

**April
2024**

CURRENT AFFAIRS

MONTHLY MAGAZINE

*For Integrated Preparation of
CSE Prelims + Mains + Interview*

**GROWING SPACE
ECONOMY**

**50th YEAR OF
CHIPKO MOVEMENT**

SAGAR KAVACH

**PRESIDENT'S
VETO POWER ON
STATE BILLS**

**UNDP
HUMAN
DEVELOPMENT REPORT
2023-24**

**AUKUS
ALLIANCE**

INCLUDES

**Practice
Questions
(Prelims* &
Mains) After
each Topic**

**MCQs on Prelims 2023 Pattern*

**YOJANA
(April 2024)
Theme: Soil
Ecosystem**

- President's Veto Power on State Bills
- EVM-VVPAT Case
- National Civil Service Day
- Soil Erosion Threatens Western Ghats
- Green Credit Program
- Electric Vehicle (EV) Battery Recycling Startups
- UNDP's Human Development Report 2023-24
- Rashtriya Arogya Nidhi (RAN) Scheme

- Asia Development Outlook Report 2024
- 50th Years of Chipko Movement
- Growing Space Economy
- The Prevention of Money Laundering Act (PMLA)
- Sodium Batteries
- India Gains Sittwe Port Access
- AUKUS Alliance
- Sagar Kavach

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POLITY AND GOVERNANCE

PRESIDENT'S VETO ON STATE BILLS

Why in News: The Kerala government's decision to challenge the President's withholding of assent to certain bills passed by the state legislature has sparked a significant debate on federalism, gubernatorial powers, and the scope of judicial review in India.

Key Details

- In 2023, the President withheld assent to three **Kerala University Law Amendment Bills**, out of seven bills referred to her by the Governor.
- The Kerala government argues that these bills dealt with matters within the State List of the Constitution, falling under the state's legislative competence.

Governor's Role in Assenting to Bills

Article 200 of the Constitution outlines the Governor's options when a state legislature presents a bill for assent:

- **Granting Assent:** This allows the bill to become law.
- **Withholding Assent:** This effectively kills the bill.
- **Returning the Bill (except Money Bills):** This allows the legislature to reconsider the bill. Upon repassage, the Governor is bound to grant assent.
- **Reserving the bill for the President's consideration:** This is a discretionary power of the Governor used in specific situations.

Reservation of Bills for Presidential Consideration



Article 201 of Constitution

- **Article 201 of the Constitution** specifically states that "When a Bill is reserved by a Governor for the consideration of President
 - The President shall declare either that he assents to the Bill or that he withholds assent therefrom.
- But **no time stipulation** is provided in the Constitution.
- President is **not bound to give her/his assent to bill if it again passes by the house.**

Sarkaria Commission Recommendations

- The Sarkaria Commission emphasized that reserving **bills for the President should be a rare practice**, used only in cases of suspected unconstitutionality.
- It recommended that **Governors act on ministerial advice** (except in such exceptional circumstances) and that the President dispose of reserved bills **within six months**, with **reasons for withholding assent** communicated whenever possible.

Way Forward

- **Constitutional Amendment:** Amending the Constitution to limit discretion in reserving bills could be explored.
- **Following Sarkaria Commission Recommendations:** Implementing the Sarkaria Commission's recommendations on timely disposal of bills and communication of reasons for withholding assent would bring transparency.

Conclusion

Kerala's challenge to the President's decision is likely to set a precedent for interpreting the Governor's role, the President's power over state legislation, and the delicate balance between federalism and gubernatorial discretion.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements:

1. Reservation of a bill for the Presidential consideration is mandatory only if the bill threatens the position of the state High Court.
2. Constitution of Indian prescribed the 6-month time frame to President within which President must give his assent to the bill.

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) [1 Only])

Descriptive Question

Q. Assess the constitutional provisions and principles on reservation of bills for Presidential consideration of state legislature. Discuss in brief about the Sarkaria Commission recommendations on it. [15 Marks] [250 words]

S. R. BOMMAI V/S. UNION OF INDIA (1994)

Why in News: It marks its 30th anniversary, its influence on the constitution of India continues to grow.

Key Details

- Following its victory in the Karnataka Assembly elections in 1985, the Janata Party formed a government led by Chief Minister Ramakrishna Hegde. Later in 1988, Hegde was replaced by SR Bommai.

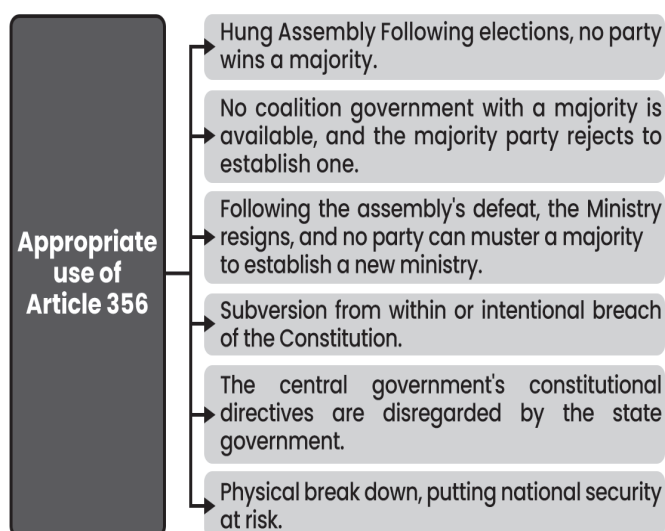
- Together with nineteen other Legislative Assembly members, a Janata Dal politician left the party in September 1988, ending their support for the Bommai administration.
- **Article 356 was used to overthrow the state government as a result of the majority loss from defections.** The governor refused Bommai's request to test the majority.
- Bommai appealed to the Supreme Court after the high court denied his request for redress.
- **Restrictions on the arbitrary dismissal of state governments under Article 356 were established by the 1994 Supreme Court of India bench** that determined the S. R. Bommai vs Union of India case

Supreme Court Verdict

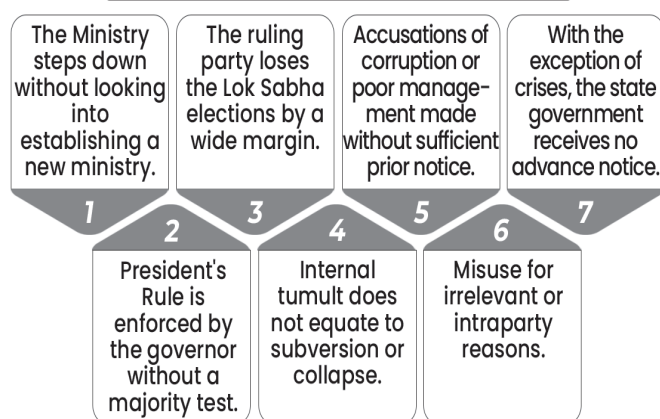
- The **Sarkaria Commission** and **Dr. B.R. Ambedkar** both urged caution in the use of the Presidential Proclamation under Article 356, and a **nine-judge Supreme Court bench** emphasized this point.
- According to **Article 356(3)**, the **Presidential Proclamation must be carefully examined** by both houses of Parliament.
- The proclamation expires after two months if it is issued without the consent of both houses, and the state assembly resumes its function.
- If the proclamation raises debatable issues, the Supreme Court may consider writ petitions contesting its validity in addition to subject it to judicial review.
- Court made it clear that the **President's power to dismiss a state government is not absolute** but subject to limitations.
- It acknowledged that although the **dissolution of the legislature is not specifically addressed in Article 356**, such powers can be inferred from it
- It was noted that the **authority to dissolve the legislature is implied by Article 174(2)**, which gives the Governor the authority to dissolve the Legislative Assembly, and **Article 356(1)(a)**, which gives the President the authority to bestow upon himself the powers of the Governor and the state government.

Importance of S.R. Bommai case

- The S.R. Bommai case documents the misuse of article 356 and provides one of the Supreme Court's rulings on the basic structure doctrine.
- The ruling clarified the scope and limitations of Article 356 and emphasized that it should only be used in extreme situations.
- The case supported cooperative federalism and upheld the fundamentals of federalism, declaring that state governments are not subservient to the federal government.
- The ruling upheld the judiciary's responsibility to scrutinize the President's conduct in accordance with Article 356 and guarantee that constitutional norms are followed.
- It affirmed that the floor of the Assembly is the sole authority to test the government's majority, not the subjective opinion of the Governor.



Inappropriate use of Article 356



Way Forward

- The Sarkaria Commission supported informing the state prior to invoking Article 356(1) in some situations.
- It was mentioned that in order to resolve the situation, all other options should be explored first. Article 365 should only be employed in the event that no other feasible solution exists.
- The Supreme Court identified the circumstances in which the exercise of power under Article 356 could be appropriate or inappropriate in the Bommai case of 1994, drawing from the report of the **Sarkaria Commission on Center-state Relations (1988)**.

Conclusion

The SR Bommai judgment, delivered by the Supreme Court of India in 1994, established vital principles regarding the dismissal of state governments under Article 356 of the Constitution. It upheld federalism by limiting the discretionary power of the Union government, requiring it to have objective reasons for imposing President's Rule.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

- Q. If the President of India exercises his power as provided under Article 356 of the Constitution in respect of a particular State, then
- The Assembly of the State is automatically dissolved.
 - The powers of the Legislature of that State shall be exercisable by or under the authority of the Parliament.
 - Article 19 is suspended in that State.
 - The President can make laws relating to that State.

(b) :Answer

Descriptive Question

- Q. Discuss the significance of the S. R. Bommai v. Union of India ([1994]) case in shaping the constitutional principles governing centre-state relations and federalism in India. [15 Marks] [250 words]

REGIONAL BENCHES OF SUPREME COURT

Why in News: The Law Ministry has approved the Parliamentary Standing Committee on Personnel, Public Grievances, Law and Justice's proposal to create regional Supreme Court benches across India, the committee recently informed the Lok Sabha.

Legal provisions on the Regional Benches of the Supreme Court in India

- According to Article 130 of the Indian Constitution, the Supreme Court will have its sessions in Delhi or at any other location that the Chief Justice of India (CJI) may designate at any time, subject to the President's assent.
- **Law Commission Report:** The 19th Law Commission Report (2009) suggested setting up four regional benches to hear non-constitutional cases in Delhi, Chennai or Hyderabad, Kolkata, and Mumbai in an effort to make the Court more accessible.
- **Bar Councils:** Southern Bar Councils petitioned the Chief Justice of India in July 2021 to establish a southern bench of the Supreme Court.
- **Report of the Parliament Standing Committee:** The Parliament Standing Committee on Personnel, Public Grievances, Law and Justice presented its 107th report on "Demands for Grant (2021-22) of the Ministry of Law and Justice" and advocated for the creation of the Supreme Court's regional benches.

Advantages of Supreme Court Regional Benches

More Accessibility

The Parliamentary Standing Committee report highlighted the considerable obstacles that people living in far-flung and isolated places encounter while trying to access justice in the nation's capital and financial, logistical burden.

Increased Attention to Constitutional proceedings

Delhi bench would only consider constitutional concerns.

Enhanced Judicial Effectiveness

Judges with local context knowledge may provide more pertinent and useful rulings. Judges with knowledge of local laws and customs could handle cases more effectively if regional benches were in place.

Reduction in Case Pendency

The Supreme Court saw a 31% increase in case disposition in 2023 over 2022. Currently awaiting adjudication are little over 80,000 cases, of which 60,000 are civil in nature.

Enhanced Judicial Effectiveness

The creation of regional benches will result in an increase in the number of attorneys and judges, giving our legal system a much-needed boost.

Regional benches may alleviate the strain on Delhi's main bench by decentralizing the Supreme Court's workload.

Increased Possibilities

By empowering local legal practitioners and raising legal awareness at the grassroots level, regional benches could encourage the growth of legal infrastructure.

In addition to bringing about more opportunities, it would democratize the Bar.

Issues with the Regional Benches of the Supreme Court

- **Jurisprudence fragmentation:** Different interpretations of legislation and legal concepts by regional benches may lead to inconsistent court rulings throughout the nation.

Court	Pendency in 2019	Pendency in 2020	Pendency in 2021	Pendency in 2022
Supreme Court	59,535 (as on December 2019)	64,426 (as on December 2020)	69,855 (as on December 2021)	70,154 (as on March 2022)
High Courts	46,84,354 (as on December 2019)	56,42,567 (as on December 2020)	56,49,068 (as on December 2021)	58,90,726 (as on March 2022)
District & Subordinate Courts	3,22,96,224 (as on December 2019)	3,66,39,436 (as on December 2020)	4,05,79,062 (as on December 2020)	4,09,85,490 (as on March 2022)

- **K.G. Balakrishnan**, the former CJI, even went so far as to speculate that it might cause the institution to fall apart.
- **Rising Litigation:** Regional benches may lead to a rise in **pointless or forum-shopping lawsuits** as parties look for favourable decisions from benches, they believe to be more sympathetic to their positions.
- **Up to 347 seats** are vacant in the nation's high courts, which have a sanctioned strength of 1,114 judges.
- Similarly, of the 25,081 sanctioned judges in the district judiciary, only 19,781 were really in service. There are up to **5,300 open district judge vacancies**.
- **Create a National Special Leave Petitions (SLPs) Court of Appeal:** The Supreme Court said in **Bihar Legal Support Society v. Chief Justice of India, 1986** that it was "desirable" to create a National Court of Appeal with the authority to hear cases involving special leaves.
- **Increase Working Days:** In light of the lengthy case backlog, the **Malimath Committee** proposed that the Supreme Court extend its period of operation to **206 days and shorten its vacation time by 21 days**.

Way Forward

- **A Distinction Between the Benches of Appellate and Constitutional Jurisdiction:** The Constitutional Division and the Legal Division are the two divisions that the Tenth Law Commission of India suggested the Supreme Court be divided into.
 - According to the plan, the proposed Constitutional Division would only hear cases involving constitutional law.
- **In an effort to reduce the backlog of cases**, the **2009 Law Commission** recommended in its 230th report that court holidays be **shortened by 10 to 15 days** at all judicial levels.
- **Preserve the Exclusive Power:** The Supreme Court should continue to have certain exclusive powers, including its original jurisdiction under Article 131, its advisory jurisdiction under Article 143, and its writ jurisdiction under Article 32 of the Constitution.
- **The National Judicial Infrastructure Authority of**

India (NJIAI), which will aid in enhancing the judicial infrastructure that presently requires urgent attention, was proposed by former **Chief Justice of India NV Ramanna**.

Conclusion

Regional benches of the Supreme Court can enhance accessibility to justice, alleviate the burden on the apex court, and promote legal inclusivity. However, challenges such as maintaining consistency in jurisprudence, equitable distribution of judicial resources, and potential conflicts with the principle of uniformity in law must be addressed.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQs

Q. Consider the following statements:

1. Establishment of the regional branches of the Supreme Court by the Chief Justice of India is not subject to the Presidents Assent.
2. Law Commission of India in its several reports has opposed the creation of the regional branches of the Supreme Court.

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: (d) (Neither 1 nor 2)

Descriptive Question

Q. Evaluate the potential benefits and challenges associated with the creation of regional benches of the Supreme Court in terms of judicial efficiency and effectiveness. [15 Marks] [250 words]

MUNICIPAL ELECTION REFORMS

Why in News: The recent ruling by the Supreme Court regarding the Chandigarh mayor election has brought up issues associated with local urban body elections.

Supreme court verdict on Chandigarh Mayor election

- **Upholding Electoral Democracy:** The Supreme Court affirmed that it is its duty to uphold electoral democracy by carrying out its constitutional mandate under Article 142, which prohibits deceit at any stage of the voting process.
- **Review of Re-election:** The Court examined the election results and found that problems arose particularly in the

counting and declaration phases, rather than calling for a fresh election.

