriers such as accessibility and cultural preferences.

Social Innovation: Social innovation is a novel process or product that intends to generate more effective and just solutions to address complex social problems for collective gain.

Findings from the Review of Global Academic Literature Using the Scopus Database

- **Local, collaborative action**
 - **Key Concept:** Community-driven initiatives empower marginalised groups through informal networks (e.g. Tanzanian associations diversifying income during droughts).
 - **Strengths**
 - ◆ Decentralised solutions foster resilience by leveraging local knowledge.
 - ◆ Reduces dependency on top-down interventions.
 - **Limitations**
 - ◆ Scalability challenges without institutional support.
 - ◆ Potential exclusion of minority voices within communities.
 - **Innovation in Government Policy and Practice**
 - **Key Concept:** Governments act as facilitators of multi-stakeholder collaboration (e.g. Brazil's flood-risk workshops and France's coastal retreat simulations).
 - **Strengths**
 - ◆ Integrates diverse perspectives for holistic policy design.
 - ◆ Legitimizes adaptation through institutional backing.
 - **Limitations**
 - ◆ Risk of bureaucratic delays or political interference.
 - ◆ May prioritize short-term gains over long-term systemic change.
 - **Social Innovation as a Normative Need**
 - **Key Concept:** Future-focused innovation to overcome barriers (e.g., Midwest crop cooperatives reducing transaction costs).
 - **Strengths**
 - ◆ A proactive approach to emerging risks (e.g., water scarcity).
 - ◆ Combines technical solutions with social structures.
 - **Limitations**
 - ◆ Requires cultural shifts and trust-building.
 - ◆ Implementation gaps due to funding or policy inertia.
- ### How can Social Innovation Guide Climate Change Adaptation?
- **The complementary role of different sectors**
 - **Synergy:** Effective partnerships merge private-sector innovation, civil society's grassroots insights, and government scaling capacity.
 - ◆ **Example:** Lumkani is a small start-up in South Africa that developed a fire detection system for informal shacks. It got scaled via corporate acquisition.
 - **Challenges**
 - ◆ Power imbalances between sectors (e.g., corporations overshadowing local NGOs).
 - ◆ Need for clear governance frameworks to ensure equitable collaboration.
 - **Interactions Between Scales**
 - **Multi-Level Change**
 - ◆ Individual behavioural shifts (e.g. community-oriented thinking) must align with systemic policy reforms.
 - ◆ Social movements (e.g. climate activism) exemplify dual targeting of personal and structural change.
 - **Barriers**
 - ◆ Conflicting priorities across scales (e.g. local vs. national agendas).
 - ◆ Requires iterative feedback loops to maintain coherence.

• Opportunities and Risks Associated with Market-based Approaches

➤ Opportunities

- ◆ Social entrepreneurship bridges gaps (e.g., Lumkani addressing shack fires).
- ◆ Markets enable rapid scaling through investment and innovation.

➤ Risks

- ◆ Reinforces inequities (e.g. carbon markets concentrating pollution in low-income areas).
- ◆ Profit motives may overshadow social justice goals.

➤ Recommendations

- ◆ Democratic oversight to ensure inclusivity.
- ◆ Balance market efficiency with equity safeguards.

Conclusion:

The social innovation integrates sectoral strengths, multi-scale actions, and cautious market engagement. It is critical to avoid replicating power imbalances and ensure solutions address root vulnerabilities. Going forward social innovation needs clearer definitions, metrics for success, and case studies on scaling innovations.

FEBRUARY 2025 WAS THE HOTTEST AND ONE OF THE DRIEST FEBRUARY'S ON RECORD IN THE LAST 125 YEARS: IMD

Introduction: February 2025 was the hottest in India in the last 125 years, according to India Meteorological Department (IMD) data. IMD data showed that February 2025 had also been one of the driest in the last 125 years, with less than half rainfall compared to normal.

February 2025: Hottest and Driest in 125 Years

• Record-breaking Heat

- February 2025 marked the hottest February in India since 1901, with an average mean temperature of 22.04°C (1.5°C above normal).
- **Regional disparities:** Central India was most affected by the untimely heat, as its maximum temperature rose 1.94°C above normal, while the rise in average temperature was 1.73°C.

• Rainfall Deficit

- 59% deficit in winter rainfall (Jan-Feb 2025), with Central India experiencing 89.3% deficiency, thereby exacerbating drought risks.
- Linked to climate change trends and local factors like absent western disturbances.

1.5 Degree Above Normal

• Temperature Extremes

- **Maximum temperature:** With 29.07°C, February recorded the second-highest maximum temperature since 1901, with an anomaly of 1.49°C
- **Minimum temperature:** February also saw an all-time high minimum temperature at 15.02°C, which was above normal by 1.20°C.

• Regional Breakdown

- **Central India:** Avg temperature anomaly of +1.73°C, reflecting acute vulnerability.
- **Forecast:** March-May 2025 likely to see above-normal heatwave days in Rajasthan, Gujarat, Maharashtra, and southern states.

- **Rainfall Correlation:** 5th lowest February rainfall since 2001 (50.2 mm), highlighting compounding risks of heat and drought.

Absence of Western Disturbances

- Western disturbances are critical winter rain-bringing systems and its absence worsened the dry conditions.
- The absence of Western disturbances is linked to climate change-driven shifts in atmospheric patterns.

Urban Heat Risks

- Cities like Delhi, Mumbai, and Bengaluru face intensified heatwaves due to urbanization and inadequate infrastructure.
- **Urgent Measures:** Sustainable urban planning, green cover expansion, and water management to mitigate heat impacts.

Systemic Gaps

- **Policy Inaction:** Despite 2024's record heat, no adaptive measures (e.g. revised exam schedules) were implemented.
- **Equity Concerns:** Vulnerable populations in informal settlements (e.g., shack fires in South Africa) need targeted solutions.

Way Forward: Call for Action

- Integrate climate resilience into governance (e.g. heat wave preparedness, Western disturbance monitoring).
- Leverage community engagement and technology (e.g. Lumkani's fire-detection systems) for localized adaptation.

Conclusion: Rising temperatures and erratic rainfall underscore India's exposure to climate extremes. There is a need for a multi-sectoral response combining early warnings, urban redesign, and policy reforms to address systemic vulnerabilities. India's weather trends in 2025, mirror global patterns, necessitating international collaboration for equitable adaptation strategies.

IMPORTANT DAYS IN FEBRUARY 2025

	Date	Day	Significance / Remark / Detail
1.	1 Feb - 7 Feb	World Interfaith Harmony Week	<ul style="list-style-type: none"> World Interfaith Harmony Week is an annual event observed during the first week of February, since the General Assembly designation in 2010. World Interfaith Harmony Week (WIHW), conceived to promote a culture peace and nonviolence, was first proposed by King Abdullah II of Jordan at the United Nations in 2010.
2.	2 Feb	World Wetlands Day	<ul style="list-style-type: none"> World Wetlands Day is celebrated every year on 2 February. This day marks the date of the adoption of the Convention on Wetlands on 2 February 1971, in the Iranian city of Ramsar on the shores of the Caspian Sea. Theme: Protecting Wetlands for Our Common Future
3.	4 Feb	International Day of Human Fraternity	-
4.	6 Feb	International Day of Zero Tolerance for Female Genital Mutilation	<ul style="list-style-type: none"> Theme: Step up the Pace Female genital mutilation (FGM) comprises all procedures that involve altering or injuring the female genitalia for non-medical reasons and is recognized internationally as a violation of the human rights, health and integrity of girls and women. In 2012, the UN General Assembly designated February 6th as the International Day of Zero Tolerance for Female Genital Mutilation, with the aim to amplify and direct the efforts on the elimination of this practice.
5.	10 Feb	World Pulses Day	<ul style="list-style-type: none"> UN has celebrated World Pulses Day since 2018 through FAO. Theme: Pulses: Bringing diversity to agrifood systems,
6.	10 Feb	International Day of the Arabian Leopard	<ul style="list-style-type: none"> To raise awareness about the Arabian leopard, the United Nations General Assembly has proclaimed February 10 as the International Day of the Arabian Leopard. The Arabian leopard (<i>Panthera pardus nimr</i>) is a critically endangered leopard subspecies that inhabits the Arabian Peninsula. It is one of the smallest leopard subspecies.