- **Action Against Malpractice:** Under the direction of Chief Justice, a bench issued a show-cause notice to the Returning Officer for his actions during the mayoral elections, alleging misconduct that affected the administration of justice in **violation of section 340**.
- **Deep Concern for Political integrity:** The Supreme Court Chief Justice highlighted incidents of **"horse trading"** among counselors in order to demonstrate her grave concerns about political honesty.

Status of Municipal Elections in India

- According to the 2023 Annual Survey of India's City-Systems by NGO **Janaagraha**, more than **1,400 municipalities lacked elected councils as of September 2021**, indicating a widespread issue nationwide.
- The **Comptroller and Auditor-General of India (CAG)** audit found that between 2015 and 2021, over **1,500 municipalities operated without elected councils**.
- Cities like **Chennai, Delhi, Mumbai, and Bengaluru** experienced delays ranging from months to years in conducting elections.

Possible solutions for Elections to Local Bodies

Articles of the Constitution

- **Article 243ZA and Article 243K:** The State Election Commission (SEC) will be in charge of overseeing, directing, and controlling the process of creating electoral rolls and conducting all panchayat and municipal elections.
- **Article 243ZG:** Court intervention in municipal elections is prohibited by the 74th Amendment to the Constitution.
- **The 74th Constitution Amendment Act**, through **Article 243U**, requires urban municipal governments to serve five-year terms.

Lawful Requirements

- The Supreme Court emphasized the inviolability of this constitutional requirement in the **Suresh Mahajan v. State of Madhya Pradesh Case, 2022**.

Conclusion

Urban local bodies electoral reforms are imperative for strengthening democratic governance at the grassroots level. Through comprehensive reforms by improving voter registration, enhancing transparency in candidate selection, and advanced voting technologies can ensure fair elections.

Municipal Election Reforms

Challenges Associated with Local Bodies Elections

The discretionary powers granted to government officials like State Election Commissions (SECs) in scheduling elections present a challenge due to vague constitutional safeguards.

This discretion can lead to inconsistent or delayed election timelines, potentially undermining the transparency and fairness of the democratic process.

Concerns arise regarding undue influence from state governments, which may seek to delay elections for political or strategic reasons, compromising the integrity of the electoral process and eroding public trust in democratic institutions.

The continued reliance on manual ballot paper-based processes introduces vulnerabilities such as counting errors, tampering possibilities, and result declaration delays.

In contrast, modern Electronic Voting Machine (EVM) and Voter Verifiable Paper Audit Trail (VVPAT) systems offer enhanced transparency and credibility in electoral outcomes.

Delayed formation of municipal councils in urban local governments exacerbates the issue. For instance, in Karnataka, significant delays of 12-24 months were observed post-elections. Such delays hinder effective governance and community representation, to uphold the democratic principles of transparency, fairness, and accountability.

Integrating modern voting technologies and streamlining post-election procedures can address these challenges, ensuring efficient and credible municipal governance.

Some suggestions Related to reform in Local Bodies' Elections

To effectively address municipal election challenges, State Election Commissions (SECs) must play a more substantial role, leveraging powers granted in Articles 243K and 243ZA of the Constitution.

Currently, only 11 out of 35 states and union territories empower SECs for Ward delimitation, critical for equitable representation.

Expanding SEC authority, including ward delimitation powers, is essential.

Moreover, establishing robust accountability mechanisms for election officials and authorities is crucial to address delays or irregularities transparently through investigations and disciplinary measures.

Comprehensive policy reforms are imperative to tackle various challenges, including scheduling and ensuring fair processes.

Exploring the concept of 'One Nation, One Election' with a focus on timely local body elections is essential.



EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. With reference to the Constitution of India, prohibitions or limitations or provisions contained in ordinary laws cannot act as prohibitions or limitations on the constitutional powers under Article 142. It could mean which one of the following?

- The decisions taken by the Election Commission of India while discharging its duties cannot be challenged in any court of law.
- The Supreme Court of India is not constrained in the exercise of its powers by laws made by the Parliament.
- In the event of a grave financial crisis in the country, the President of India can declare a Financial Emergency without the counsel from the Cabinet.

- State Legislatures cannot make laws on certain matters without the concurrence of the Union Legislature.

(b) Answer:

Descriptive Question

Q. What are the challenges associated with local bodies elections? Discuss recent Supreme court verdict in this regard. [15 Marks] [250 words]

CURATIVE PETITION

Why in News: In order to fix a “fundamental error” in its decision, the court has now used its “extraordinary powers” in a curative writ petition.

Key Details

- By using its “extraordinary powers,” the Indian Supreme Court overturned its 2021 decision through the use of a curative petition.

- This overturn invalidates an arbitral award that was worth around Rs 8,000 crore and ordered the Delhi Metro Rail Corporation (DMRC) to reimburse the consortium led by Reliance Infrastructure Ltd. for Delhi Airport Metro Express Private Limited (DAMEPL).

The Curative Petition

- A curative petition is a last resort legal option available after someone has been found guilty and their appeal has been denied.
- In India, the Supreme Court's final decisions are usually only challenged on review petition. A curative petition allows the court to fix or rectify a grave miscarriage of justice.
- **Objective:** To prevent wrongful convictions and ensure the legal system is used fairly.
- **Decision making:** Judges normally review curative petitions in private, but public hearings can be requested.
- **Legal foundation:** The Supreme Court established the rules for curative petitions in the 2002 case of Rupa Ashok Hurra Vs Ashok Hurra & others.

Guidelines for Filing a Curative Petition

- A bench consisting of the three seniormost judges if available, the judges who passed the relevant decision must receive a curative petition before anything else can be done.
- As much as practicable, the matter should not be listed before the same bench until a majority of the judges determine that it has to be heard.
- Unless a particular request for an open-court hearing is granted, judges typically make decisions on curative petitions in chambers.
- The Bench may request the assistance of a senior attorney as an amicus curiae at any point throughout the curative petition's review.
- The petitioner may be required to pay exemplary costs if the bench determines at any point that the petition is unreasonable and without substance.

Delhi Metro Rail vs. Delhi Airport Metro Express (2024): A Legal Dispute Resolved

- The Supreme Court reversed its decision in April 2024, finding a "serious error" in the prior judgement.
- This signifies the importance of curative petitions, clarifies legal guidelines for infrastructure projects, and demonstrates the court's commitment to correct mistakes and uphold justice.

JOURNEY OF THE DISPUTE



• 2008 DAMEPL wins 30-year build, operate, transfer contract	• MAR 2018 Single judge Delhi HC Bench refuses to interfere with arbitral award.
• FEB 2011 Line becomes operational	• JAN 2019 Two-judge Bench of the HC sets aside the arbitral award
• APR 2012 DAMEPL seeks to delay payment to DMRC	• SEPT 2021 Two-judge SC Bench restores arbitral award
• OCT 2012 DAMEPL formally initiates termination of agreement	• NOV 2021 SC dismisses review petition against its judgment
• JUNE 2013 Arbitration proceedings begin	• AUG 2022 Centre files curative
• MAY 2017 Arbitration panel decides in favour of DAMEPL	• APR 2024 SC restores 2019 HC ruling

Curative Petitions: Another example

- **Bhopal Gas Tragedy Compensation Case**
 - In 2010, the Indian government filed a curative petition related to the Bhopal Gas Tragedy. This petition aimed to **get more compensation for the victims**. However, the court rejected the petition in 2023. Their reasoning was that the compensation already awarded was sufficient.
 - The court emphasized a crucial point: curative petitions are only meant for very serious situations. These situations involve a major error in the legal process, like fraud or hiding crucial information. The court found no such issues in the Bhopal case.

How Is It Different From A Review Petition?

Review Petition	Curative Petition
• A review petition allows the Supreme Court to reconsider a legally binding ruling. • It is filed when a Supreme Court order clearly contains flaws. • The goal is to correct these mistakes without starting over with a new assessment of the situation.	• A curative petition, on the other hand, is a last resort. • A party may choose to file a curative petition to request a reversal of the court's ruling or judgement if they are still not satisfied even after submitting a review petition. • Curative petitions usually do not require public court hearings, in contrast to review petitions.

Conclusion

The Supreme Court's curative petition process offers a final recourse for correcting grave judicial errors. This case demonstrates its effectiveness in rectifying a significant financial award against the Delhi Metro Rail Corporation.

Curative petitions, however, are meant for exceptional circumstances and not intended for seeking higher compensation, as seen in the Bhopal Gas Tragedy case.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following Writ:

1. Habeas Corpus
2. Mandamus
3. Certiorari
4. Prohibition

How many of the above are both Preventive as well as Curative in nature?

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

Answer: (a) (Statement 3)

Descriptive Question

Q. Assess the effectiveness of curative petitions as a mechanism for correcting judicial errors, ensuring fairness, and upholding the rule of law, with reference to notable cases and outcomes. [15 Marks] [250 words]

CUSTODIAL DEATH

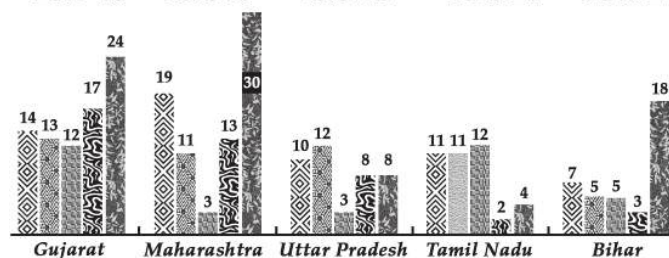
Why in News: Recently, two police officers were taken into custody in relation to the January death of a 19-year-old teenager in Akot, Akola district.

Key Details

- Indian authorities are taking steps to address custodial deaths. In Uttar Pradesh, DGP has reaffirmed guidelines to prevent them.
- Similarly, Tamil Nadu suspended a police inspector following a custodial death. These incidents highlight a serious issue.
- Gujarat has reported the most custodial deaths in India between 2017 and 2022, followed by Maharashtra, Uttar Pradesh, Tamil Nadu, and Bihar.

STATES WITH HIGHEST CUSTODIAL DEATHS

2017-18 2018-19 2019-20 2020-21 2021-22



Custodial Death

- A custodial death is when **someone dies while under arrest or in jail**. This can happen for several reasons, including misuse of force by authorities, neglect of the person's health, or even mistreatment.
- In India, the Law Commission considers any crime committed by an official against someone in custody to be a form of violence.

Police Custody and Judicial Custody

Aspect	Police Custody	Judicial Custody
Custody Location	A person may be held at a police station or with an investigating agency.	A person can be jailed by order of a magistrate.
Appearance before Court	This can happen within 24 hours of being brought before a magistrate.	This can only happen until a court decides to release the person on bail.
Commencement	If arrested by a police officer following a complaint or the filing of an FIR (First Information Report).	Before releasing someone on bail, the prosecutor needs to convince the court it's alright to do so and won't hinder the investigation.
Maximum Duration	The initial detention period is 24 hours , with the possibility of extension to 15 days by a magistrate.	The maximum amount of time someone can be held in jail before trial depends on the severity of the crime. For serious offenses, it's 90 days . For lesser offenses, it's 60 days .

Restricting Deaths in Custody

- Every person deserves to be treated with dignity under the law. This is a fundamental right. India has pledged to uphold this right by signing the **UN Convention Against**

Torture (UNCAT), which prohibits cruel treatment in custody.

- **Weak rules against violence** in custody create problems. For example, it can be difficult to extradite fugitives like Vijay Mallya who claim they may be tortured in India. Similarly, a lack of clear rules can damage the mental well-being of detainees, as seen in the horrific 1972 Mathura custodial rape case.

Custodial Death: Constitutional and Legal Safeguards in India

- **Right to Life and Dignity (Article 21):** The Constitution guarantees the right to life and freedom from cruel treatment, even for those in custody. This protects individuals from torture and abuse.
- **Protection from Excessive Punishment (Article 20):** The law cannot punish someone more harshly than what was allowed when the crime occurred. People cannot be tried twice for the same offense, and they cannot be forced to confess against themselves.
- **Confessions and Consent (Selvi Case):** Tests like narco-analysis cannot be performed on anyone without their consent. This ensures confessions are genuine and not obtained through coercion.
- **Legal Safeguards:** Laws prevent using force to get confessions (Indian Evidence Act & IPC). Arrests require proper justification and procedures, with transparency and access to legal aid (CrPC).

International Conventions Against Custodial Torture

- **Universal Declaration of Human Rights (1948):** To protect people from torture and enforced disappearances.
- **United Nations Charter (1945):** Demands dignified treatment of prisoners and recognizes their fundamental rights as outlined in other human rights treaties.
- **The Nelson Mandela Rules (2015):** Upholds the inherent dignity of prisoners and prohibits torture and other cruel treatment.
- **United Nations Convention Against Torture (UNCAT):** International treaty aiming to prevent torture and other cruel punishments globally.

Way Forward

- **Strengthening Laws:** Clear laws criminalizing torture, along with independent investigations and fair trials for perpetrators, are crucial.
- **Police Reform:** Training that emphasizes human rights and accountability, along with oversight mechanisms, can improve police conduct.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements:

1. Protection to persons who are arrested or detained under a preventive detention law is available to both citizens as well as foreigners.
2. The detention of a person cannot exceed three months unless advisory board reports sufficient cause for extended detention.
3. Constitution has divided the legislative power with regard to preventive detention between the Parliament and the state legislatures.

How many of the above statements are correct?

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

Answer: (c) (All Three)

Descriptive Question

Q. Analyze the prevalence and underlying causes of custodial deaths in India, and assess the constitutional and legal safeguards in India to the prisoners against the custodial violence. [15 Marks] [250 words]

NATIONAL COMMISSION FOR PROTECTION OF CHILD RIGHTS (NCPCR)

Why in News: Recently, NCPCR has celebrated its 19th foundation day.

National Commission for Protection of Child Rights (NCPCR)

- It was established in 2007 under the Commission for Protection of Child Rights Act, 2005, the NCPCR serves as the apex statutory body for child rights in India. Its core mandate is to:
 - Ensure all laws, policies, and programs align with the vision enshrined in the Constitution of India and the UN Convention on the Rights of the Child (UNCRC).
 - Advocate for children (aged 0-18) and their well-being across various domains.

Functions of the NCPCR

- **Developing new monitoring strategies:** This involves implementing robust mechanisms to track the effectiveness of child protection initiatives.
- **Streamlining processes for authorities:** The NCPCR works to create clear and efficient procedures that enable authorities to better fulfill their child protection duties.

- **Policy framework development:** The Commission actively participates in formulating policies that prioritize child welfare.

The Rights of Children in India

1. **Survival:** This includes access to basic necessities like food, shelter, and healthcare.
2. **Development:** Children have the right to education, play, and opportunities for physical, intellectual, and emotional growth.
3. **Protection:** This area safeguards children from all forms of abuse, neglect, exploitation, and violence.
4. **Participation:** Children have the right to express their views and be heard on matters concerning them.

The United Nations Convention on the Rights of the Child (UNCRC)

India is a signatory to the UNCRC, a significant international treaty outlining the fundamental rights of children. Key principles of the UNCRC include:

- **Universal Application (up to 18 years):** Applies equally to all children, regardless of gender, marital status, or parental status.
- **Best Interests of the Child:** All actions concerning children must prioritize their well-being.
- **Non-discrimination:** All children have equal rights, regardless of background or circumstance.

Constitutional Safeguards for Children



Free and Compulsory Education (Article 21A): This provision mandates free and compulsory education for all children between the ages of 6 and 14.



Protection from Hazardous Employment (Article 24): Children under 14 cannot be employed in hazardous occupations.