7.	11 Feb	International Day of Women and Girls in Science	<ul style="list-style-type: none"> 2025 marks the 10th anniversary of the International Day of Women and Girls in Science (IDWGS) and the 30th anniversary of the Beijing Declaration and Platform for Action, two significant milestones in the global effort to promote gender equality and women's empowerment.
8.	12 Feb	International Day for the Prevention of Violent Extremism as and when Conducive to Terrorism	<ul style="list-style-type: none"> The UN General Assembly declared 12 February as the International Day for the Prevention of Violent Extremism as and when Conducive to Terrorism, in order to raise awareness of the threats linked to violent extremism, as and when conducive to terrorism, and to enhance international cooperation in this regard.
9.	13 Feb	World Radio Day	<ul style="list-style-type: none"> Proclaimed in 2011 by the Member States of UNESCO and adopted by the United Nations General Assembly in 2012 as an International Day, February 13 became World Radio Day (WRD).
10.	17 Feb	Global Tourism Resilience Day	<ul style="list-style-type: none"> Global Tourism Resilience Day (17 February), proclaimed by the UN General Assembly aims to emphasize the need to foster resilient tourism development to deal with shocks, taking into account the vulnerability of the tourism sector to emergencies.
11.	20 Feb	World Day of Social Justice	<ul style="list-style-type: none"> World Day of Social Justice, observed annually on February 20th by the United Nations, serves as a global call to action for addressing poverty, exclusion, and unemployment while promoting solidarity, harmony, and equality of opportunity within and between societies.
12.	21 Feb	International Mother Language Day	<ul style="list-style-type: none"> International Mother Language Day, first proclaimed by UNESCO and later adopted by the UN General Assembly, underscores the role of languages in promoting inclusion and achieving Sustainable Development Goals. Theme: Silver Jubilee Celebration of International Mother Language Day
13.	24 Feb	Central Excise Day	<ul style="list-style-type: none"> To commemorate the assent given by the Governor General to the Central Excise and Salt Act, 1944.
14.	28 Feb	National Science Day	<ul style="list-style-type: none"> To commemorate the discovery of the "Raman Effect" on this day in 1928 by Sir C.V. Raman. Intended to reiterate the nation's reliance on science and technology as a tool of development with a focus on self-reliance and to promote a scientific attitude.

IMPORTANT EVENTS/SUMMITS/CONFERENCE IN FEBRUARY 2025

	Event/Summit/Conference	Details
1.	Paris AI Summit	<ul style="list-style-type: none"> The Artificial Intelligence Action Summit, co-chaired by India and France, was held in Paris on 10 and 11 February 2025. It builds on the AI Safety Summit held in the United Kingdom in 2023 and a smaller gathering in Seoul, South Korea, last year. The Paris Summit focussed on five major themes, including public service AI, future of work, innovation and culture, trust in AI, and global governance of AI.

2.	Aero India 2025	<ul style="list-style-type: none"> The 15th edition of Aero India 2025 was held from February 10th to 14th February at Yelahanka Air base in Bengaluru. It is a biennial event that was first held at Yelahanka Air Force Station, Bengaluru, in 1996. Theme: The Runway to a Billion Opportunities
3.	Indian Ocean Conference	<ul style="list-style-type: none"> The 8th Indian Ocean Conference was organised by the India Foundation in association with the Ministry of Foreign Affairs of Oman on February 16-17, 2025 in Muscat, Oman. It was started by the India Foundation in 2016 in Singapore, with participation from 30 countries. Theme: Voyages to New Horizons of Maritime Partnership.
4.	SOUL Conclave	<ul style="list-style-type: none"> School of Ultimate Leadership (SOUL) conclave 2025, inaugurated by PM Modi at Bharat Mandapam in the presence of Bhutan Prime Minister Tshering Tobgay. The SOUL is a privately funded leadership institution, located on the periphery of GIFT City in Gandhinagar, aimed at enabling leaders to become a positive force for societal benefit by adopting a new paradigm of leadership. It aims to bring together leaders from across various fields to share their life experiences, successes and failures with the youth to foster young leadership for a vibrant public life in diverse fields.
5.	International Conference on Unani Medicine	<ul style="list-style-type: none"> Inaugurated by the President of India. Organized by the Central Council for Research in Unani Medicine (CCRUM) under the Ministry of Ayush. Title of the event: Innovations in Unani Medicine for Integrative Health Solutions – A Way Forward
6.	Conference of the International Institute of Administrative Science (IIAS)	<ul style="list-style-type: none"> India hosted the annual Conference of the International Institute of Administrative Science (IIAS) for the first time in New Delhi. Organised by: Jointly hosted by the International Institute of Administrative Sciences (IIAS) and the Department of Administrative Reforms and Public Grievances (DARPG), Government of India. Theme: Next Generation Administrative Reforms – Empowering Citizens and Reaching the Last Mile.
7.	World Government Summit	<ul style="list-style-type: none"> Held in Dubai. Theme: Shaping Future Governments It focused on shaping future governance, with India highlighting its commitment to green growth and climate resilience.
8.	BHARAT TEX 2025	<ul style="list-style-type: none"> It is one of the largest global textile events. It aims to showcase India's textile industry to the world by bringing together key stakeholders, including manufacturers, buyers, industry experts, and innovators. The event is backed by the Ministry of Textiles.
9.	Prakriti 2025	<ul style="list-style-type: none"> The inaugural International Conference on Carbon Markets Prakriti 2025, was held in New Delhi. It focused on India's push for a transparent structured carbon market. Organised by: Bureau of Energy Efficiency (BEE)
10.	Bharat Calling Conference 2025	<ul style="list-style-type: none"> Organised by: IMC Chamber of Commerce and Industry Theme: Path to Viksit Bharat 2047: Pioneering Prosperity for All

AWARDS AND PRIZES IN FEBRUARY 2025

	Award	Winner	Details
1.	Grammy Awards 2025	-	<ul style="list-style-type: none"> The Grammy Awards, presented by the Recording Academy, honour excellence in the music industry. Established: 1959 Organizer: The Recording Academy, a U.S.-based organization of music professionals. Album of the Year: Cowboy Carter – Beyoncé Song of the Year: Not Like Us – Kendrick Lamar
2.	CA in Public Service	Deepak Kumar Kedia (IPS)	<ul style="list-style-type: none"> Awarded by the Institute of Chartered Accountants of India (ICAI). The award was presented at the World Forum of Accountants Meet in New Delhi on February 1, 2025. It recognized Kedia's outstanding contributions to public service, particularly in law enforcement and national security.
3.	Sahitya Akademi Award 2024 (Dogri)	Chaman Arora	<ul style="list-style-type: none"> The award was posthumously conferred upon the late Chaman Arora for his book Ik Hor Ashwthama.
4.	NETPAC (Network for the Promotion of Asian Cinema) Award	Movie: Bad Girl Director: Varsha Bharath	<ul style="list-style-type: none"> Awarded at the International Film Festival Rotterdam (IFFR) 2025. The honour places Bad Girl among notable Indian films like Nasir (2019), Naukar ki Kameez (1999), and Vidheyan (1995), which have previously won this award.
5.	Forward Faster Sustainability Award 2025	NTPC Ltd.	<ul style="list-style-type: none"> NTPC Ltd., India's largest integrated power utility, has been conferred with the prestigious Forward Faster Sustainability Award 2025 in the Water Resilience category. The Forward Faster Sustainability Awards celebrate organizations in India that have demonstrated excellence in sustainability and corporate responsibility while aligning their initiatives with the United Nations Sustainable Development Goals (SDGs).
6.	Sportstar Aces Awards		<ul style="list-style-type: none"> Individual Awards <ul style="list-style-type: none"> ➤ P.R. Sreejesh (Hockey) - Sportstar of the Year (Male) ➤ Manu Bhaker (Shooting) - Sportstar of the Year (Female) ➤ Swapnil Kusale (Shooting) - Sportsman of the Year Team Awards <ul style="list-style-type: none"> ➤ Indian Men's & Women's Chess Teams ➤ Mumbai Cricket Team
7.	SKOCH Award 2024	Nagaland Forest Management Project (NFMP)	<ul style="list-style-type: none"> The Nagaland Forest Management Project (NFMP) has been honored with the SKOCH Award 2024, a prestigious recognition that celebrates outstanding contributions to national development. The award was presented during the 100th SKOCH Summit held at the India Habitat Centre in New Delhi. The NFMP is a significant initiative with a 10-year timeline, aiming to conserve forests and uplift communities through targeted interventions.
8.	Sarvashrestha Suraksha Puraskar (Golden Trophy)	Manohar International Airport	<ul style="list-style-type: none"> Manohar International Airport (GOX), operated by GMR Goa International Airport Ltd. (GGIAL), became the first Indian airport to win the "Sarvashrestha Suraksha Puraskar (Golden Trophy)" at the NSCI Safety Awards 2024 in the 'Service Sector' category.

9.	Honorary Knighthood (KBE)	Sunil Bharti Mittal	<ul style="list-style-type: none"> • Sunil Bharti Mittal, the founder and chairman of Bharti Enterprises, has been honored with an Honorary Knighthood (KBE) for his significant contributions to strengthening India-UK business ties. • He was awarded the Knight Commander of the Most Excellent Order of the British Empire (KBE).
10.	International Booker Prize 2025	Heart Lamp	<ul style="list-style-type: none"> • Kannada writer Banu Mushtaq's short story collection Heart Lamp, translated into English by Deepa Bhashti, has been longlisted for the prestigious International Booker Prize 2025. • This marks the first time a Kannada title has been included in the longlist of the prize, which celebrates the finest translated fiction from around the world.
11.	National Dhanwantari Ayurveda Awards	-	<ul style="list-style-type: none"> • The Ministry of Ayush has honored three distinguished practitioners with the National Dhanwantari Ayurveda Awards for their exceptional contributions to traditional Indian medicine. • Each awardee received a citation, a statue of Lord Dhanwantari, and a cash prize of ₹5 lakh.
12.	Prani Mitra and Jeev Daya Award	-	<ul style="list-style-type: none"> • The Animal Welfare Board of India (AWBI), a statutory body under the Department of Animal Husbandry and Dairying, organized the Prani Mitra and Jeev Daya Award Ceremony. • Prani Mitra Awards are presented under five categories to individuals and organizations that demonstrate outstanding commitment to animal welfare. • The AWBI, established under the Prevention of Cruelty to Animals (PCA) Act, 1960, plays a crucial role in ensuring that animals are not subjected to unnecessary pain or suffering
13.	BAFTA Awards		<ul style="list-style-type: none"> • The BAFTA Awards (British Academy of Film and Television Arts) honour excellence in film, television, and games. • Best Film: Conclave • Best Director: Brady Corbet (The Brutalist) • Best Actor in a Leading Role: Adrien Brody (The Brutalist) • Best Actress in a Leading Role: Mikey Madison (Anora)


TERMS IN FEBRUARY 2025

	Term	Meaning and Details
1.	Gastroparesis	<ul style="list-style-type: none"> • Stomach paralysis, medically known as gastroparesis, is a condition where the stomach muscles are weakened or unable to function properly, leading to delayed emptying of food into the small intestine. • It disrupts the normal digestive process and can result in symptoms including nausea, vomiting, bloating, early satiety, and abdominal discomfort.
2.	Bourbon	<ul style="list-style-type: none"> • It is a barrel-aged American whiskey made primarily from corn. • The Indian government has notified a significant tariff cut on bourbon
3.	Gold Visa	<ul style="list-style-type: none"> • America has launched a new Gold Visa for foreign investors seeking permanent residency in the United States, and ultimately American citizenship.
4.	Solarpunk	<ul style="list-style-type: none"> • It is a literary and art movement rooted in science fiction that evaluates what a sustainable civilisation may look like and how we can achieve it.

5.	PKK	<ul style="list-style-type: none"> • Kurdistan Workers' Party (PKK) • An armed insurgent group in Turkey seeking independence for the Kurds, who are believed to make up about 15% or more of Turkey's population.
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OBITUARIES IN FEBRUARY 2025



	PERSON	IMPORTANT INFORMATION
1.	Kallur Balan	<ul style="list-style-type: none"> • Known as Kerala's green man Kallur Balan was an exceptional conservationist who planted around 20 lakh tree saplings over the last 25 years
2.	Horst Koehler	<ul style="list-style-type: none"> • He was the President of Germany from 2004-2010 and was the Managing Director of the IMF from 2000-2004.
3.	Aga Khan IV	<ul style="list-style-type: none"> • He was the spiritual leader of millions of Ismaili Muslims worldwide and a prominent philanthropist. • The Aga Khan became the spiritual leader of the Ismaili Muslims at the remarkably young age of 20 while he was still an undergraduate at Harvard University.
4.	Acharya Satyendra Das	<ul style="list-style-type: none"> • He was the chief priest of the Shri Ram Janmabhoomi Temple in Ayodhya.
5.	Sukri Bommagowda	<ul style="list-style-type: none"> • She was a renowned folk singer of Karnataka's Halakki Vokkaliga community. • She was known as a "walking encyclopedia" of folk traditions, she memorized nearly 5,000 songs and played a key role in preserving Halakki music. • She was awarded the Padma Shri.
6.	Pratul Mukhopadhyay	<ul style="list-style-type: none"> • He was a renowned Bengali vocalist, composer, and lyricist.
7.	C Krishnaveni	<ul style="list-style-type: none"> • She was a veteran Telugu actor and producer.
8.	Mayadhar Raut	<ul style="list-style-type: none"> • He was a legendary Odissi dancer, widely regarded as the Father of Odissi dance. • He was awarded the Padma Shri.
9.	Himmat Shah	<ul style="list-style-type: none"> • He was a famous Indian artist known for his sculptures and modern art.



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FEBRUARY 2025 - DAILY MCQs FROM THE HINDU & INDIAN EXPRESS

DAILY MCQS PRACTICE

Q1. Which of the following statements are correct in respect of primary motivation behind the creation of the India-Middle East-Europe Economic Corridor (IMEC):

1. To provide alternative trade routes to reduce dependence on the Suez Canal.
2. To increase the global dominance of the Indian shipping industry.
3. To facilitate the movement of essential goods and improve the overall trade environment between India, the Middle East, and Europe.

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

Q2. Consider the following with reference to the roles and responsibilities of the Vice President of India:

1. The Vice President performs ceremonial functions like the President of India.
2. The Vice President does not have a casting vote in the Rajya Sabha.
3. The Vice President plays no role in the functioning of the Lok Sabha.

How many of the above is/are correct?

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

Q3. Consider the following statements regarding ASI excavations at Ratnagiri, Odisha:

1. The colossal Buddha head and other artifacts discovered at Ratnagiri are estimated to date back to the 8th and 9th centuries AD.
2. The site at Ratnagiri was once a prominent learning center, rivalling Nalanda, and hosted texts related to both Mahayana and Tantrayana Buddhism.
3. The site, part of Odisha's Diamond Triangle, was first documented in 1905 and is considered the state's most excavated pre-Buddhist site.

How many of the above are indicators used for the QS World Future Skills Index?

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

Q4. Consider the following statements regarding Human metapneumovirus (HMPV):

1. It is a DNA virus with high potential for mutations.
2. It was first identified in China after the outbreak of Sars-CoV-2 that caused COVID-19 pandemic.

Which of the statements above is/are correct?

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

Q5. Consider the following with reference to 'The Indus Water Treaty (IWT)':

1. The Indus Water Treaty was signed between India and Pakistan in 1960 with the World Bank as a mediator.
2. Under the treaty, India is allowed to build hydroelectric plants on the eastern rivers, subject to certain conditions regarding water flow.
3. The allocation of water under the treaty is based on the "usage rights" of the rivers, with no consideration for future population growth in the respective countries.
4. The treaty established the Indus Commission, which meets every three years to discuss issues related to the river system.

How many of the above is/are correct?

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

Q6. Which of the following programs was launched specifically to deal with Left-Wing Extremism (LWE) in India?