Protection from Abuse & Exploitation (Article 39): Children are protected from exploitation and forced labor.



Right to Development and Freedom (Article 39(f)): This right ensures children have opportunities to develop in a healthy environment free from exploitation and neglect.

Legal Framework for Child Protection

Protection of Children from Sexual Offences Act (POCSO Act), 2012: This Act defines and criminalizes various forms of sexual offenses against children.



Juvenile Justice (Care and Protection of Children) Act, 2015: This Act outlines procedures for dealing with children in conflict with the law and children in need of care and protection.



Right to Free and Compulsory Education (RTE) Act, 2009: This Act guarantees free and compulsory education for all children between the ages of 6 and 14.



Other Relevant Acts: The Child Labour (Prohibition and Regulation) Amendment Act, 2016; Prohibition of Child Marriage Act, 2006; PCPNDT Act, 1994.



Way Forward

Effective Implementation of Laws: Ensuring stricter enforcement mechanisms for existing child protection legislation is crucial. Raising awareness strengthening Child Protection Mechanisms can be solutions.

By prioritizing these areas, India can move closer to achieve the goals of the UNCRC and create a society where every child can thrive and reach their full potential.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. With reference to the National Commission for Protection of Child Rights (NCPCR), consider the following statements:

1. It is neither statutory nor a constitutional body.
2. It conducts research studies on child rights issues and investigates serious violations.
3. It ensures that all laws, policies, and programs in India are aligning with the vision of the United Nations Convention on the Rights of the Child (UNCRC).

How many of the above statements are correct?

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

Answer: (b) (2 and 3 only)

Descriptive Question

Q. Trace the origin of National Commission for Protection of Child Rights. Discuss the Legal Framework for child Protection in India and challenges in its implementation. [15 Marks] [250 Words]

COMMITTEE REPORT ON THE "ONE NATION ONE ELECTION"

Why in News: A high-level committee led by former President Ram Nath Kovind recently submitted a report on the "One Nation One Election" initiative to the President.

Background

- The concept of "One Nation One Election" refers to conducting Lok Sabha and State Assembly elections together.
- This aims to reduce the frequency of elections and the associated costs. India previously held simultaneous elections between 1951-52 and 1967, but the practice hasn't been continued since.

The Panel's Recommendations

- Amendment to Article 82A:** The President would declare an "Appointed Date" after each general election, marking the start of a new electoral cycle to the House of the People and Legislative Assemblies.
- Synchronized Terms:** State Assemblies formed after the Appointed Date which conclude before the subsequent general elections, ensuring simultaneous polls.
- Simultaneous Lok Sabha and State Assembly Elections:** The first step involves holding elections for both national and state legislatures together.
- Local Body Elections:** Within 100 days of the first step, local body (municipal and panchayat) elections would be conducted.
- States with elections due between June 2024 and May 2029 would see their terms expire alongside the 18th Lok Sabha, even if it results in some state assemblies having terms of less than five years as a one-time measure.

HOW, WHAT & WHEN OF JOINT ELECTIONS

How will elections be synchronised?

In 2 stages, says panel report.

Step 1: Simultaneous polls to be held for Lok Sabha, state assemblies. **Constitutional amendment needed, but no ratification by states required.**

Step 2: Local body polls to be held within 100 days of LS & assembly elections. Amendment for this will require ratification by at least half the states.

How will a cutoff date be fixed and varying assembly tenures adjusted?

President will, through a notification, bring simultaneous polls into force on the date of first sitting of Lok Sabha after a general election. This becomes the 'appointed date'. Assemblies for which elections are held



Former President Kovind gives report to President Murmu

after this date will have tenure only till next Lok Sabha elections (which will be simultaneous)

What happens if there is a hung House or governing party loses trust vote?

Elections will be held for the remaining period of the five-year term

When will simultaneous elections kick in?

After legislative changes are undertaken, President will notify the 'appointed date' on the first day the newly elected LS sits

Addressing Specific Issues

Arguments For

Reduced Expenditure

Simultaneous elections would significantly decrease the substantial cost incurred for conducting separate elections year after year.



Good Governance

Frequent elections lead to prolonged periods under the Model Code of Conduct (MCC), hindering regular governance. Holding them together can address this issue.

Resource Optimization

Simultaneous elections would free up crucial manpower currently deployed for extended periods on election duties.



Focus Shift

The focus would shift from campaigning to governance, leading to better policy implementation.

Increased Voter Turnout

Streamlined elections might encourage higher voter participation.



Policy Continuity

A stable electoral cycle could facilitate long-term planning and policy implementation.

Arguments Against

Logistical Challenges

Coordinating election schedules, resources, and manpower across states and the central government would pose massive logistical challenges.



National vs. Regional Issues

This system might favor the dominant national party or the incumbent central government, overshadowing regional issues and concerns of regional parties.

Mid-Term Polls

The report proposes fixed terms even in the case of mid-term polls due to hung assemblies or no-confidence motions. This raises concerns about democratic accountability.



- **Hung Houses:** For situations with a hung assembly (no clear majority), the committee **suggests a no-confidence motion**. Fresh elections would only be held for the remaining term if the motion fails.
- **Constitutional Amendments:** The report recommends amending **Articles 83 (duration of Parliament) and 172 (duration of State legislatures)** to facilitate synchronized polls. This amendment wouldn't require state ratification.
- **State Ratification:** Further amendments are proposed for:
 - **Article 324A** to enable simultaneous elections in panchayats and municipalities.
 - **Article 325** to empower the Election Commission of India (ECI) to collaborate with state election authorities for a common electoral roll and voter ID cards. These amendments require state ratification.

Way Forward

1. **Political Consensus:** Building a national consensus on electoral reforms is crucial. Open discussions involving all political parties and stakeholders are essential.
2. **Constitutional Amendments:** Streamlining the process of amending Articles 83, 172, 324A, and 325 is necessary.

Conclusion

The Kovind Committee report offers a comprehensive plan for "One Nation, One Election" in India. While the proposal presents potential benefits in terms of reduced costs and increased policy continuity, concerns regarding federalism and democratic accountability need careful consideration.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements with reference to the "One Nation One Election":

1. It refers to the simultaneous conduct of both Lok Sabha and State Assembly elections.
2. In India, historically the simultaneous elections were held between 1951-52 and 1967.

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: (d) (Neither 1 nor 2)

Descriptive Question

Q. Analyze critically the concept of 'One Nation One Election'. What recommendations for its implementation were given by the Kovind Committee. [15 Marks] [250 words]

EVM-VVPAT CASE

Why in News: The Supreme Court agreed to list a series of petitions seeking a directive to the Election Commission to mandatorily cross-verify the vote count in all EVMs by counting all VVPAT slips.

Key Details

- Verification is currently carried out with VVPAT slips from votes cast in 5 randomly selected polling booths.
- The EC in an affidavit in 2023, had said that "there is no fundamental right of the voter to verify through VVPATs that their votes were 'recorded as cast' and 'counted as recorded'".
- **SC in Subramanian Swamy vs Election Commission of India (2013):** the election process should "have fullest transparency in the system and to restore the confidence of the voters". The court had held that a "paper trail" was an "indispensable requirement of free and fair elections"

About EVM

- EVM (Electronic Voting Machine) consists mainly of two units - (a) **Control Unit (CU)** and (b) **Ballot Unit (BU)** with **cable** for connecting it with the Control Unit.
- The EVM is powered by a **6-volt single alkaline battery** installed in the control unit, allowing it to **function even in areas without electricity**.
- The **control unit** is placed with the **Election Commission appointed polling officer**.
- The **Ballot Unit** is set up in the voting compartment where the **voter enters to secretly cast their vote** by pressing the button next to the name and symbol of their preferred candidate.
- EVMs in India are manufactured by **Bharat Electronics Ltd (Bengaluru)** and **Electronic Corporation of India Ltd (Hyderabad)**.

History of EVM

Electronic voting machines (EVMs) were first used in India 37 years ago, in one constituency, Parur, during the 1982 Kerala assembly election.

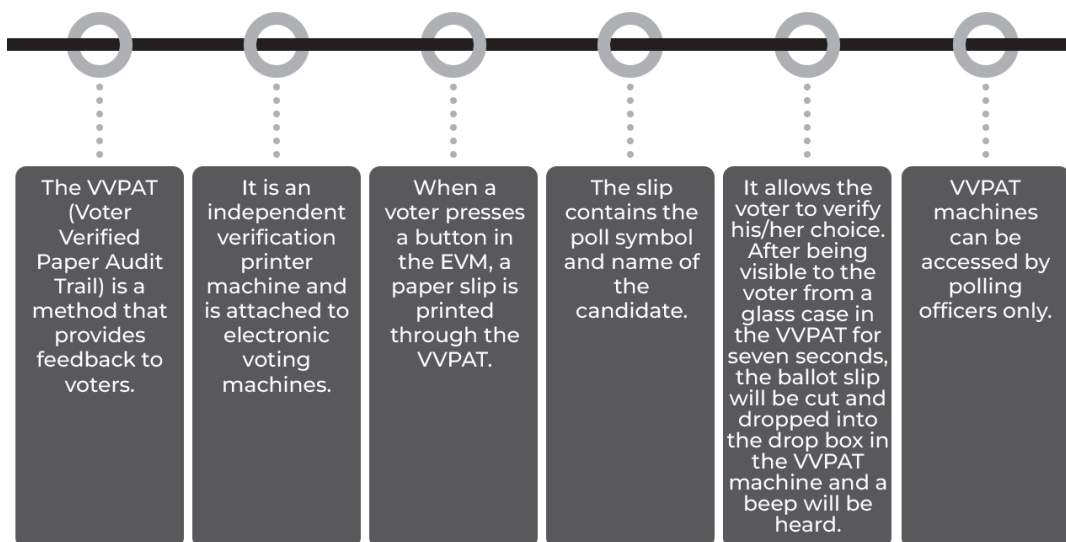
In 2003, all by-elections and state elections were held using EVMs. The next year marked the complete rollout of EVMs, with the 2004 general election going down in history as the first instance of the machine's use across the country.

VVPAT is **not mandatory for all elections** conducted by the Election Commission of India.

It is **only mandatory for elections to the Lok Sabha and the State Legislative Assemblies**. The Election Commission can decide to use VVPAT for other elections as well, but it is not compulsory.

VVPAT Machines were first introduced in India in the 2014 Lok Sabha elections

About VVPAT



Conclusion

Free and fair elections form the fulcrum of Indian democracy and voters' confidence is necessary to legitimise them. Initiatives like VVPAT strive to achieve the same.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements:

- Statement-I:** There is no fundamental right of the voter to verify through VVPATs that their votes were 'recorded as cast' and 'counted as recorded.'
- Statement-II:** VVPAT is mandatory for all elections conducted by the Election Commission of India.

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

- Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- Both Statement-I and Statement-II are correct and Statement-I is not the correct explanation for Statement-II
- Statement-I is correct but Statement-II is incorrect
- Statement-I is incorrect but Statement-II is correct

(c) : Answer

Descriptive Question

Q. What is VVPAT (Voter Verifiable Paper Audit Trail)? How does the implementation of VVPAT address concerns regarding potential tampering or malfunctioning of EVMs? [15 Marks] [250 words]

NATIONAL CIVIL SERVICE DAY

Why in News: Every year on April 21, the Indian government observes National Civil Service Day as a way to honour the officers working in all of the nation's public departments.

Key Details

- Civil workers receive recognition on this day for their commitment to serve the public and their hard work.
- It's also an acknowledgement of the important role they play in the country's administration.

History

- In 1947, on April 21st, Sardar Vallabhbhai Patel, **India's first Home Minister**, addressed new recruits (probationers) of the **Indian Administrative Service at Metcalf House**, New Delhi.
- He emphasized the principles of good governance and famously called these officers the "**Steel Frame of India**," underlining their vital role.
- The **first official Civil Services Day** celebration was held in 2006.

Significance

- Civil Services Day is a time for civil servants to recommit themselves to serve the citizens and uphold excellence in their work.
- It also inspires them to continuously improve governance and implement policies that promote **India's self-reliance** (Atmanirbhar).

Related Constitutional Articles

Articles 309-315 of the Indian Constitution establish the framework for civil service recruitment, service conditions, and service commissions.

- **Article 309:** Recruitment and terms of service for individuals serving the Union or States.
- **Article 310:** The President of India may appoint and remove civil officers as he or she pleases.
- **Article 311:** Termination, removal, or downsizing of individuals working for the Union or a State in civil capacities.
- **Article 312:** Establishing a single or many All-India Services shared by the Union and States.
- **Article 315:** Describes the Union and State Public Service Commissions.

INDIAN CIVIL SERVICES		
Issues faced		Governments Initiatives
	Deficiencies in Professionalism and Development The current system suffers from a lack of professionalism and insufficient capacity building initiatives for civil servants.	
	Ineffective Performance Incentives The existing incentive structure fails to adequately reward meritorious performance and ethical conduct among civil servants.	
	Impediments to Efficiency Rigid and outdated rules and procedures hinder the exercise of individual judgment, thereby limiting efficient performance.	
	Limited Transparency and Accountability A lack of transparency and accountability exists within the system, with inadequate protections for whistleblowers.	
	Political Influence on Appointments Political interference disrupts the system through arbitrary transfers and creates job insecurity for civil servants.	
	Erosion of Ethical Values A decline in ethical standards has led to a proliferation of corruption and nepotism within the civil service.	
	Patrimonial Governance The system currently operates under a system of patrimonialism, where authority ultimately rests with a single leader.	
	Resistance to Transformation A certain level of resistance to change exists within the civil service itself.	
		Mission Karmayogi This initiative constitutes a National Programme for Civil Services Capacity Building (NPCSCB), aiming to bolster the competencies and expertise within the civil service.
		Lateral Recruitment To foster a dynamic and knowledge-sharing environment, the program incorporates lateral entry mechanisms. This facilitates the onboarding of qualified personnel from the private sector to fill specific administrative positions within the government.
		Enhancing Transparency and Accountability
		SVAMITVA Scheme This transformative program leverages drone technology for land parcel mapping in rural settlements. This fosters clarity in property ownership, establishing a strong foundation for property rights.
		Centralised Public Grievance Redress and Monitoring System (CPGRAMS) This web-based system, accessible from any location, empowers citizens to register grievances electronically. This online platform streamlines the grievance redressal process, promoting transparency and accountability.
		Additional Initiatives The aforementioned efforts are complemented by established mechanisms such as the Right to Information Act (RTI) and Citizen Charters, further solidifying transparency and responsiveness within the public service domain.

Sardar Vallabhbhai Patel (1875-1950)

- Also known as the **"Iron Man of India,"** Patel played a pivotal role in India's integration and political unification after independence.
- A prominent lawyer and leader of the Indian National Congress during the independence movement.
- He served as **India's first Deputy Prime Minister, Home Minister, Information Minister, and States Minister.**
- **The Statue of Unity, the world's tallest statue at 182 meters,** stands as a tribute to his legacy.

Conclusion

To ensure effective governance, Civil Services Day proposes continuous evaluation and improvement. Recognizing outstanding work motivates officials to strive for excellence in public service, ultimately leading to a **self-reliant India** (Atmanirbhar Bharat).

Descriptive Question

- Q. Examine the initiatives and reforms undertaken by the government to enhance the effectiveness and efficiency of the civil services, and assess their impact on governance and public service delivery. [15 Marks] [250 words]

Prelims MCQ

Q. With reference to the National Civil Service Day, consider the following statements:

- (a) The Indian government observes National Civil Service Day on April 21 each year.
- (b) Articles 309-315 of the Indian Constitution gives constitutional recognition to civil services.