- (a) The Pradhan Mantri Gramin Sadak Yojana
(b) SAMADHAN Doctrine

(c) Ayushman Bharat

(d) National Skill Development Mission

Q7. Consider the following statements regarding Citizenship in India:

1. A person can acquire Indian citizenship by birth, descent, registration, or naturalization.
2. The Indian Constitution outlines the provisions for acquiring and losing Indian citizenship.
3. The Indian Constitution permits dual citizenship.

How many of the above statements are correct?

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

Q8. Consider the following statements regarding Grey Market:

1. The Grey Market refers to the unofficial market where financial instruments, such as IPO shares, are traded before their official listing on the stock exchange.
2. Transactions in the Grey Market are not regulated by the Securities and Exchange Board of India (SEBI).

Which of the statements above is/ are correct?

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

Q9. Consider the following countries

1. India 2. USA
3. Russia 4. China

How many of the above are part of Indo-Pacific Economic Framework?

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

Q10. Consider the following statements regarding Ramsar Sites:

1. Ramsar Sites are wetlands designated under the Ramsar Convention, an international treaty aimed at the conservation and sustainable use of wetlands.
2. India has the largest number of Ramsar Sites in the World.
3. Both Centre and State governments can designate and declare a wetland as Ramsar Site in India.

How many of the above statements are correct?

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

Q11. Consider the following with reference to the taxes that are covered under the Double Taxation Avoidance Agreement (DTAA):

1. Estate Tax 2. Property Tax
3. Value Added Tax

Select the answer using the code given below:

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

Q12. Under the Kyoto Protocol, which mechanism allows developed countries to invest in emission reduction projects in developing countries?

- (a) Carbon tax
(b) Emissions Trading Scheme
(c) Clean Development Mechanism (CDM)
(d) Green New Deal

Q13. Which of the following statements is/are not correct in respect of Aadhaar-Based Payment System (ABPS):

1. The primary objective of the Aadhaar-Based Payment System (ABPS) is to enable card-based payments.
2. Unique Identification Authority of India (UIDAI) manages the Aadhaar-Based Payment System (ABPS).
3. ABPS primarily rely on PIN-based authentication for authentication.

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

Q14. Who among the following was the key figure in helping Subhas Chandra Bose establish the Azad Hind Fauj (Indian National Army) in Southeast Asia?

- (a) V.K. Krishna Menon (b) Lala Lajpat Rai
(c) Rash Behari Bose (d) Jawaharlal Nehru

Q15. Consider the following statements regarding Navigation with Indian Constellation (NavIC)

1. It is the operational name of Indian Regional Navigation Satellite System (IRNSS).

2. NavIC is designed with a constellation of Seven satellites.
3. Out of the seven satellites, three satellites are in geostationary orbit and four are in geosynchronous orbit.

How many of the above statements are correct?

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

Q16. Consider the following statements regarding Air-Independent Propulsion (AIP) system:

1. The AIP system, also known as Bio-Ethanol Stealth Technology (BEST), uses bio-ethanol to generate oxygen and sustain crew life underwater.
2. Submarines equipped with AIP systems can remain underwater for up to 21 days and are even quieter than nuclear submarines.

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

Q17. The primary difference between a ballistic missile and a cruise missile is...

- (a) A ballistic missile flies continuously in a straight line while a cruise missile follows a curved path.
- (b) A ballistic missile is powered by jet engines, while a cruise missile is powered by rockets.
- (c) A ballistic missile follows a parabolic trajectory, while a cruise missile is guided throughout its flight.
- (d) A ballistic missile is launched from the sea, while a cruise missile is launched from the land.

Q18. Consider the following statements:

1. The Delhi Assembly has the power to legislate on all subjects in the State List and Concurrent List.
2. The total number of constituencies in Delhi was fixed at 70 after the Government of National Capital Territory of Delhi Act, 1991.

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

Q19. Consider the following statements regarding Attention-Deficit/Hyperactivity Disorder (ADHD):

1. ADHD is characterized by persistent patterns of inattention, hyperactivity, and impulsivity that can impact daily functioning and development.
2. It is a childhood disorder that affects children only and resolves on its own by adulthood.

Which of the statements above is/are correct?

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

Q20. The Artificial Intelligence Action Summit will be hosted by ...

- (a) India (b) USA
(c) China (d) France

Q21. Which of the following statements are correct in respect of the International Criminal Court (ICC)?

1. It is a permanent international court established to prosecute individuals for genocide, war crimes, crimes against humanity, and aggression.
2. It functions as a judicial organ of the United Nations.
3. It has jurisdiction only over crimes committed within the territory of its member states or by their nationals.

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

Q22. Consider the following with reference to the following countries who were the first to express support for the Indo-Pacific Economic Framework (IPEF):

1. Japan 2. India
3. China 4. Indonesia

How many of the above is/are correct?

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

Q23. Consider the following statements regarding Micro, Small and Medium Enterprises (MSME):

1. All the manufacturing enterprises having annual turnover greater than 5 crores and service enterprises having annual turnover greater than 1 crore are classified as small enterprises.

2. Baba Kalyani Committee was constituted to suggest the new criteria for the classification of MSMEs.

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

Q24. Consider the following statements regarding whips in India's parliamentary system:

1. India adopted the concept of whip from the American Congress.
2. Once whip is issued a member cannot remain absent or else member can be disqualified.

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

Q25. What was the central issue in the case of N Bhagwati Medical Hall vs Central Drugs Standard Control Organization & Ors.?

- (a) The Manufacturing of counterfeit drugs
- (b) Licensing for the sale of drugs
- (c) Violation of labeling and packaging standards under the Drugs and Cosmetics Act
- (d) Import of drugs without proper clearance

Q26. Consider the following with reference to key component of the National Green Hydrogen Mission:

1. Strategic Interventions for Green Hydrogen Transition (SIGHT)
2. National Solar Mission
3. Clean Energy Fund
4. Green Energy Corridor

How many of the above is/are correct?

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

Q27. Consider the following statements regarding Microplastics:

1. Microplastics can leach harmful chemicals, such as BPA and phthalates, into the environment.
2. When ingested by humans, microplastics can release harmful toxins that disrupt endocrine functions.

3. Microplastics can act as vectors for other pollutants, like heavy metals and persistent organic pollutants (POPs).

Which of the statements above is/are correct?

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

Q28. Lezim is a folk dance primarily associated with which state in India?

- (a) Gujarat (b) Maharashtra
(c) Assam (d) Sikkim

Q29. Consider the following statements regarding National Achievement Survey (NAS):

1. It is a national level large-scale assessment conducted to obtain information about the learning achievement of students.
2. It is conducted for students of classes 10th and 12th.
3. Students and Schools are rated and scored on five indicators.

How many of the above statements are correct?

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

Q30. Guillain-Barré Syndrome (GBS) is primarily characterized by...

- (a) Blockage of the arteries
- (b) Uncontrolled cell growth
- (c) Progressive muscle weakness
- (d) High blood sugar level

Q 31. The Coalition for Disaster Resilient Infrastructure (CDRI) was launched by which country?

- (a) United States (b) Japan
(c) India (d) Australia

Q32. Consider the following with reference to international groups India and China are members of:

1. Association of Southeast Asian Nations (ASEAN)
2. Kyoto Protocol
3. United Nations Economic and Social Council (ECOSOC)
4. Asia-Pacific Economic Cooperation (APEC)

How many of the above is/are correct?

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

Q33. Consider the following statements regarding Critical Minerals:

1. Critical minerals are elements essential for modern technologies and industries, including renewable energy and electronics.
2. There is no universally agreed-upon list of critical minerals, the list varies across countries and organizations.
3. The supply of critical minerals is highly concentrated in a few countries, leading to potential geopolitical risks.

How many of the above statements is/are correct?

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

Q34. Consider the following statements regarding Guillain-Barré Syndrome (GBS):

1. GBS is an autoimmune condition where the body's immune system attacks the peripheral nerves.
2. It is a highly contagious neurological disorder and spreads through respiratory droplets like a flu.

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 35. Which of the following statements is/are not correct in respect of Beating Retreat ceremony:

1. The Beating Retreat tradition originated from the French soldiers.
2. The Defence Minister is the chief guest of the Beating Retreat ceremony.
3. Ministry of Defence organizes the Beating Retreat ceremony in 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

Q36. Consider the following with reference to 'The POSHAN Abhiyan (Pradhan Mantri Poshan Shakti Nirman):

1. The POSHAN Abhiyan (Pradhan Mantri Poshan Shakti Nirman) is primarily aimed at addressing nutritional outcomes for children, pregnant women, and lactating mothers.
2. World Food Programme initiatives is a part of the POSHAN Abhiyan's strategy.
3. National Nutrition Monitoring Bureau helps in monitoring the implementation of POSHAN Abhiyan.

How many of the above is/are correct?

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

Q37. Consider the following:

1. Plastic and Paper manufacturing
2. Cleansing agent
3. Animal feed production
4. Food Additive

Which of the above are the applications of Ammonia?

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

Q38. Consider the following statements regarding Contempt of Court in India:

1. Contempt of Court in India is governed by the Contempt of Courts Act, 1971.
2. Civil contempt refers to wilful disobedience of a court order, while criminal contempt involves actions that scandalize or interfere with judicial proceedings.
3. The Supreme Court and High Courts have the power to punish for contempt under the Contempt of Courts Act, 1971.

How many of the above statements is/are correct?

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

Q39. Consider the following with reference to primary function of the National Company Law Tribunal (NCLT):

1. Resolving disputes between corporate entities
2. Providing legal aid to corporate employees

3. Overseeing corporate taxation
4. Addressing industrial disputes

How many of the above is/are correct?

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

Q40. Consider the following statements:

1. Rishikesh, Nashik, Prayagraj, Varanasi host the Kumbh Mela in India.
2. River Narmada is not associated with Mahakumbh Mela.

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

Q41. According to the constitution, the President address both the houses of Parliament ...

1. Before the declaration of General Election (Lok Sabha) by the Election Commission.
2. At the beginning of the first Session after each general election when the reconstituted Lok Sabha meets for the first time.
3. At beginning of the first session of each year.
4. At the beginning of each parliamentary session.

Which of the statements above is/are correct?

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

Q42. The drug Suzetrigine, recently approved by the US FDA is used for ...

- (a) Treatment of hypertension
- (b) Antiviral therapy for influenza
- (c) Management of chronic pain conditions
- (d) Treatment of bacterial infections

Q43. Consider the following with reference to the factors that can contribute to an increase in the fiscal deficit:

1. Rise in government spending
2. Decrease in tax revenues
3. Increase in public sector disinvestment
4. Higher interest payments on previous borrowings

Select the correct answer using the codes below:

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

Q44. Which of the following statements are correct in respect of economic reforms highlighted in the Economic Survey 2024-25:

1. The survey proposed the introduction of a single-window clearance system for businesses.
2. It suggested a further simplification of the GST structure.
3. It recommended a gradual reduction in corporate tax rates.

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

Q45. Which of the following statements are correct in respect of the conflict in Democratic Republic of Congo:

1. President Paul Kagame, a former guerrilla leader, has modernised Rwanda's economy and built a disciplined military.
2. Rwanda has no involvement in the current conflict in the Congo and has maintained a neutral stance.
3. Goma is described as a mineral-rich city in the eastern Democratic Republic of the Congo.

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

Q46. Consider the following statements:

1. The NVS-02 satellite is a part of India's NavIC navigation system.
2. NVS-02 is equipped with an indigenous Rubidium Atomic Clock for precise timekeeping.

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

Q47. Recently, which country has introduced the Department of Government Efficiency (DOGE) to maximize governmental efficiency and productivity?

- (a) United Kingdom (b) South Korea
(c) Japan (d) United States of America

Q48. Consider the following statements regarding Very Short-Range Air Defence System (VSHORADS):

1. VSHORADS is a 5th generation, long-range, vehicle-launched air defence system designed to intercept ballistic missiles.
2. The development trials of VSHORADS included tests against high-speed targets flying at very low altitude.

Which of the statements above is/are correct?

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

Q49. The landmark case of A.K. Gopalan vs the State of Madras (1950) dealt with...

- (a) The constitutional validity of preventive detention laws under Article 22.
- (b) The violation of fundamental rights under Article 19.
- (c) The interpretation of the term procedure established by law under Article 21.
- (d) All of the above

Q50. Which of the following statements regarding parliamentary privileges in India is correct?

- (a) A privilege motion can only be moved by the Speaker of the Lok Sabha or the Chairman of the Rajya Sabha.
- (b) The Speaker/Chairman has the final authority to decide whether a matter constitutes a breach of privilege and whether a privilege motion can be admitted.
- (c) The Privileges Committee is headed by the Prime Minister.
- (d) Breach of privilege is a criminal offense under the Indian Penal Code (IPC).

Q51. Which of the following statements are not correct in respect of the Dollar Index:

1. A rising Dollar Index indicates a stronger US dollar against other currencies.
2. The index is directly controlled by the US Federal Reserve.
3. The Chinese Yuan (CNY) is included in the index.

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

Q52. Consider the following with reference to the principles of World Trade Organisation:

1. Protectionism
2. Free trade without restrictions
3. Non-discriminatory treatment
4. Setting trade quotas

How many of the above is/are correct?

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

Q53. Which of the following statements are correct in respect of the state elections in India:

1. Members of the state legislative assembly are elected through the first-past-the-post system.
2. The Model Code of Conduct applies only after the nomination process is completed.
3. State elections are conducted based on the constituencies demarcated by the Delimitation Commission.

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

Q54. Consider the following with reference to the Delhi Legislature:

1. Delhi has a bicameral legislature.
2. The Government of National Capital Territory of Delhi (GNCTD) Act, 1991 defines its governance structure.
3. The Lieutenant Governor (LG) of Delhi has no veto power over decisions made by the Delhi Legislative Assembly.

How many of the above is/are correct?

- (a) Only 1 (b) Only 2
(c) All 3 (d) None

Q55. Consider the following statements:

1. The Appropriation Bill gives legal sanction to the Budget of India.
2. The Revenue Budget includes both current receipts and capital receipts.

Which of the statements given above is/are correct?

- (a) 1 Only (b) 2 Only
(c) Both 1 & 2 (d) None of the above

Q56. Which of the following tools is not used by the RBI for monetary policy?

(a) Repo Rate
 (b) Cash Reserve Ratio (CRR)
 (c) Minimum Support Price (MSP)
 (d) Open Market Operations (OMO)

Q57. What is the primary principle behind the functioning of an atomic clock?

(a) It measures time based on the vibrations of a quartz crystal.
 (b) It uses the decay rate of radioactive isotopes to keep time.
 (c) It relies on the precise frequency of electromagnetic radiation emitted or absorbed by atoms.
 (d) It calculates time based on the Earth's rotation around the Sun.

Q58. Consider the following statements regarding Paris Climate Agreement, 2015:

1. It aims to limit global warming to well below 2°C above pre-industrial levels, with efforts to limit the increase to 1.5°C.
2. It mandates legally binding emission reduction targets for all parties.
3. Developed countries are expected to provide financial support to developing nations to combat climate change.

How many of the above statements are correct?

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

Q59. Which of the following statements are not correct in respect of Voting in Elections:

1. Article 326 of the Indian Constitution grants the right to vote to citizens in elections to the Lok Sabha and State Legislative Assemblies.
2. As per the constitution, the minimum age required for a citizen to vote in India is 18 years.
3. Prisoners serving a sentence are eligible to vote in Indian elections.

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

Q60. Which of the following countries has signed peace agreements with Israel, but does not share a border with the Gaza Strip?

(a) United Arab Emirates (b) Lebanon
 (c) Qatar (d) Egypt

Q61. Which of the following city is known as the International Legal Capital of the World?

(a) Geneva (b) New York
 (c) Hague (d) Lisbon

Q62. Consider the following statements regarding Samudrayaan Mission:

1. It aims to send an un-manned submersible vehicle up to a depth of 6,000 m in the deep ocean, to explore the seabed.
2. It will potentially unlock vast resources, including critical minerals, rare metals and, undiscovered marine biodiversity.

Which of the statements above is/are correct?

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

Q63. Which of the following statements are correct in respect of WHO's (World Health Organisation) main objective:

1. Improving global health and well-being
2. Declaring Pandemics and global health emergencies
3. Making climate change targets

Select the answer using the code given below:

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

Q64. Which of the following is a common method to reduce sulphur dioxide (SO₂) emissions in industries?