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

ZERO FIRs

Why in News: The Banjara Hills police registered a zero FIR case against the former minister for allegedly making objectionable comments against the Telangana Chief Minister.

About Zero FIR

- A **zero FIR** is one that can be filed by any **police station, regardless of jurisdiction**, when it gets a complaint on a cognisable offense.
- At this stage, **no regular FIR number has been assigned**.
- Following **receipt of the Zero FIR**, the relevant Police Station files a new FIR and launches an investigation.
- **The purpose of the provision** is to give the victim prompt redress so that prompt action can be taken following the **filing of the FIR**.

Legal Basis of Zero FIR

- The **Justice Verma Committee Report's** suggestion led to the introduction of the **Zero FIR provision at the backdrop of the brutal Nirbhaya gang rape in Delhi in 2012**.
- In 2020, the **Puducherry government** announced a circular stating that the group was established with the intention of proposing changes to the **Criminal Law that would expedite the trial process** and augment penalties for offenders who are charged with sexual assault against women.

WHAT IS FIRST INFORMATION REPORT?

A First Information Report, or FIR, is a written document that the police in India make to chronicle specifics concerning the commission of a cognizable offence.

Aim: The primary goal of a FIR is to alert the police to the occurrence of a crime and give them with the essential information to begin an investigation.

TYPES OF FIR

Depending on the kind of incident being reported, **different kinds of FIR exists in India as follows**

General FIR

This is the **most popular sort of FIR**, and it is used to report a variety of offenses such as **theft, robbery, assault, vandalism**, etc. It describes the **occurrence in full and includes all of the information required for the investigation**.

Zero FIR

It is then **transferred to the appropriate police station for further investigation**.

- Zero F.I.R. registered anywhere in India, regardless of residence or location of crime.

Cross FIR

If **both parties filed a FIR against each other for the same incident**.

Multiple FIR

When an **aggrieved person/ party files multiple FIRs for the same occurrence or cause**.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. With reference to the Zero FIR, consider the following statements:

1. It can be filed in any police station, regardless of offence committed in under the jurisdiction of any police station.
2. It was introduced on the recommendation of the Justice Verma Committee.

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 role of Zero FIRs in combating crimes against women, children, and other vulnerable groups, and its contribution to promote a safer and more inclusive society. [10 Marks] [150 words]

INDIAN SECULARISM VS WESTERN SECULARISM

Why in News: The Indian Supreme Court agreed to examine the possibility of removing the terms “socialist” and “secular” from the Preamble of the Indian Constitution.

Defining Secularism

- Secularism, a cornerstone of modern democracies, fosters a society where the state and religion operate in distinct spheres. However, the interpretation and application of this principle vary significantly across different nations.
- Secularism means that the State has no recognized religion of State. Or Secularism means that the State treats all the religions equally.
- In India, the concept of secularism is enshrined in the Preamble to the Constitution, introduced through the 42nd Amendment Act of 1976.

The Western Model

The Western model of secularism emphasizes a strict separation between religion and the state. The principle of mutual exclusion implies non-interference in each other's affairs. Some key characteristics of this model:

- **Negative Secularism:** It embodies a negative concept of secularism, advocating a clear separation between the religious and the secular spheres.
- **No State Support:** The state offers no financial or legal aid to religious institutions, including educational institutions run by religious minorities.

- **Non-Engagement with Religion:** The state avoids any engagement with religion whatsoever. Religious practices and reforms are considered private matters.
- **Limited Public Policy:** Public policy cannot be based on religious principles, as religion is considered a purely personal domain.

The Indian Model

The Indian model of secularism stands in contrast to the Western model. It embraces a **positive concept of secularism**, emphasizing equal respect and protection for all religions (“Sarvadharma Sambhava”). Its key features:

- **Principled Distance:** The state maintains a principled distance from religion, allowing it to intervene or engage with religious matters when necessary.
- **State Support for Minorities:** The Indian state can provide financial and legal aid to educational institutions run by religious minorities.
- **State-Supported Religious Reform:** The state can initiate reforms within religions to address social evils like untouchability and promote social harmony.
- **Focus on Both Inter and Intra-Religious Harmony:** It guarantees equal protection for all religions and their followers.
- **Neutrality with Intervention:** While the Indian state remains neutral in matters of religious faith, it can take steps to reform social ills within a particular religion.

Arguments for the Indian Model

Promotes tolerance and acceptance: By ensuring equal treatment for all religions, the Indian model fosters a sense of mutual respect and understanding.

Enables social reform: The state's ability to intervene in religious practices allows for the eradication of social evils like untouchability.

Acknowledges the social reality of religion: Religion plays a significant role in Indian society; the Indian model recognizes this reality and facilitates its positive aspects.

Challenges of the Indian Model

Potential for state interference: The government's power to engage with religion could be misused for political gain.

Balancing religious freedom with social progress: The line between reform and infringement on religious freedom can be delicate.

Ensuring genuine equality: Despite constitutional guarantees, there have been instances where minority communities have faced discrimination.

Conclusion

The Indian model of secularism presents a unique approach to ensuring religious freedom and social harmony. It fosters a spirit of tolerance and respect for all religions, while allowing the state to intervene when necessary to address social issues.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements:

- Statement-I:** All religions in India have the same status and support from the state.
- Statement-II:** The Constitution of India has declared the term Secular as the Basic feature of the Constitution.

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

- Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- Both Statement-I and Statement-II are correct and Statement-I is not the correct explanation for Statement-II
- Statement-I is correct but Statement-II is incorrect
- Statement-I is incorrect but Statement-II is correct

(c) : ANSWER

Descriptive Question

Q. Evaluate the constitutional frameworks and legal mechanisms governing the relationship between religion and state in India and Western countries, highlighting similarities and differences. [15 Marks] [250 words]

ENFORCEMENT DIRECTORATE (ED)

Why in News: Recently, ED has been remained in the news its functioning and other issues.

Enforcement Directorate (ED)

- The Enforcement Directorate (ED) plays a crucial role in India's fight against financial crime.
- It was established in 1956 under the aegis of the Department of Economic Affairs and handles Exchange Control Laws violations under Foreign Exchange Regulation Act, 1947 (FERA 1947).

POWERS OF THE ED

- The Prevention of Money Laundering Act (PMLA), 2002:** The ED investigates money laundering offenses, attaches proceeds of crime, and prosecutes offenders.
- The Foreign Exchange Management Act (FEMA), 1999:** The ED investigates violations of foreign exchange laws, adjudicates cases, and imposes penalties.
- The Fugitive Economic Offenders Act (FEOA), 2018:** The ED attaches and confiscates properties of economic offenders who abscond from India.
- Summoning individuals** for questioning and production of documents.
- Attaching properties** suspected to be derived from proceeds of crime.



Challenges in the Functioning of the ED

- Political Interference:** Allegations of political interference in high-profile cases undermine the ED's independence and impartiality.
- Lack of Coordination:** Inadequate coordination with agencies like CBI, SEBI, and state police forces hinders efficient investigation and prosecution.
- Overburdened and Lengthy Investigations:** The complexity of financial transactions, legal hurdles, and lack of coordination with other agencies.
- Legal Challenges:** Delays in court proceedings, ambiguous legal interpretations, and limitations in the legal framework impede prosecutions and asset recovery.
- International Cooperation:** Differences in legal systems, jurisdictional issues, and diplomatic complexities create hurdles.

Way Forward

- Strengthening Institutional Capacity:** Increased manpower, improved infrastructure, and specialized training can enhance the ED's ability to handle complex financial investigations.
- Enhanced Inter-Agency Coordination:** Creating a robust mechanism for seamless information sharing and coordinated action with other law enforcement agencies is crucial.
- Ensuring Independence and Autonomy:** Insulation from political pressures through legislative and administrative safeguards is vital to maintain public trust and impartiality.

Conclusion

The ED plays a critical role in safeguarding India's financial system. By addressing the challenges, it faces and implement the suggested measures, the ED can become a more robust and effective agency. A well-functioning ED with enhanced capabilities and international cooperation will be instrumental in deterring financial crimes, recovering stolen assets, and promoting financial integrity in India.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. With reference to 'Enforcement Directorate (ED),' consider the following statements:

- While the police are mandated to provide the grounds of arrest to the detainee in writing within 24 hours, the Enforcement Directorate (ED) is not obligated to do so.
- It is not authorized to take Suo Motu action against the detainee under the Prevention of Money Laundering Act, 2002.

3. It is authorized to attach and freeze foreign assets owned by economic offenders under the Prevention of Money Laundering Act (PMLA) Act, 2002.

How many of the above statements are correct?

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

Answer: (b) (2 and 3 only)

Descriptive Question

- Q. Examine the challenges and criticisms faced by the Enforcement Directorate (ED), including concerns regarding its autonomy, accountability, and potential misuse for political purposes. [15 Marks] [250 words]

INTERNATIONAL REALATIONS

INDIA REJECTS CHINA'S 'SENSELESS' ARUNACHAL ACT

Why in News: The Ministry of External Affairs (MEA) spokesperson, firmly stated that regardless of what names others may use, Arunachal Pradesh is an integral part of India.

Key Details

- The Chinese government has **renamed 30 locations within Arunachal Pradesh**, a state in India. This marks the fourth instance of China renaming places in the region, following similar actions in **2017, 2021, and April 2023**.
- China claims some 90,000 sq km of Arunachal Pradesh as its territory.
- China claims the region as part of **"South Tibet,"** while India considers it an inseparable territory.

Border Dispute in Eastern India

- The border between India and China in the eastern sector is a point of contention.
- A historical agreement, the McMahon Line, significantly expanded British control northward. This included areas like Tawang, which were previously considered part as of Tibet.
- Chinese representatives initially approved the agreement, they later rejected it. The Chinese government continues to view the McMahon Line as invalid.
- China accuses India of occupying territory it considers part of its own, specifically southern Tibet which overlaps with India's Arunachal Pradesh state.
- China's claims are also based on historical connections between Tibetan monasteries in Tawang and Lhasa.

The McMahon Line

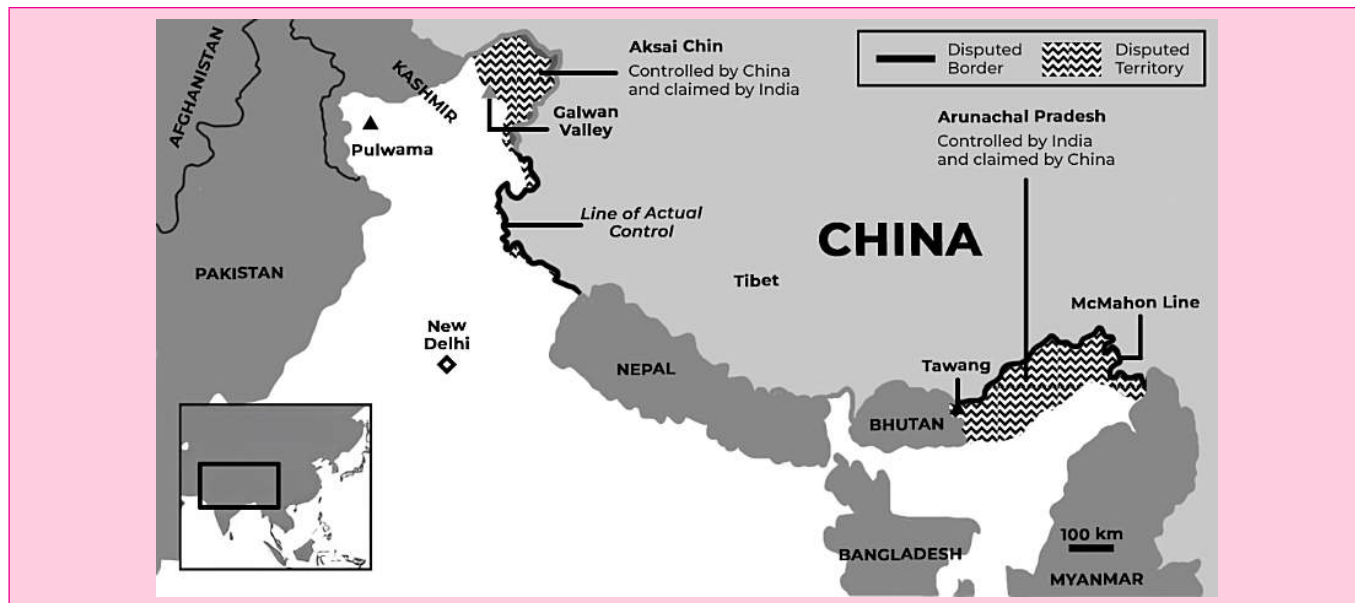
- The source of disagreement along the eastern portion of the India-China border lies in the **McMahon Line**. In 1913-1914, representatives from China, India, and Tibet convened in **Shimla to define the boundaries between Tibet and India and China**.
- During this conference, Sir Henry McMahon, who served as the foreign secretary for British India at the time, established the McMahon Line, **a 550-mile (890 kilometer) demarcation separating British India from Tibet**.
- This line stretches from the eastern border of Bhutan to the Isu Razi Pass on the border between China and Myanmar.

China's Standardized Maps

- **Territorial Disputes**
 - The map reflects China's claims to certain territories, including **Arunachal Pradesh and Aksai Chin**.
 - It also includes the disputed **"Nine-Dash Line"** encompassing the South China Sea, signifying China's stance on the region.
 - A new **"tenth dash"** appears near Taiwan, further emphasizing China's claim to the island.
- **Name Changes**
 - The new map incorporates the area of Arunachal Pradesh with new name which is close to the region of Itanagar and Tawang.

India's Counter-measures to China's Rise

- **Collaborating with Allies:** India works with other countries that share some kind of concern with China. They do this through groupings like the QUAD and I2U2.
- **Building Better Trade Routes:** India offers alternative trade routes to China's Belt and Road Initiative with projects like IMEC and INSTC corridors.
- **Countering China's Military Reach:** India is building its naval power, expanding military bases, and working closely with other countries (like presently, India shares very close relationship with the United States, Russia, France, Israel, Germany, etc.) to limit China's military influence.
- **Strengthening Border Security:** India is improving roads and infrastructure along its borders, particularly those areas which have close proximity with China.
- **Cooperation with Neighbours:** India helps its neighbours, like Bhutan, and Nepal with various projects like BBIN to increase corporation and reduce China's influence.



Way Forward

To strengthen borders focus should be on infrastructure development via roads and communication systems, enhancement of modern military technology, collaboration with other neighbouring countries and building a robust economy.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following mountain passes:

1. Diphu 2. Muling la 3. Bilafond La

How many of the above are located on the McMahon Line?

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

Answer: (a) (1 only)

Descriptive Question

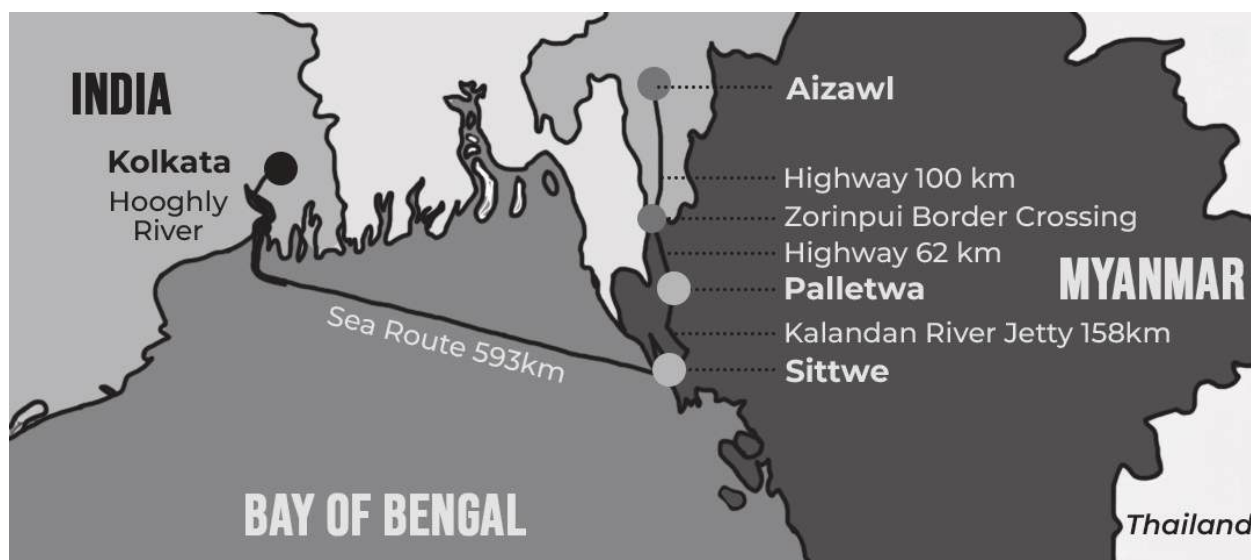
Q. Analyse the historical context and geopolitical factors influencing territorial disputes and claims over Arunachal Pradesh, particularly in the context of India-China relations and border issues? [15 Marks] [250 words]

INDIA GAINS SITTWE PORT ACCESS

Why in News: India now has the authority to run Sittwe, a second overseas port in Myanmar, following Chabahar in Iran. Port situated on the Kaladan River will be managed by India Ports Global (IPGL) as the Ministry of External Affairs (MEA) gave approval.

Key Details

The Ministry of Ports, Shipping, and Waterways is the sole owner of IPGL.



Sittwe Port

- It is an essential **part of the Kaladan multi-modal transit transport project**, which is located in the **Rakhine province** of Myanmar.
- This **deep-water port** offers a major connectivity benefit, making it easier to move freight from Vizag and Kolkata to **the states in the Northeast** without having to go through Bangladesh.
- India's **maritime influence is increased** by its operational control over important foreign ports like Sittwe and Chabahar.

Importance of Sittwe Port

- The project intends to establish a maritime link between the seaports of Sittwe(Myanmar) and Kolkata (eastern India).
- Additionally, it connects Paletwa, Myanmar, to Zorinpui, Mizoram, via a road component, and Sittwe Port to Paletwa, Myanmar, via the Kaladan River canal.
- This link will cut the price and travel time from Kolkata to Mizoram and other destinations.
- Additionally, it will lessen reliance on the chicken's neck, or Siliguri Corridor, which is crammed between Bangladesh and Bhutan, by diversifying transportation routes.
- China's String of Pearls policy, which entails securing ports like Hambantota in Sri Lanka and Djibouti in Africa, is also countered by this control.

Challenges in operation of Sittwe Port

- **Financial Burden:** Transport of cargo to Mizoram or Tripura will face a challenge as there is a need of strong road link which is under the control of Myanmar and rebel forces and India has already invested \$500million, more investment may lead to financial burden
 - **Security:** The region where the port is located, Rakhine State, has experienced instability and conflict in the past, raising concerns about the security of port operations and infrastructure. Intense fighting with the rebel Arakan Army, the Myanmar junta struggled to keep control of Sittwe.
 - **Environmental Impact:** The construction and operation of the port raised many environmental consequences, such as habitat destruction, pollution, and disruption to local ecosystems.
 - **Social Impact:** The port's development could impact local communities, including displacement of residents, changes to livelihoods, and concern regarding preservation of cultural heritage
 - **Governance and Transparency:** There have been concerns about governance, transparency, and accountability in the management of the port project, including issues related to corruption and lack of public consultation in the past.

- **Geopolitical Tensions:** Because of its strategic location and interest of India in the project.
- **Political Instability:** If there will be any kind of political tensions or changes in either India or Myanmar, it would affect the stability and continuity of the project. Political instability in the region could lead to disruptions in operations or changes in strategic priorities.

Kaladan Multi-Modal Transit Transport Project

- It establishes a maritime link between the ports of **Sittwe in Rakhine State, Myanmar, and Kolkata in India.**
- The project in Myanmar uses the **Kaladan river boat route to connect Sittwe seaport to Paletwa in Chin State.** From Paletwa, there is a road that leads to Mizoram state in Northeast India.
- The Indian government is funding the project, which aims to **cut the distance between Kolkata and Sittwe by about 1,328 Km.**
- At first, completion was expected by 2014.
- The project is impacted by the **Rohingya and Chin conflicts**, as well as **millitant groups like the Arakan Rohingya Salvation Army (ARSA) and Arakan Army.**
- The Kaladan Multi-Modal Transit Transport Project consists of several sections that integrate several modes of transportation, including as **road, river, and sea lines.**
- **Sea Route:** This comprises the following routes: Kolkata-Sittwe shipping route, Sittwe seaport to Paletwa inland jetty river boat route, Sittwe Special Economic Zone at Ponnagyun town, Paletwa inland jetty to Zorinpui road route in Myanmar, and the Zorinpui to Aizawl Road route in India.
- **Road:** This project will supplement the Kaladan Multi-Modal Transit Transport Project in Myanmar-Mizoram's river-road route.
- **Railway:** It has three railways: the Zochawchhuah (Zorinpui)-Sairang railway in India, the Kyaukhtu-Zorinpui railway in Myanmar and , the Sittwe-Kyaukhtu railway in Myanmar.

Conclusion

India's acquisition of operational rights for the Sittwe Port in Myanmar marks a strategic milestone, bolstering regional connectivity and maritime influence. Despite potential challenges regarding sovereignty, infrastructure development, local corporation, and effective management can mitigate the challenges. This development enhances India's position in the Indo-Pacific region, countering geopolitical dynamics and strengthen economic ties with Myanmar.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

- Q. What is the importance of developing 'Sittwe Port' by India?
- India will get an alternative route to the Siliguri Corridor to transport logistics to northeastern India.
 - India's relations with oil-producing Arab countries will be strengthened.
 - India will not depend on Pakistan for access to Afghanistan and Central Asia.
 - Pakistan will facilitate and protect the installation of a gas pipe between Iraq and India.

(a) :Answer

Descriptive Question

- Q. Discuss the strategic significance of India's access to the Sittwe Port in Myanmar and its implications for India's maritime security, connectivity, and regional influence in the Bay of Bengal. Also state the issues in operation of Sittwe port? [15 Marks] [250 words]

UN SECURITY COUNCIL RESOLUTION ON GAZA

Why in News: The UN Security Council demanded an urgent ceasefire in Gaza after five and a half months of fighting which resulted in numerous deaths and large-scale displacement.

Key Details

- Domestic politics and international relations challenges include pro-Israel lobbying and potential Republican Party backlash.
- Balancing Israel support with Arab engagement poses diplomatic challenges due to region's complex geopolitical dynamics.

UNSC Resolution Passed on Israel

- Calls for immediate ceasefire for Ramadan and release of Israeli captives.
- Emphasizes need for humanitarian aid and adherence to international law.
- All UNSC resolutions are considered binding, but the latest is non-binding.
- If not followed, the council can vote on a follow-up resolution and take punitive action.
- Previous resolutions include 2016's illegal settlements in Palestine and 2023's non-binding humanitarian ceasefire.

- Israel is under scrutiny from the International Court of Justice (ICJ) for allegations of genocide in Gaza.

ISRAEL'S WAR ON GAZA

UN adopts resolution on ceasefire in Gaza

The UN Security Council adopts a resolution demanding an 'immediate ceasefire in Gaza for the month of Ramadan' leading to a lasting ceasefire, the 'immediate, unconditional release of all hostages' and humanitarian aid access.

In Favour (14)		Against (0)	Abstained (1)
Algeria	Mozambique		• US
• China	South Korea		
Ecuador	• Russia		
• France	Sierra Leone		
Guyana	Slovenia		
Japan	Switzerland		• Permanent Member
Malta	• UK		

UNSC

- Established post-WWII to address League of Nations' failures in global peace and security.
- Primary responsibilities include ensuring international peace, recommending new UN member admissions, and approving changes to the UN Charter.
- Has significant powers outlined in the UN Charter, including authority to establish peacekeeping operations, impose sanctions, and authorize military action.
- Resolutions passed by the Security Council are binding on member states.
- Comprises 15 members, with five permanent P5 (China, France, Russia, UK, and USA) having veto power over substantive resolutions.
- Permanent members can veto any substantive resolution, but not General Assembly matters.

The America role in UN Ceasefire Resolutions

- USA vs. Russia:** The USA continues to support Israel militarily and avoids condemning them. They recently abstained from a ceasefire vote instead of vetoing it, unlike Russia who wanted a stronger resolution.
- USA Draft Resolution:** Before the current resolution, the US proposed one that **didn't demand a ceasefire but focused on hostage release** alongside a ceasefire. This was vetoed by others.
- USA Position on Hamas:** The USA criticizes the current resolution for not condemning Hamas, which they consider a terrorist organization.
- Impact on USA-Israel Relations:** USA actions have strained relations with Israel, who see it as a shift in USA policy.

Israel's Response to the Ceasefire Resolution

- Israel criticized the resolution for not conditioning a ceasefire on the release of Israeli hostages under Hamas control.

- Israel alleged an **invasion of Rafah**, a town home to 1.4 million Palestinians, which would be inappropriate given the call for an immediate ceasefire.
- The war has increased Israel's isolation, leading to tensions with its close partners, including the US and Britain.
- Israel's refusal to respect the USA's "red line" and deny the principle of a two-state solution as it has damaging impact on Israel's long term interest.
- The UN's decision to impose the resolution on Israel but not Hamas, a Palestinian group, has been criticized as discriminatory and a partial resolution.

Israel's Path to Peace

- **Prioritizing Long Term Peace:** End violence, allow aid, and resume talks to free hostages and withdraw troops.
- **Upholding Accords:** Maintain Israel's improved relations with neighbours and the world, especially through the Abraham Accords.
- **Engaging with Hamas:** Collaborate to secure the release of hostages on both sides.
- **Aligning with the USA:** Address concerns about civilian casualties in Gaza and lack of aid.
- **India's Role as a Mediator:** Use India's position on the Human Rights Council to promote a balanced approach to peace.

Conclusion

The USA's abstention in a UNSC resolution on the Israel-Palestine conflict highlights growing tensions between the USA administration and Israel. Israel's refusal to heed warnings and maximalist positions include risk of isolation and undermine regional stability and national interests.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements with reference to the United Nations:

1. Each year the General Assembly elects five non-permanent members (out of 10 in total) for a two-year term.
2. United Nations gives the UNSC the authority to impose sanctions measures which does not involve the use of armed force.
3. In past, UNSC has authorized military force to reverse or repel aggression by one State against another.

How many of the above statements are correct?

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

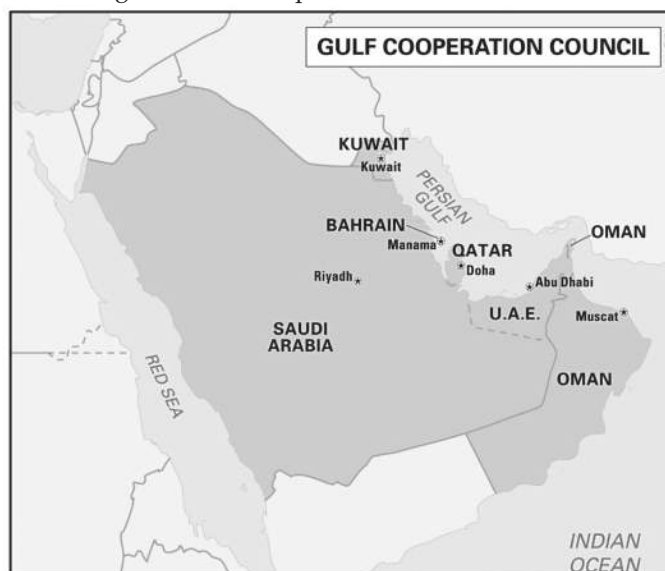
Answer: (c) (All three)

Descriptive Question

Q. What are the major obstacles to achieve a lasting peace agreement between Israel and Palestine, and how have previous peace efforts addressed or failed to address these challenges? [15 Marks] [250 words]

'VISION FOR REGIONAL SECURITY' ANNOUNCED BY THE GULF COOPERATION COUNCIL (GCC)

Why in news: Recently, the Gulf Cooperation Council's (GCC) unveiled its 'Vision for Regional Security' in Riyadh marks a significant development for West Asia.



- Headquarters: Riyadh, the capital of Saudi Arabia.
- The GCC comprises **six Arab nations (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates)** and is dedicated to advancing economic and political cohesion within the region.
- It was **established in 1981**, its primary goal is to enhance cooperation across various domains including economics, social affairs, defence, and cultural exchange among the Persian Gulf Arab states.

Vision and its Significance

- **Collective Security:** The emphasis on "shared destiny" and "indivisible security" strengthens regional stability.
 - Any attack on one member is seen as an attack on all, fostering a deterrent effect against external threats.
- **Combating Terrorism:** The vision **prioritizes countering terrorism and extremism**.
 - Disrupting terrorist financing and money laundering are crucial steps in weakening terror networks.
- **Maritime Security Cooperation:** Recognizing the importance of **seafaring trade and energy routes**, the focus on regional and international collaboration for maritime security is vital.

- This ensures the free flow of goods and resources, critical for the GCC economies.
- **Nuclear Non-Proliferation:** In light of the Iran-Israel nuclear programs, the GCC's call for a "Weapons of Mass Destruction Free Zone" (WMDFZ) is a positive step towards regional peace and stability.
- **Economic growth:** The partnership fosters trade and investment opportunities. India is a significant trading partner for the GCC Countries with bilateral trade crossing \$100 billion.
- **Diplomatic influence:** Enhanced cooperations amplifies India's diplomatic influence in the region, providing it with a platform to engage in discussions on regional and global issues.

Challenges

- **Internal Disputes:** While the vision emphasizes unity, resolving internal political disputes within the GCC remains a challenge.
 - The ongoing **Qatar blockade** by other GCC members is a concerning point.
- **Israel-Palestine Conflict:** The vision's focus on the Arab Peace Initiative is commendable.
 - However, achieving a lasting solution requires addressing the core issues of the conflict and engaging all stakeholders meaningfully.



- **Divergent foreigner policy Goals:** diverging interests within the GCC, particularly regarding relations with Iran and the US, hamper unified foreign policy efforts.
- **Human Rights Concerns** allegations of human rights abuses in member states, like the treatment of migrant workers in Qatar tarnish the bloc's international reputation.

Conclusion

The GCC's vision for regional security offers a framework for cooperation. Addressing internal disputes and fostering a lasting solution to the Israel-Palestine conflict for long-term stability. India's strategic partnership with the GCC can be further strengthened by deepening cooperation in energy, trade, defence, and technology.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following countries:

1. Yemen
2. Bahrain
3. Kuwait
4. Iran
5. Saudi Arabia

How many of the above are members of Gulf Cooperation Council (GCC)?