(a) Carbon capture and storage
 (b) Flue-gas desulfurization (FGD)
 (c) Use of biofuels
 (d) Installation of wind turbines

Q65. Which of the following best describes Akademik Lomonosov frequently seen in news?

(a) Nuclear-powered icebreaker in the Arctic
 (b) Deep-sea research and military submarine

- (c) World's first floating nuclear power plant
- (d) Russia's indigenous space station

Q66. Consider the following statements regarding Monetary Policy in India:

1. The monetary policy in India is steered by five-member Monetary Policy Committee (MPC).
2. The MPC has members from the Reserve Bank of India and nominated members by the Government of India.
3. Under the flexible inflation targeting regime, the headline inflation (CPI) is to be maintained between 2%-6%.

Which of the statements above is/are correct?

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

Q67. The Darién Gap recently seen in news is located at the border of ...

- (a) Russia and Ukraine (b) Israel and Egypt
- (c) USA and Mexico (d) Colombia and Panama

Q68. Which of the following statements are correct in respect of factors that contribute to demand-pull inflation:

1. Increase in consumer spending
2. Expansionary monetary policy
3. Higher production costs

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

Q69. Consider the following statements regarding President's Rule under Article 356:

1. It is imposed when the President is satisfied that the governance of a state cannot be carried out in accordance with the provisions of the Constitution.
2. Once imposed, President's Rule can be extended indefinitely with the approval of Parliament every six months.
3. During President's Rule, the Governor of the state acts as the representative of the President and exercises executive authority.

How many of the above statements are correct?

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

Q70. The proposed Morand-Ganjal Irrigation Project will be located in ...

- (a) Chhattisgarh (b) Jharkhand
- (c) Odisha (d) Madhya Pradesh

Q71. Which of the following statements are correct in respect of the AI Action Summit:

1. France and Germany are co-chairing the AI Action Summit.
2. Creating an AI governance model for responsible AI deployment is a major long-term vision of the AI Action Summit.
3. Respecting intellectual property rights, particularly copyrighted content, and the compensation of content creation will be a key focus of the summit.

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

Q72. Consider the following with reference to the high courts in India:

1. A High Court judge cannot be removed under any circumstances before retirement.
2. The original jurisdiction of a High Court includes disputes between two states.
3. Under Article 222 of the constitution, President can transfer a High Court Judge.

How many of the above is/are correct?

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

Q73. Consider the following with reference to the powers of a Prime Minister as per the Indian Constitution:

1. The Prime Minister is part of Lok Sabha.
2. The Prime Minister can recommend the dissolution of Lok Sabha under article 85 of the Indian Constitution.
3. As per Article 78, the PM communicates all government decisions to the Governor of the state.

How many of the above is/are correct?

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

Q74. Consider the following pairs:

	Wars	Related Treaties/conferences
1.	World War 1	Treaty of Tordesillas
2.	World War 1	Treaty of Brest-Litovsk
3.	World War 2	Treaty of Versailles
4.	World War 2	The Yalta Conference

How many of the above pairs is/are correctly matched?

(a) Only two (b) Only three
(c) All four (d) None

Q75. Consider the following statements regarding death penalty in India:

1. The imposition of the death penalty in India does not violate the right to life under Article 21 of the Constitution, provided it is executed following the "procedure established by law.
2. The judiciary employs the rarest of rare doctrine which was established by the Supreme Court in the Bachan Singh vs State of Punjab case, 1980.

Which of the statements above is/are correct?

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

Q76. Consider the following statements:

1. Zero Hour refers to a time before the commencement of day-to-day activity of the house.
2. In Zero hour, members raise matters of urgent public importance without prior notice.
3. Question Hour is the first hour of a parliamentary sitting, during which members ask questions to ministers and hold the government accountable.

How many of the above statements are correct?

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

Q77. Consider the following statements regarding Gross Fixed Capital Formation (GFCF):

1. GFCF is the indicator for capital investments in the GDP dataset for the economy.
2. All expenditures on Intellectual Property Products (IPP) are recorded under Gross Fixed Capital Formation (GFCF).

Which of the statements above is/are correct?

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

Q78. Consider the following statements:

1. Selling dollars from its foreign exchange reserves.
2. Buying rupees in the foreign exchange market.
3. Increasing interest rates to attract foreign capital.

Which of the above are the measures Reserve Bank of India (RBI) can take to strengthen the value of Rupee in the international market?

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

Q79. Consider the following with reference to the countries sharing land borders with France:

1. Switzerland 2. Luxemburg
3. Austria 4. Spain
5. Turkey 6. Italy

How many of the above is/are correct?

(a) Only three (b) Only four
(c) Only five (d) All six

Q80. Internationally Transferred Mitigation Outcomes (ITMOs) are a mechanism under which international climate agreement?

(a) The Kyoto Protocol (b) Paris Agreement
(c) Montreal Protocol (d) Rio Declaration

Q81. What phenomenon is primarily responsible for the formation of an Einstein Ring in astronomical observations?

(a) A supernova explosion
(b) Collision of two black holes
(c) Gravitational lensing of light by a massive object
(d) Diffraction of light by interstellar dust

Q82. Which of the following published the India Gas Market Report: Outlook to 2030?

(a) International Renewable Energy Agency (IRENA)
(b) International Energy Agency (IEA)
(c) Ministry of Power
(d) Ministry of Petroleum and Natural Gas

Q83. Which of the following statements are incorrect in respect of Nuclear Power Corporation of India Limited (NPCIL):

1. Ministry of New and Renewable Energy controls NPCIL.
2. The primary function of NPCIL is to manufacture nuclear weapons.
3. Narora Atomic Power Station nuclear power plants is not operated by NPCIL

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

Q84. Consider the following with reference to the employment categories covered separately in Periodic Labour Force Survey (PLFS):

1. Self-employed
2. Regular wage/salaried employees
3. Casual labourers

How many of the above is/are correct?

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

Q85. Which of the following statements are not correct in respect of the Presidents Rule:

1. Under Article 360 of the Indian Constitution, the President impose President's Rule in a state.
2. The maximum duration for which President's Rule can be imposed in a state without Parliamentary approval is 6 months.
3. Failure of the constitutional machinery in the state is a valid reason for imposing President's Rule in a 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

Q86. Which of the following statements about the removal of a High Court judge is incorrect?

- (a) The process requires a special majority in both Houses of Parliament.
- (b) The judge can challenge the removal in the Supreme Court.
- (c) The motion for removal can be introduced in either House of Parliament.

(d) The President is bound to remove the judge after Parliament's approval.

Q87. Consider the following:

1. Detection of People in crowded locations
2. Measurements of the parcels and packages
3. Flight assistance for helicopters
4. Body measurements in healthcare

Which of the above are the potential daily life applications of ISRO's 3D LiDAR camera?

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

Q88. The main constituent of Liquefied Natural Gas (LNG) is ...

- (a) Ethane (b) Methane
(c) Butane (d) Propane

Q89. Consider the following statements regarding International Atomic Energy Agency (IAEA):

1. The IAEA is an independent international organization that reports to both the UN General Assembly and the UN Security Council.
2. The IAEA's primary role is to promote the peaceful use of nuclear energy and to prevent its use for military purposes.

Which of the statements above is/are correct?

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

Q90. Chernobyl Nuclear Power Plant, the site of world's biggest and most famous nuclear accident is located in ...

- (a) Russia (b) Kazakhstan
(c) Belarus (d) Ukraine

Q91. Consider the following with reference to events that can trigger a Glacial Lake Outburst Flood (GLOF):

1. Earthquake 2. Heavy Rainfall
3. Landslides 4. Volcanic Eruptions

How many of the above is/are correct?

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

Q92. Which of the following statements are correct in respect of the Reserve Bank of India:

1. It was established in 1935 under the Reserve Bank of India Act, 1934.
2. It is responsible for issuing all denominations of Indian currency, including ₹1 notes.
3. It regulates monetary policy in India through tools like the repo rate and CRR.

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

Q93. Common rosefinch, Eurasian wigeon and Black rumped flameback, recently seen in news are ...