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

Answer: (b) (2, 3 and 5 only)

Descriptive Question

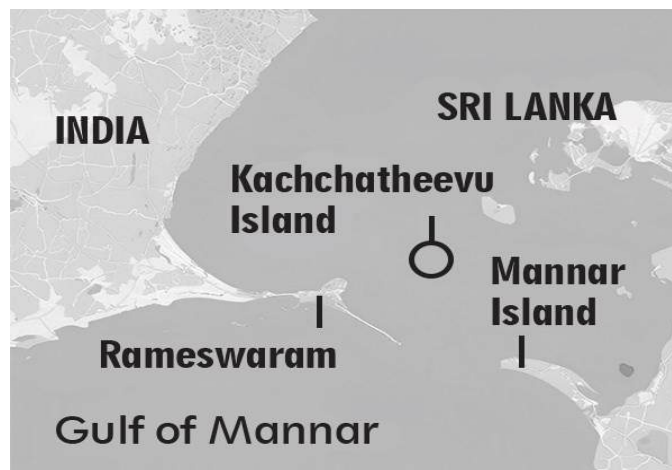
Q. Analyse the strategic significance of the Gulf Cooperation Council (GCC) as a key partner for India in the trade, energy security, and geopolitical cooperation. [15 Marks] [250 words]

KATCHATHEEVU ISLAND

Why in News: The Katchatheevu Island has been in news with respect to rights of Indian fishermen which can impact India-Sri Lanka relations.

Key Details

- Katchatheevu, a small, uninhabited island in the Palk Strait, was claimed by both India (formerly Madras Presidency) and Sri Lanka. The crux of the issue lies in varying historical interpretations
- India:** Katchatheevu's ownership was contested throughout history. Initially ruled by the Jaffna kingdom of Sri Lanka, control shifted to the Ramnad zamindari in the 17th century. Following Indian independence, the dispute with Sri Lanka persisted until 1974.
- Sri Lanka:** Maintains sovereignty citing Portuguese control during the 16th century.



Stakeholder Perspectives

- Tamil Nadu:** The state government has consistently opposed the ceding of Kachchatheevu, demanding its retrieval or a perpetual lease. This reflects the concerns of Tamil Nadu fishermen who have traditionally fished in these waters.
- Union Government:** The central government's stance has evolved. Initially, it downplayed the issue, citing the 1974 agreement as a settlement. However, in 2022, it acknowledged that Kachchatheevu lies within Sri Lanka's EEZ.

Way Forward

- Dialogue and Joint Patrols:** Regular diplomatic discussions and joint patrolling by Indian and Sri Lankan coast guards can foster trust and prevent misunderstandings.
- Clear Fishing Agreements:** Revising the 1974 agreement with clear regulations on fishing rights in the Palk Strait can benefit both sides.
- Alternative Livelihoods for Fishermen:** Supporting Indian fishermen in developing alternative livelihoods or deep-sea fishing capabilities can lessen dependence on disputed waters.
- Compensation for Apprehended Fishermen:** A mechanism for fair and swift compensation for apprehended fishermen can mitigate the economic hardship caused by arrests.
- Regional Cooperation:** Collaboration with other regional players like Bangladesh in managing shared fisheries resources can set a positive example.

Conclusion

Resolving the Katchatheevu issue requires a nuanced approach that acknowledges historical complexities, addresses the concerns of fishermen, and prioritizes peaceful co-existence in the Indian Ocean.

The Indo-Sri Lankan Maritime Agreements and their Aftermath	
1	1974 Agreement: In an attempt to resolve the dispute, India ceded Katchatheevu to Sri Lanka. However, the agreement allowed Indian fishermen continued access to the island for traditional fishing activities.
2	1976 Agreement: This agreement established Exclusive Economic Zones (EEZs) for both nations, with Katchatheevu positioned at the boundary. While intended to clarify fishing rights, it led to ambiguity due to differing interpretations.
3	The crux of the problem lies in the differing interpretations of the agreements. Sri Lanka restricts Indian fishermen's activities like drying nets and visiting the shrine on Katchatheevu without visas.
4	This has led to tensions, with arrests and allegations of abuse against Indian fishermen venturing into Sri Lankan waters.
5	The unassuming Katchatheevu Island, a 285-acre speck in the Palk Strait, has emerged as a contentious point in India-Sri Lanka relations.
6	The island's ownership and fishing rights around it highlight the complexities of maritime boundary disputes and their impact on livelihoods.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. With reference to the Katchatheevu islands, consider the following statements:

1. It is an uninhabited island located in the Palk Strait.
2. It forms a maritime boundary between the Gulf of Mannar and Bay of Bengal.
3. Indian fishermen do not require a passport to visit this island.

How many of the above statements are correct?

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

Answer: (c) (All Three)

Descriptive Question

Q. Enumerate the Indo-Sri Lankan Maritime Agreements after 1950s. What steps can be taken to address the concerns of fishermen of both the countries. [15 Marks] [250 words]

INDIA'S VISION FOR GLOBAL SOUTH

Why in News: India's increasing global prominence and advocacy for the Global South have led to a heightened focus on Africa during official visits.

Key Details

- India and Africa have a longstanding partnership built on common ground. India is well-respected across Africa.
- Trade between the two continents has flourished, increasing from \$68.5 billion to \$90.5 billion over a decade.
- Additionally, India is now among the top five investors in Africa.

India's Role for Developing Countries (Global South)

- **Representation:** India acts as a champion for developing nations, ensuring their concerns are addressed in important global meetings (G20). Initiatives like the "Voice of Global South Summit" provide platforms for these countries to discuss shared challenges.
- **Reform:** India pushes for changes in international organizations to better represent developing countries' interests. This includes areas like taxation rules, climate change funding, and increased decision-making power in institutions like the UN Security Council.
- **Cooperation:** India encourages collaboration among developing nations by sharing knowledge, technology, and resources. The India-UN Development Partnership Fund supports sustainable development projects led by developing countries, particularly those facing the most challenges.

- **Climate Action:** India's vision involves working together to tackle climate change. Through initiatives like the International Solar Alliance, India promotes renewable energy use in Asia, Africa, and Latin America, fostering both sustainable development and climate resilience.

India's Gains from prioritizing Africa in its Global South Focus

- **Economic Boost:** Africa offers a significant market for Indian businesses. With substantial investments and booming trade, the continent presents a lucrative opportunity for economic growth.
- **Stronger Partnerships:** Africa's growing influence on the global stage makes them a valuable strategic partner for India. India's support for Africa's inclusion in major forums reflects a shared desire for inclusive global leadership. India has already achieved success, like securing a seat for African Union in G20.
- **Investing in the Future:** Africa's young population presents a vast potential for collaboration in education, technology, and innovation. India's experience can empower African youth and contribute to long-term development.

Global South

1 Global South

- A term describing developing nations, often located in Africa, Asia (excluding high-income areas), Latin America, and the Caribbean. These countries typically have lower GDPs, higher poverty, and less infrastructure compared to the "Global North."

2 Concept, not Location

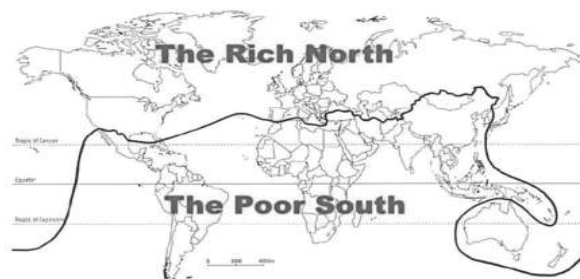
- The Global South refers to shared economic, political, and geopolitical characteristics, not strictly geographical location.

3 Origins

- The term emerged in the 1960s and the Brandt Line (1980s) visualized the economic divide.

4 Group Representation

- The Group of 77 (G-77), founded in 1964, represents developing nations at the UN.



- **Resource Collaboration:** Africa's abundant natural resources, particularly those crucial for renewable energy, create exciting opportunities for joint ventures. India's expertise can be combined with Africa's resources to drive progress in sustainable development.
- **Enhanced Global Influence:** A strong partnership with Africa strengthens India's position on the world stage. This allows India to play a more significant role in shaping global governance and addressing issues important for developing nations. Additionally, closer ties with Africa can counterbalance other countries' influence on the continent.

India's Leadership Challenges in the Developing World

- **Domestic Demands:** India faces criticism for focusing on global leadership while neglecting internal issues like poverty, unemployment, and infrastructure. Critics argue India should address these challenges before leading others.
- **Diverse Needs:** Developing nations have varying priorities. Africa might seek debt relief, while Southeast Asia prioritizes technology. India needs to bridge these differences while promoting unity.
- **Balancing Partnerships:** Strong economic ties with developed countries like the USA and Japan can create a conflict. India might hesitate to push for policies that could harm trade with these partners.
- **Climate Change:** As the world's third-largest emitter, India's own environmental record weakens its credibility when advocating for climate action in the Global South.

Way Forward

- **Frugal Tech Labs:** Establish labs to develop affordable tech solutions for common problems in developing countries, like healthcare and education.
- **Shared Leadership:** Create a rotating leadership council with representatives from various Global South regions to foster collaboration.
- **Satellite Network:** Develop a low-cost satellite network led by developing nations to provide data and services in remote areas. This can leverage advanced tech for disaster response.
- **Vocational Training:** Set up training centres across the Global South to equip individuals with job-relevant skills and boost local economies.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

- Q. The trend recently seen in the news about the 'Global South' is
- (a) Increased dependence on foreign aid.
- (b) Growing influence of regional economic blocs.

(c) Widespread decline in poverty rates.

(d) Universal adoption of Western political systems.

(b) :Answer

Descriptive Question

- Q. Evaluate the economic dimensions of India's Africa policy, including trade, investment, and development cooperation initiatives aimed at fostering sustainable growth and inclusive development in Africa. [15 Marks] [250 words]

IRAN ISRAEL CONFLICT

Why in News: In a major escalation, Iran launched a forceful attack on Israel using hundreds of missiles and drones.

Key Details

- This recent attack marks a major step in the long-running dispute between Israel and Iran.
- Iran used more than 300 projectiles, including more than 120 ballistic missiles, cruise missiles, and almost 170 drones, to launch a massive strike on Israel.

Historical Background of Iran-Israel Relationship

Iran-Israel Relation before 1979

- + Iran acknowledged Israel's formation in 1948, but abstained from involvement. After Israel's victory, Iran established diplomatic relations with the Jewish state.
- + Iran's ruler, Muhammad Reza Shah Pahlavi, maintained pro-Western foreign policy despite Arab economic boycotts, maintaining diplomatic ties with Israel and exporting oil.

The 1979 Revolution

- + Following the 1979 Islamic Revolution, Iran transformed into a religious state, redefining Israel as an occupier of Palestinian territories and challenging US-aligned powers like Saudi Arabia and Israel.

Shadow War Post 1979

- + Following the 1979 Iranian Revolution, Israel and Iran's relations worsened, leading to covert conflict. In the early 2010s, Israel targeted Iranian facilities and scientists involved in nuclear weapons development.
- + Stuxnet, a computer virus, crippled Iran's nuclear program. Iran's support for militant groups like Hezbollah and Hamas raises concerns about potential conflict escalation.

Recent Tensions Between Israel and Iran (2018-April 2024)

2018

Israel backed the US withdrawal from the Iran nuclear deal, a pact it previously opposed.

2020	Tensions rose when Israel supported the US drone strike that killed a top Iranian general, leading to Iranian retaliation against US troops in Iraq.
October 2023	Hamas, a group supported by Iran, launched missile attacks on Israel. Israel responded with airstrikes in Gaza.
November 2023	Citing threats from Hamas, Israel conducted raids in Gaza, including targeting medical facilities, raising concerns about civilian casualties.
November 2023	landed a helicopter on a cargo vessel in the Red Sea, disrupting trade routes.
December 2023	Increased Israeli ground offensives in Gaza led to a rise in casualties and refugees, prompting international calls for a ceasefire.
April 2024	Iran launched a missile attack on Israel in response to an alleged Israeli strike on its consulate in Syria. Israel, with support from its allies, intercepted most missiles, showcasing its air defense

- Unlike past clashes with Hamas, this incident directly involves two regional rivals.
- It shows how tensions are growing and suggests there could be more conflict in the future.
- The mood in Israel is of celebration, "We intercepted, we stopped, and we will win."

Potential Global Impact of Iran-Israel Conflict

- **Military Action Risk:** Israel may retaliate if Iran pursues nuclear weapons, which leads to tensions and raising the risk of a wider conflict.
- **Oil Market Disruptions:** As a major oil producer, Iran's conflict could disrupt global oil supplies, impacting countries like India that rely on imports. This could lead to higher prices and economic instability.

Way Forward

Aspect	Summary
Sustainable Ceasefire and Two-State Solution	Israel should accept a ceasefire and open borders for aid. The two-state solution is the way for long-term peace.
Dialogue and Diplomacy	An international initiative should mediate a ceasefire between Israel and Iran. Direct talks facilitated by a neutral third party could help.
Addressing Nuclear Proliferation Concerns	Iran could adhere to JCPOA and allow inspections to ensure compliance. Israel could recognize Iran's right to peaceful nuclear energy and commit to refraining from military strikes.
Regional Cooperation	Promoting cooperation between Iran and Israel within regional organizations could address shared security concerns and foster stability.
Long-Term Vision for the Middle East	Regional powers could establish a comprehensive security architecture to address concerns and reduce conflict.
Normalization of Relations	Iran and Israel could take steps towards normalizing diplomatic relations.

- **Global Economic Strain:** Geopolitical tensions could cause a rise in commodity prices, inflation, and a shift from riskier investments like Indian stocks to safer options.
- **Trade and Travel Challenges:** The conflict could disrupt trade and travel, especially by air and sea. This could impact India's exports and supply chains.
- **India's Balancing Act:** India has close ties with both Israel and Iran. The country must balance its defense cooperation with Israel and its economic ties with Iran while ensuring regional stability for its energy needs and citizens abroad.

RIISING ENERGY DEMAND

FINANCIAL YEAR : OIL IMPORT DEPENDENCY*

2023-24	87.7
2022-23	87.4
2021-22	85.5
2020-21	84.4
2019-20	85
2018-19	83.8



Impact of Iran-Israel Conflict on India

- **Economic Interests:** Threat to India's trade, investment, and energy imports in the Middle East. Potential disruptions in trade routes and increased oil prices.
- **Security of Indian Diaspora:** Turmoil and conflict pose risks to the large Indian diaspora in the Gulf region. Concerns about piracy, hostage-taking, and instability.
- **Instability in Global South Governance:** Recognizes Middle East's importance for global south governance and stability. Instability affects regional dynamics and international security.

Conclusion

The Middle East's instability impacts Global South and Governance, necessitating **non-violence, diplomatic dialogues, and responsible policies** to mitigate long-term challenges and promote global governance.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following countries:

- | | |
|-----------------|-----------------|
| 1. Turkmenistan | 2. Saudi Arabia |
| 3. Bahrain | 4. Kuwait |

How many of the above countries share the maritime border with Iran?

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

Answer: (c) (2, 3 and 4 only)

Descriptive Question

Q. Assess the historical background of Iran-Israel relationship. Discuss the potential impact of Iran-Israel Conflict globally and particularly on India. [15 Marks] [250 words]

AUKUS ALLIANCE- EXPANSION OF MEMBERSHIP

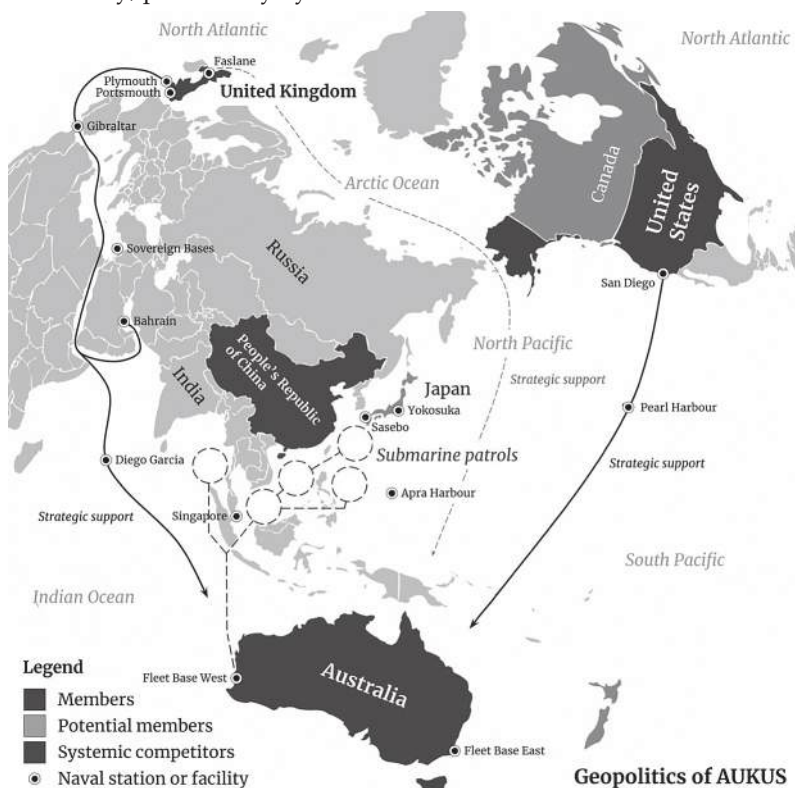
Why in News: The AUKUS alliance, consisting of Australia, the United Kingdom, and the United States of America, is gearing up for talks on potential membership expansion, signalling a strategic move towards broadening its reach beyond its original geo-political influence.

AUKUS Alliance

- Australia, the UK, and the USA (AUKUS) signed a trilateral security alliance for the Indo-Pacific in 2021.
- The originating point of this agreement is that Australia will receive US nuclear submarine technology.
- It is an alliance against China's forceful moves in the South China Sea because of its Indo-Pacific policy.
- It creates a new forum for the three nations' meetings and interactions in addition to collaboration on cutting-edge technologies (undersea capabilities, quantum technologies, and applied AI).
- India is not included in the collective. Though no formal interaction has yet taken place, informal discussions about developing technologies have taken place between India and the AUKUS bloc.

Significance of AUKUS Alliance for the region

- The security landscape in the Asia-Pacific is notably affected by AUKUS. The alliance's decision to share sensitive defence technologies and intelligence, including the transfer of nuclear-powered submarine technology to Australia, is perceived as a challenge to regional stability, particularly by China.



- Diplomatically, AUKUS has stirred reactions among key regional players. Countries like India, Japan, and South Korea, traditionally considered close U.S. allies, view the alliance as a diplomatic setback.
- They fear being sidelined and see their influence in the region potentially diminishing as AUKUS strengthens ties among its members.
- The transfer of nuclear submarine technology also has implications for global non-proliferation efforts.
- Experts worry that this move **could set a dangerous precedent**, potentially encouraging other countries to pursue similar capabilities, thereby complicating efforts to maintain **nuclear non-proliferation norms**.
- **Economically**, AUKUS raises **concerns** for countries with **significant defence industries, such as India**.
- Increased competition for defence contracts and potential limitations on selling defence equipment to Australia could impact these countries' **defence exports and economic interests** in the region.

In what ways can AUKUS affect India?

- Strengthening relationship with Australia becomes necessary as India has the opportunity to deepen its scientific and technical cooperation with Australia, leveraging its upgraded capabilities in sensitive strategic areas such as submarine and nuclear technologies.
- This collaboration would not only enhance India's technological prowess but also contribute to regional peace and security.
- Acceptance of continued global strategic importance of Britain as India often overlooks Britain's strategic importance, but the AUKUS agreement may elevate the UK's profile in Asia.
- India could explore avenues for closer cooperation with Britain on Indo-Pacific security matters.
- Emergence of modern day "Anglosphere" despite historical complexities, the AUKUS pact has revitalized enduring geopolitical ties among English-speaking nations like the USA, UK, Australia, Canada, and New Zealand.
- Developing unique diplomatic relationship with the US aiming to bolster the strategic capabilities of its allies and partners in the Indo-Pacific.
- India has a rare opportunity to forge its own set of arrangements with the USA and its allies. This may involve enhanced military collaboration, joint exercises, and intelligence sharing, among other measures.

What should be India's approach to safeguard its strategic interests?

- **Exploring Collaboration Opportunities:** India can seek collaboration and technology transfer with AUKUS nations, ensuring its national security interests remain intact.

- Areas like maritime security, cybersecurity, and intelligence sharing offer potential avenues for cooperation.
 - **Maintaining Equilibrium:** India must **strike a balance** in engaging with AUKUS and other key partners like **Russia, France, and Japan**.
- It should avoid being drawn into a zero-sum game and maintain strong ties with all relevant countries, considering the intricate geopolitics of the Indo-Pacific.
- **Strengthening other grouping like the Quad:** India should prioritize strengthening the Quad, providing a counterbalance to AUKUS and promoting a rules-based regional order.
- Leveraging the Quad can advance regional stability and power equilibrium.
- **Ensuring Independent Voice:** India should ensure the interests of smaller regional countries are not sidelined in its engagements with AUKUS.
- **Taking a leadership role,** India can foster a cooperative and inclusive approach to regional security issues.

Conclusion

India's response to the AUKUS alliance requires a delicate balance between leveraging collaboration opportunities and safeguarding national interests. By maintaining equilibrium in its engagements, strengthening multilateral frameworks like the Quad, and ensuring inclusivity in regional security initiatives, India can effectively navigate the evolving Indo-Pacific dynamics. This approach will enable India to promote stability, cooperation, and its strategic interests in the region.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following countries:

1. Israel
2. The United States of America
3. Australia

How many of the above are one of the founders of AUKUS?

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

Answer: (b) (2 and 3)

Descriptive Question

Q. Discuss the strategic significance of the AUKUS alliance. In what ways can AUKUS affect India? Also, what should be India's approach to safeguard its strategic interests? [15 Marks] [250 words]

AGRICULTURE INTEGRATED COMMAND AND CONTROL CENTER

Why in News: The inauguration of the Agriculture Integrated Command and Control Center marks a significant step towards empowering Indian farmers with digital technologies.

Digital Agriculture

- Digital agriculture integrates cutting-edge technologies like AI, robotics, and sensors into agricultural practices.

Challenges on the Road to Digital Transformation

Limited Digital Infrastructure

The lack of robust internet connectivity and electricity in rural areas hinders access to digital tools for farmers.

Digital Divide

The vast disparity in digital literacy and access between urban and rural India poses a major challenge.

Technology Affordability

Many digital solutions require substantial investments, making them unaffordable for small and marginal farmers.

Fragmented Agriculture Sector

The sheer diversity of crops and farming practices across different regions makes developing universally applicable digital solutions challenging.

Capacity Building

Equipping farmers with the necessary skills to effectively utilize digital tools and interpret data remains a critical concern.

Government Initiatives in Digital Agriculture

- India Digital Ecosystem of Agriculture (IDEA):** This framework aims to establish a unified farmers' database for developing innovative, technology-driven solutions for the agricultural sector.
- National e-Governance Plan in Agriculture (NeGP-A):** This program provides financial support to states for integrating AI, ML, robotics, drones, data analytics, and blockchain technology into agricultural practices.

- National Agriculture Market (e-NAM):** This pan-India electronic trading platform connects various mandis, creating a unified national market for agricultural commodities and offering digital services to farmers, traders, and mandis.
- PM KISAN Scheme:** This scheme facilitates direct financial support to eligible farmers through direct bank transfers, with self-registration options available online for wider accessibility.
- Integrated Scheme for Agricultural Marketing (AGMARKNET):** This program offers backend subsidy support for developing agricultural marketing infrastructure and provides online services through the AGMARKNET portal for stakeholders.
- Mobile Apps by ICAR:** Over 100 mobile applications developed by ICAR, State Agricultural Universities, and Krishi Vigyan Kendras provide valuable information to farmers on various agricultural aspects.

Conclusion

Embracing digital agriculture holds immense potential to transform the Indian agricultural sector. By addressing the existing challenges and fostering inclusive growth, this technological revolution can empower farmers, ensure food security, and pave the way for a more sustainable and prosperous future.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

- Q. Consider the following statements with reference to the Agriculture Integrated Command and Control Center:
- It is online internet-based platform that identify farmers with their Aadhaar numbers.
 - It generates customized advisories in the local language of the farmers.

Which of the statements given above is/are correct?

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

Answer: c

Descriptive Question

- Q. Evaluate the potential benefits and challenges associated with digital technologies in the agriculture? Mention government initiatives in Digital Agriculture. [15 Marks] [250 words]

50 YEARS OF KRISHI VIGYAN KENDRAS (KVKs)

Why in News: The Indian Council of Agricultural Research (ICAR) recently celebrated the Golden Jubilee of Krishi Vigyan Kendras (KVKs) on 21st March 2024.

Krishi Vigyan Kendras (KVKs)

More About KVKs	
• Origin It was established in 1974 based on the recommendations of the Education Commission (1964-66) and the Mehta Committee (1973).	• Objective To reduce the time lag between research innovations and their adoption by farmers in specific locations.
• Structure KVKs are integral parts of the National Agricultural Research and Extension System (NARES), which spearheads agricultural research activities for the benefit of Indian farmers.	• Network India boasts a vast network of 731 KVKs, with each KVK catering to over 5,000 farmers.
Key Activities and Achievements of KVKs	
 • On-farm testing KVKs conduct on-farm trials to evaluate the suitability and effectiveness of new agricultural technologies under diverse conditions.	• Farmer training KVKs play a critical role in capacity building by providing training programs to farmers on various topics, including new cultivation practices, pest management, post-harvest technologies, and value addition.
• Success Stories • Crop Residue Management KVKs were instrumental in implementing the in-situ crop residue management program, significantly reducing the practice of residue burning in states like Punjab, contributing to improved air quality and soil health. • Agro-meteorological Services KVKs house District Agricultural Meteorological Units (DAMUs) that provide vital agro-advisories to farmers based on weather forecasts, helping them make informed decisions about their crops. • Promoting government services KVKs are linked with Common Service Centres (CSCs), facilitating easier access for farmers to various government schemes and services. • Value addition & diversification KVKs promote value addition in agricultural produce, such as mushroom cultivation and beekeeping to enhance farmer income.	 

Challenges

- **Reaching all farmers:** Ensuring all farmers, particularly small and marginal ones, have access to KVK services remains a challenge.
- **Digital inclusion:** Bridging the digital divide in rural areas is crucial for effective dissemination of information and training programs through online platforms.
- **Focus on emerging areas:** KVKs need to adapt to address emerging challenges like climate change, water scarcity, and sustainable agriculture practices.

Way Forward

1. **Digitalization:** Investing in digital infrastructure and training KVK personnel to effectively utilize online platforms for knowledge dissemination and training.
2. **Focus on climate-smart agriculture:** Equipping KVKs to provide farmers with training and resources on climate-resilient practices like water conservation, drought-resistant varieties, and organic farming.
3. **Strengthening linkages:** Enhancing collaboration between KVKs, research institutions, and agricultural

universities to ensure a constant flow of new knowledge and technologies.

4. **Performance monitoring:** Regularly evaluating the impact of KVK initiatives and adapting strategies based on farmer feedback and emerging agricultural needs.

Conclusion

By addressing these challenges and implementing the suggested measures, KVKs can continue to play a pivotal role in empowering Indian farmers with the knowledge and skills they need to thrive in the years to come.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements with reference to the Krishi Vigyan Kendras:

1. It is integral part of the National Agricultural Research and Extension System (NARES).
2. It was established on the recommendations of the Sarkaria Commission.
3. It functions as Knowledge and Resource Centre of agricultural technology.

How many of the above statements are correct

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

Answer: b 1 and 3 only

Descriptive Question

Q. What are the key milestones achieved by the Indian Council of Agricultural Research (ICAR) through its Krishi Vigyan Kendras (KVKs) from their inception? [15 Marks] [250 words]

ACQUISITION OF SHARES UNDER THE LARGE VALUE FUND (LVF)

Why in News: The purchase of shares of MG Motor India Private Limited by IndoEdge India Fund under the Large Value Fund (LVF) Scheme has been allowed by the Competition Commission of India (CCI).

Key Details

- The scheme known as **Large Value Fund (LVF)** is an **Alternative Investment Fund (AIF)** in which each certified investor must invest a **minimum of Rs 70 crore**.
- **Alternative Investment Fund (AIF):** AIFs are investment funds that are privately pooled or collective and that are incorporated in India.

Alternative Investment Fund

- A fund created or founded in India that functions as a

privately managed investment vehicle is referred to as an AIF.

- It raises money from affluent **domestic and foreign investors** with the intention of investing in accordance with a particular investment policy, ultimately providing returns for its investors.
- The **Alternative Investment Funds (SEBI) Regulations of 2012** are followed by these investment vehicles.
- **1,220 AIFs** were registered with the Securities and Exchange Board of India (SEBI) as of December 2023.
- A **limited liability partnership, corporation, trust, or body corporate** may be formed as an AIF. The majority of AIFs that are registered with SEBI are maintained as trust.

SEBI Divides AIFs into Three Categories

- **AIFs classified as Category 1**
These funds are **allocated to start-ups, SMEs, and socially beneficial industries such as infrastructure.**
 - Include funds for **social ventures, infrastructure, venture capital, and angel investing.**
- **Category 2 AIFs**
Invest in **equities and debt Securities**, with the exception of Category 1 or Category 3 AIFs.
 - Consists of **debt funds, private equity funds, and fund of funds.**
- **Category 3 AIFs**
Use sophisticated trading techniques to **pursue short-term investment gains.**
 - Comprises private investments in public equity funds and hedge funds.

Competition Commission of India (CCI)

- The Competition Commission of India (CCI) was **duly created in March 2009** and is a **statutory body** of the Government of India tasked with executing the **Competition Act, 2002.**
- On the advice of the **Raghavan committee**, the **Monopolies and Restrictive Trade Practices Act, 1969 (MRTP Act)** was abolished and replaced by the **Competition Act, 2002.**

Composition

- The Central Government choose the **Commission's six members**, including the **Chairperson.**
- The commission is a **quasi-judicial entity** that handles various issues in addition to providing advice to statutory bodies. **All members, including the chairperson, must be full-time members.**

Eligibility criteria of members of CCI

- Each Member, including the Chairperson, must possess the **qualities of ability, integrity, and standing.**
- They must also have served as or be **qualified to serve as a judge in a High Court, or**
- Have at least fifteen years of professional experience in any of the following areas:
- Public affairs, administration, economics, business, commerce, law, finance, accountancy, management, industry, international trade, or any other area in which the Central Government believes the Commission may find value.

Competition Act, 2002

- The Competition (Amendment) Act of 2007 made amendments to the 2002-passed Competition Act. It adheres to the theory behind contemporary competition legislation.

Competition Commission of India (CCI)

Achievements of CCI

With almost 1,200 antitrust proceedings decided by the Commission, **89% of antitrust matters are resolved.**

Additionally, it has examined over **900 mergers and acquisitions** to date and approved the majority of them in **record-breaking 30-day averages.**

In addition, the Commission has approved over **50 of these transactions and developed several innovations**, such as the **"Green Channel"** feature enabling automated approval of combinations and transactions.

Challenges in front of CCI

Challenges Created by Digitization

Since the Act of 2002 was passed before a strong digital economy had developed, CCI needs to be aware of the subtle technological changes brought about by the new digital era.

New Market Definition Required

The Commission of India must revise its definition of a market immediately. Regulators worldwide have found it difficult to define relevant markets because the digital domain has no limits.

Danger of Cartelization

The likelihood of a cartel threat exists. The supply chain has suffered as a result of the pandemic - caused worldwide shortage of supplies and the recent conflict in Eastern Europe.