- (a) Birds (b) Seasonal Flowers
(c) Reptiles (d) Herbs

Q94. Which of the following country is the largest exporter of Soyabean Oil to India?

- (a) Russia (b) Nepal
(c) Brazil (d) Argentina

Q95. Consider the following with reference to states/ Union Territories (UT) that do not share border with Yamuna river and its tributaries i.e. the Yamuna Basin:

1. Chandigarh 2. Madhya Pradesh
3. Gujarat 4. Rajasthan
5. Bihar

How many of the above is/are correct?

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

Q96. The Siliguri Corridor is also known as..

- (a) The Bengal Gap (b) The Himalayan Pass
(c) The Chicken's Neck (d) The Northeast Passage

Q97. Which of the following statements are not correct in respect of the Chief Minister of Delhi:

1. The Chief Minister of Delhi is responsible for all subjects under the State List.
2. 42th constitutional amendment granted Delhi the status of a Union Territory with a Legislative Assembly and a Council of Ministers.

3. Chief Minister of Delhi has the power to dissolve the Delhi Legislative Assembly before the completion of its tenure.

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

Q98. Consider the following with reference to the committee members who select the Chief Election Commissioners:

1. Prime minister 2. Leader of Opposition
3. Chief justice of India 4. Home Minister

How many of the above is/are correct?

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

Q99. Consider the following statements regarding Cancer...

1. Cancer is a single disease with a single cause and cure.
2. It typically results from a single mutation in a cell's DNA.
3. Tobacco smoke contains chemicals like benzene and polycyclic aromatic hydrocarbons, which can cause DNA mutations leading to cancer development.

How many of the above statements are correct?

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

Q100. Consider the following statements regarding Deposit Insurance and Credit Guarantee Corporation (DICGC):

1. DICGC provides deposit insurance cover for depositors in member banks up to a maximum limit of Rs. 5 lakh per depositor per bank.
2. DICGC is a wholly-owned subsidiary of the Reserve Bank of India (RBI).

Which of the statements above is/are INCORRECT?

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

Q101. Which of the following statements are correct in respect of U-DISE+ system:

1. The primary purpose of U-DISE+ is to collect and analyze school data across India.

2. University Grants Commission (UGC) oversees the implementation of U-DISE+.
3. Teacher Training Portal is key component of the U-DISE +System.

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

Q102. What is the procedure for removing an Election Commissioner (other than the Chief Election Commissioner)?

- (a) By the President based on a Supreme Court recommendation.
- (b) By the President on the advice of the Council of Ministers.
- (c) By the President on the recommendation of the Chief Election Commissioner.
- (d) Through impeachment by Parliament.

Q103. Consider the following statements regarding the provisions of The Chief Election Commissioner and Other Election Commissioners (Appointment, Conditions of Service And Term of Office) Act, 2023:

1. Chief Election Commissioner shall not be eligible for reappointment.
2. Election Commissioners are eligible for reappointments and can be appointed as Chief Election Commissioner after a term of 6 years.

Which of the statements above is/are correct?

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

Q104. Consider the following:

1. Deposits by Government 2. Inter-bank deposits
3. Fixed Deposits 4. Current Deposits

How many of the above deposits are insured by Deposit Insurance and Credit Guarantee Corporation (DICGC)?

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

Q105. Which of the following statements are not correct in respect of Deputy Chief Minister:

1. Deputy Chief Minister is appointed by the President under the article 239AA of the Indian Constitution.

2. There is no constitutional limit on the number of Deputy Chief Ministers a state can have.
3. The position of Deputy CM automatically grant authority to act as the Chief Minister in their absence.

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

Q106. Which of the following country is not a member of the Gulf Cooperation Council (GCC)?

- (a) Saudi Arabia (b) Oman
 (c) United Arab Emirates (d) Iran

Q107. Consider the following statements regarding Alzheimer’s disease:

1. It is a progressive brain disorder characterised by buildup of amyloid beta plaques.
2. It is the most common cause of dementia in the world.

Which of the statements above is/are correct?

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

Q108. Consider the following statements regarding Sea Ice:

1. Sea ice refers to the free-floating ice in the polar regions.
2. Sea ice plays a crucial role in cooling the planet by trapping existing heat in the ocean.

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 KEY

Q1.	c	Q2.	b	Q3.	c	Q4.	d	Q5.	b
Q6.	b	Q7.	a	Q8.	c	Q9.	b	Q10.	a
Q11.	d	Q12.	c	Q13.	d	Q14.	c	Q15.	c
Q16.	c	Q17.	c	Q18.	b	Q19.	a	Q20.	d
Q21.	c	Q22.	b	Q23.	d	Q24.	d	Q25.	b
Q26.	a	Q27.	d	Q28.	b	Q29.	a	Q30.	c

Q31.	c	Q32.	b	Q33.	c	Q34.	a	Q35.	a
Q36.	b	Q37.	d	Q38.	b	Q39.	a	Q40.	b
Q41.	b	Q42.	c	Q43.	c	Q44.	a	Q45.	c
Q46.	c	Q47.	d	Q48.	b	Q49.	d	Q50.	b
Q51.	b	Q52.	a	Q53.	c	Q54.	a	Q55.	
Q56.	c	Q57.	c	Q58.	b	Q59.	b	Q60.	a
Q61.	c	Q62.	b	Q63.	b	Q64.	b	Q65.	c
Q66.	b	Q67.	d	Q68.	a	Q69.	b	Q70.	d
Q71.	b	Q72.	a	Q73.	a	Q74.	a	Q75.	c
Q76.	d	Q77.	c	Q78.	d	Q79.	b	Q80.	b
Q81.	c	Q82.	b	Q83.	d	Q84.	c	Q85.	a
Q86.	b	Q87.	d	Q88.	b	Q89.	c	Q90.	d
Q91.	d	Q92.	c	Q93.	a	Q94.	d	Q95.	a
Q96.	c	Q97.	d	Q98.	c	Q99.	a	Q100.	d
Q101.	c	Q102.	c	Q103.	a	Q104.	b	Q105.	c
Q106.	d	Q107.	c	Q108.	c				



DAILY MAINS ANSWER WRITING PRACTICE

Q1. Discuss the challenges faced by the semiconductor industry in India. Comment on the role of international collaboration in the development of the semiconductor industry in India. (GS 3, 15 Marks, 250 Words)

- Q2. Considering their impact on irrigation, flood control, water supply, environmental sustainability, and other socio-economic aspects, discuss the potential benefits and challenges of the river interlinking projects in India. (GS1 and 3; 15 Marks; 250 Words)
- Q3. United Nations General Assembly (UNGA) requested the International Court of Justice (ICJ) to issue an advisory opinion on states' obligations in respect of climate change. How can the ICJ's advisory opinion balance the need for accountability for vulnerable nations with the concerns of powerful nations, while encouraging global action on climate change? (GS 3; 15 Marks; 250 Words)
- Q4. India recently held its first high-level bilateral engagement with the Taliban regime. Discuss the key factors that have driven India to engage with the Taliban at this high level. (GS 2; 10 Marks; 150 Words)
- Q5. What is the SVAMITVA scheme to issue property cards in villages? Discuss the implementation and benefits of the scheme. (GS 3; 15 Marks; 250 Words)
- Q6. What is constitutional morality? How it is inherent in the Indian Constitution and what is the Supreme Court's viewpoint on it? Explain with relevant judicial decisions. (GS 2; 15 Marks; 250 Words)
- Q7. Sitting on the centre of strategically significant Malacca strait, Indonesia's importance in the Indo-Pacific power play cannot be ignored. How a better India-Indonesia relation will benefit India? (10 marks, 150 words)
- Q8. How can India leverage its historical and civilizational ties with Indonesia to strengthen bilateral relations and counter China's growing influence in Southeast Asia? (GS 2; 15 Marks; 250 Words)
- Q9. What is the significance of space agriculture? Discuss the challenges and limitations associated with growing plants in space. (GS 3; 10 Marks; 150 Words)
- Q10. The rise of Chinese AI startup DeepSeek seems to have ignited the global AI race. What lessons can India derive from the DeepSeek breakthrough? Discuss how different countries around the world are regulating Artificial intelligence. (GS 3; 15 Marks; 250 Words)
- Q11. The recent stampede during the ongoing Kumbh gathering highlights the need for effective crowd management in India. Discuss the factors leading to stampedes and ways for effective crowd management during mass gatherings. (GS 1 and 3; 15 Marks; 250 Words)
- Q12. Discuss GDP as a key measure of economic growth. What are the advantages and disadvantages of using market values for GDP calculation? (GS 3; 15 Marks; 250 Words)

- Q13. Critically analyse whether the feminisation of agriculture signifies true empowerment for women or reinforces existing gender disparities in land rights and agricultural decision-making. (GS 3; 15 Marks; 250 Words)
- Q14. Discuss the ways to integrate skill development and vocational training in India's education system in order to address domestic employment challenges and global competitiveness. (GS 3, 10 Marks, 150 Words)
- Q15. The periodic general elections and state elections in India are the highlight of a working democracy in the country. Discuss the various electoral reforms in India since independence to strengthen the democratic process. (GS 2; 10 Marks; 150 Words)
- Q16. Zero-poverty is indispensable for Viksit Bharat. Discuss the status of multi-dimensional poverty in India. What are the determinants of rural poverty in India? Comment on the urbanisation of poverty in India. (GS 3; 15 Marks; 250 Words)
- Q17. Describe the Indus Waters Treaty (IWT). Why does India seek to renegotiate the Indus Waters Treaty? (GS 1 & 2; 15 Marks; 250 Words)
- Q18. The roots of contemporary and current geopolitical turmoil and conflicts in the Levant region can be traced to the colonial legacies in the region. Comment. (GS 1; 15 Marks; 250 Words)
- Q19. How colonial legacies and the exploitation of natural resources have perpetuated conflict and governance challenges in the Great Lakes Region of Africa? (GS 2; 15 Marks; 250 Words)
- Q20. India is aiming to become a global export hub for increased growth and employment. How does the Union Budget 2025-26 align with India's goal of becoming a global export hub? (GS 3; 10 Marks; 150 Words)
- Q21. The AI Action Summit highlighted the need for Sustainable Artificial Intelligence (AI). Critically examine the environmental concerns associated with the adoption of Artificial Intelligence (AI) in present and in future. (GS 3, 15 Marks, 250 Words)
- Q22. With India increasing its diplomatic reach in France, discuss how the historical events such as French Revolution and Indian independence movement influenced the political and cultural connections between the two countries. (GS 1 & 2, 15 Marks, 250 Words)

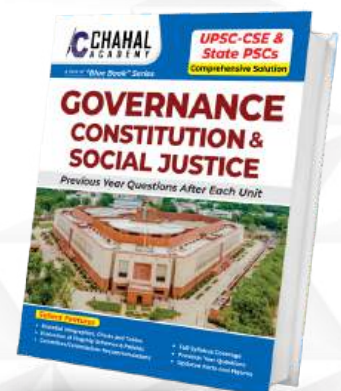
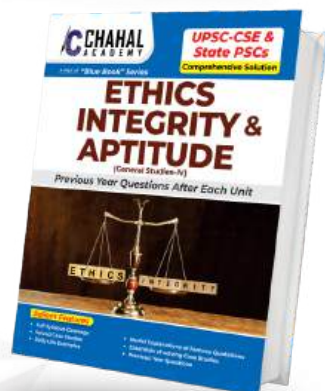
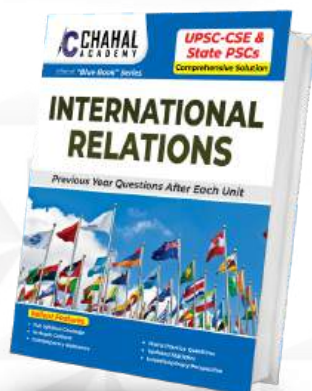
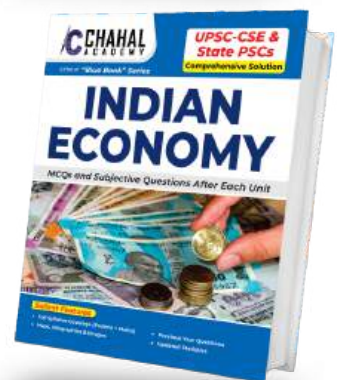
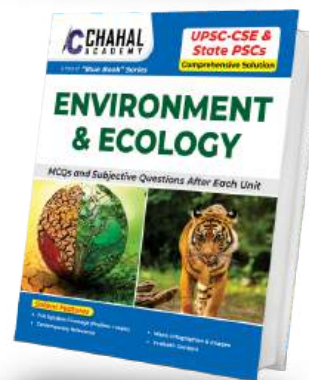
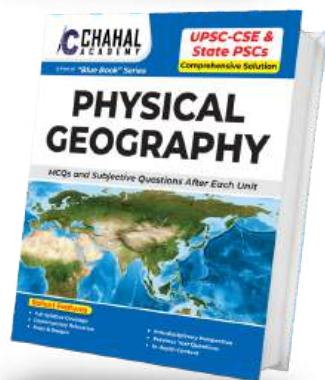
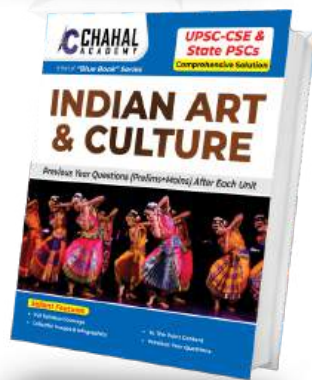
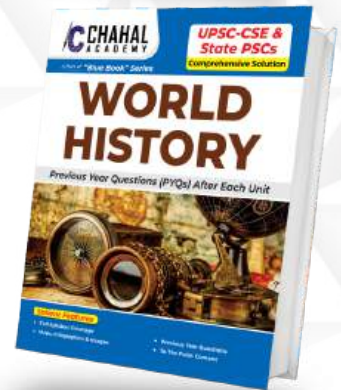
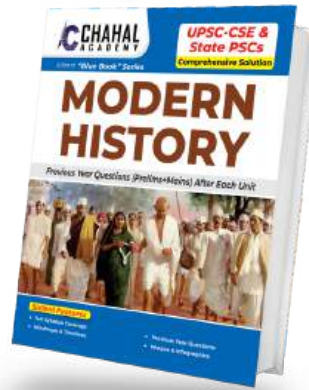
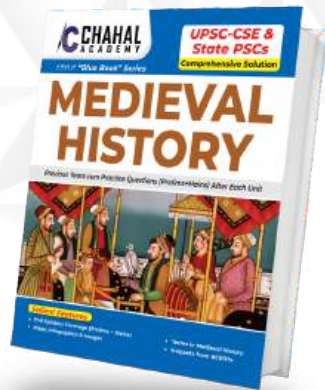
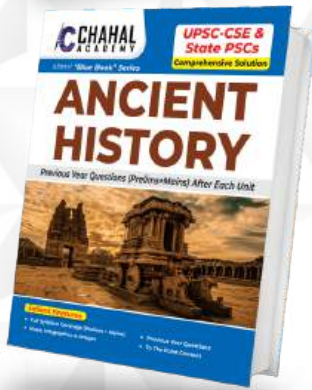
- Q23. India needs an orderly transition from coal/fossil fuels to renewables to ensure energy security and economic stability. Comment. (GS 3, 15 Marks, 250 words)
- Q24. How does the Union Budget 2025-26 seeks to make MSMEs a significant engine of growth and development in the Indian economy? (GS 3; 10 Marks; 150 Words)
- Q25. With the government and opposition mulling over the appointment of next Chief Election Commissioner, discuss the constitutional provisions and composition of the Election Commission of India. What are its jurisdictions and functions? (GS 2, 15 Marks, 250 Words)
- Q26. The second CAR-T cell therapy, Qartemi, has been approved by India's drug regulator. What is CAR-T cell therapy? Describe the procedure and advantages of the CAR-T cell therapy in cancer treatment. (GS 3, 15 Marks, 250 Words)
- Q27. Discuss the working of tariffs. How do countries retaliate against tariffs, and what are the potential consequences of such retaliatory measures? (GS 2; 15 Marks; 250 Words)



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