To make sure that there are no monopolistic or **duopolistic tendencies** resulting in higher prices and supply-side manipulations, these need to be investigated.

- The **Act forbids anti-competitive agreements**, the misuse of a dominating position by businesses, and combinations that materially impede competition in India.
- The **Competition Commission of India** and the **Competition Appellate Tribunal** have been created in compliance with the terms of the Amendment Act.
- In 2017, the **National Company Law Appellate Tribunal (NCLAT)** was established by the government to take the position of the **Competition Appellate Tribunal (COMPAT)**.

Conclusion

The Competition Commission of India (CCI) serves as a **watchdog**, ensuring **fair competition** and **preventing anti-competitive practices** in various sectors, fostering market efficiency. On the other hand, the Fund for Alternative Investments (AIF) provides **capital to promising ventures**, **stimulating innovation** and **economic growth**. Together, they promote a **competitive and dynamic business environment**, **driving entrepreneurship** and **investment** across diverse sectors of the Indian economy.

EXPECTED QUESTIONS FOR UPSC CSE

Descriptive Question

- Q. What is the mandate and role of the Competition Commission of India (CCI) in regulating competition and promoting fair trade practices? What are the challenges faced by CCI fulfilling its mandate? [15 Marks] [250 words]

UNICORN 2.0: ADDING THE NEXT TRILLION

Why in News: The Confederation of Indian Industry (CII) recently released a report titled “Unicorn 2.0: Adding the Next Trillion,” which paints a promising picture of India’s startup ecosystem.

Understanding Startup Terminology

- **Decacorn:** A startup with a current valuation exceeding USD 10 billion.
- **Unicorn:** A startup founded after 2000 with a valuation of USD 1 billion.
- **Gazelle:** A startup with strong potential to become a unicorn within the next three years.
- **Cheetah:** A startup with the potential to achieve unicorn status within the next five years.

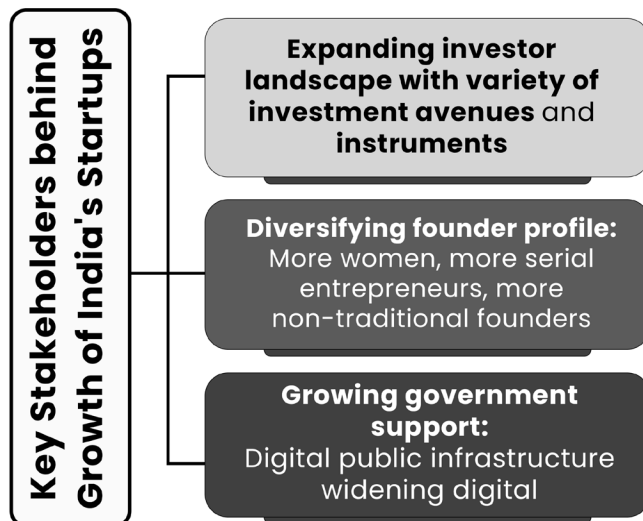
What is a startup?

- A startup defined as an entity that is headquartered in India, which was opened less than 10 years ago, and has an annual turnover less than ₹100 crore.

Impact of Unicorn 1.0 (2010-23)

Positive Impacts

- **Economic Growth:** Startups contributed 10-15% to GDP growth, fostering job creation (20-25% of new jobs) and innovation (40th rank in global innovation index).
- **Financial Inclusion:** Fintech solutions empowered over 50 million MSMEs, promoting financial inclusion and growth.
- **Democratization of Consumption:** Startups made essential services like education and healthcare 30-40% more affordable and expanded e-commerce reach.



Government Initiatives Fueling Innovation

▲ **National Initiative for Developing and Harnessing Innovations (NIDHI)**
NIDHI aims to provide seed support funding to startups and other technological institutions working on innovative solutions.

▲ **Startup India Action Plan (SIAP)**
Launched in 2016, this plan aims to simplify regulations, promote funding availability, and build a robust startup ecosystem in India.

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▲ **Ranking of States on Support to Startup Ecosystems (RSSSE)**
This initiative encourages states to introduce business-friendly policies and improve their startup support systems.

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▲ **Startup India Seed Fund Scheme (SISFS)**
This scheme provides financial assistance to startups for proof of concept, prototype development, and market entry.

▲ **SCO Startup Forum**
This forum fosters collaboration and knowledge sharing among startups from member countries of the Shanghai Cooperation Organization (SCO).

▲ **Parambhi Summit**
This platform provides a space for startups and young minds from around the world to connect, share ideas, and drive innovation.

The Indian government's proactive approach through these initiatives is creating a more conducive environment for startups to thrive.

Vision for Unicorn 2.0 (2024-35)

Potential of Unicorn 2.0

- **\$1 Trillion to GDP:** New unicorns are likely to add USD 1 trillion to the Indian economy, which would reach USD 7 trillion size by 2030, and add 50 million new jobs.
- **Digital Democratization:** Widespread adoption of digital services can bridge the digital divide and empower citizens.
- **Globally Leading Startups:** India can nurture 15-25 globally leading startups and 25+ innovation-driven companies.

Challenges of Unicorn 2.0

- **Access to Capital:** Retail investors and public institutions need to participate more actively in startup funding.
- **Governance Framework:** Defined guidelines and a robust corporate governance framework are crucial for attracting investors and ensuring ethical practices.
- **Supportive Regulatory Environment:** A supportive tax regime and streamlined regulations are essential for nurturing innovation.
- **Skilled Workforce:** Developing a deeper talent pool through apprenticeship programs and skill development initiatives is critical.

Recommendations

The CII report proposes several recommendations to achieve Unicorn 2.0:

- **Capital:** Encourage retail investor participation and public sector funding in startups.
- **Governance:** Establish clear guidelines and a robust corporate governance framework.
- **Regulation:** Implement a supportive tax environment and streamline regulations.
- **Innovation:** Encourage startups to collaborate with academia for research and monetize intellectual property.
- **Talent Development:** Invest in skill development programs and apprenticeship models to create a talent pool aligned with industry needs.

Conclusion

India's startup ecosystem holds immense potential for driving economic growth, social inclusion, and innovation. By addressing the challenges of Unicorn 1.0 and implementing the recommendations for Unicorn 2.0, India can unlock the next trillion-dollar opportunity and emerge as a global leader in the startup landscape.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

- Q. "Unicorn 2.0: Adding the Next Trillion" report was published by
- (a) Cabinet Committee on Investment
 - (b) Confederation of Indian Industry (CII)

(c) Finance Commission

(d) Ministry of Micro Small and Medium Enterprises

Answer:

Descriptive Question

- Q. What are the challenges faced by Indian startups in scaling up to become unicorns, and what strategies are they employing to overcome these challenges? How does India's regulatory environment support the growth of startups? [15 Marks] [250 words]

INDIA & MAURITIUS AMEND TAX TREATY

Why in News: India has signed a protocol amending its tax treaty with Mauritius with an aim to fill the loopholes in the treaty which were being abused for tax evasion and avoidance.

Key Details

- In order to **prevent treaty, abuse for tax evasion or avoidance**, India and Mauritius have signed a protocol modifying the **Double Taxation Avoidance Agreement (DTAA)**.
- The **Principal Purpose Test (PPT)**, which is introduced in **Article 27B** of the India-Mauritius Tax Treaty Amendment, forbids tax benefits if the primary goal of a transaction is to gain them.

Amendment to Double Taxation Avoidance Agreement (DTAA)

- The goal of the amendment is to **stop the treaty from being abused for tax-related reasons**.
- This amendment covers all forms of **income, including dividends, capital gains, and fees for technical services**.
- The **Principal Purpose Test (PPT)**, which prohibits treaty benefits including lower withholding taxes on **interest, royalties, and dividends**, is put into effect by the amended agreement. This occurs when the primary purpose of a transaction or **arrangement was to gain these benefits**.
- Additionally, the treaty's preamble has been changed to highlight the goal of **"eliminating double taxation"** while preventing chances for tax fraud or tax avoidance that could lead to non-taxation or lower taxation.
- After the US, Singapore, and Luxembourg, Mauritius is still the fourth-largest source of foreign direct investment (FDI) and foreign portfolio investment (FPI) in India. As of the end of March 2024, **Mauritius's FPI & FDI investment were valued at Rs 4.19 lakh crore**.
- This is especially crucial when the **goal of the structuring is to take advantage of tax treaty advantages in Mauritius or India**.
- It is unclear from this most recent modification if previous investments would be spared from a new regulation.

Need for Revision

- Because capital gains from the sale of shares in Indian companies are not taxable until 2016, **Mauritius has been a favoured destination for investments in India.**
- The most recent amendment to the treaty was made in 2016, **granting the power to tax capital gains from the sale or transfer of shares of an Indian company** that a Mauritian tax resident had purchased.
- The goal of “**eliminate double taxation**” has taken the role of the previous goal of “**mutual trade and investment.**”
- This will be accomplished without opening up chances for tax evasion or avoidance, including “**treaty shopping arrangements,**” that would result in non-taxation or lower taxation.

Double Taxation Avoidance Agreement (DTAA)

The Double Taxation Avoidance Agreement (DTAA) is a treaty that addresses the problem of double taxes between two nations.

When a taxpayer must pay taxes on the same income in **both their home nation and the country in which the income is earned**, this is known as **double taxation**. This may result in **financial hardship and deter foreign investment and trade.**

Countries enter into DTAA agreements, which set forth guidelines and procedures for dividing up taxing rights and averting tax problems, in order to prevent double taxation.

DTAA offers relief to taxpayers by allowing them to claim certain benefits like tax credits, exemptions, or deductions. These benefits help to eliminate or reduce the tax burden on income earned in the foreign country.

The DTAA encourages commerce, cross-border investments, and economic cooperation amongst the member nations by preventing double taxation.

These accords set forth standards for identifying which nation is principally authorized to tax particular categories of income, including dividends, interest, royalties, and corporate profits.

Objectives of DTAA

- To promote **technology transfer.**
- To deter **tax evasion and avoidance, to provide relief, and to get tax credits.**
- To avoid **prejudice amongst taxpayers.**
- To strengthen the **two separate taxing agencies cooperation.**
- To draw in **foreign investment** by relieving the burden of double taxes.
- To encourage the **flow of money and people, as well as the trade of products and services.**
- To make clear the **taxation of specific cross-border transactions.**

Conclusion

The **Double Tax Agreement (DTAA)** is essential in streamlining tax issues for both individuals and multinational corporations. It aids in **avoiding the problem of paying taxes twice, stimulates trade, cross-border investment, and raises transparency.** These agreements help to build a more equitable and effective international tax system.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

- Q. The “limitation-on-benefits” rule and “principal purpose test” rule recently mentioned in the news, in the context of
- Genetically modified crops
 - Double Taxation Avoidance Agreement (DTAA)
 - Space exploration and related technologies
 - Antimicrobial resistance

Answer: b

Descriptive Question

- Q. What are the objectives behind revising the Double Taxation Avoidance Agreement (DTAA) between India and Mauritius, and how do these changes aim to benefit both countries? [15 Marks] [250 words]

RESTRICTIONS ON IMPORT OF SOLAR PV CELLS

Why in News: Recently, the government introduced import limits in order to encourage domestic sourcing of solar modules and assist India’s renewable manufacturing environment.

Key Details

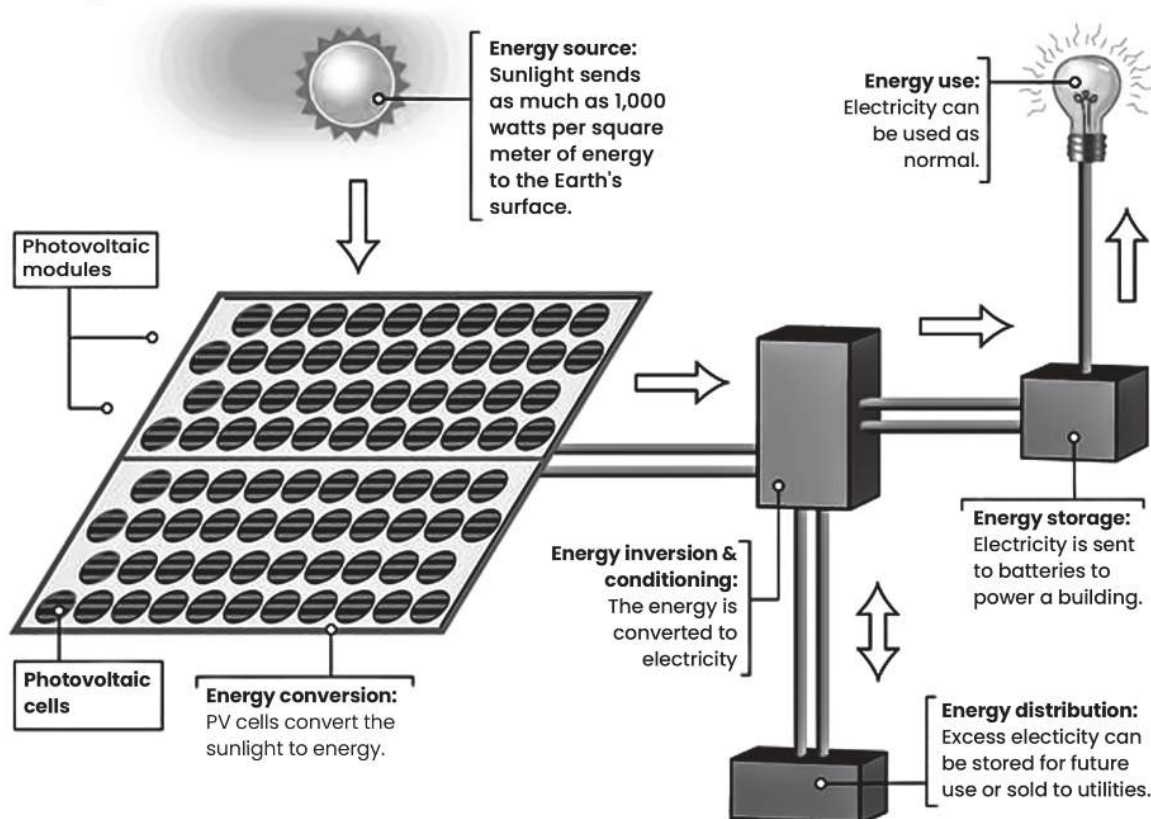
- India relies substantially on imports of solar cells and modules, mainly from **China and Vietnam.**
- In the last five years, India has **imported solar cells and modules worth around \$11.17 billion, accounting for 0.4% of total import.**
- The **Ministry of New and Renewable Energy (MNRE)** was instructed to re-implement its 2021 notification of an ‘**Approved List of Models and Manufacturers of Solar Photovoltaic [PV] Modules**’, also known as the **ALMM list.**

- This order aims to **promote domestic solar module** sourcing to help **India's renewables manufacturing ecosystem**. However, it is usually interpreted as import limits on solar PV cells.

What is a Solar Panel?

- A solar panel consists of **photovoltaic (PV) cells** that **convert sunlight into electricity**.

How photovoltaic solar panels work



About ALMM List

- The **ALMM** is a list of **approved manufacturers** for government initiatives, notably those involving **renewable energy**, such as solar power.
- It was halted two years after its introduction because renewable energy producers were concerned about their commitments with the government.
- These makers depended mainly on **low-cost solar modules and cells from China**.
- The **goal is to encourage indigenous industry** by encouraging import substitution rather than **fully restricting imports**.
- India's own renewable energy sector **could not meet the demand for solar equipment** at the prices supplied by Chinese producers.

Reason for Re-implementing the ALMM List

- **ALMM emphasizes domestically manufactured solar equipment** for government projects.

- This initiative intends to **strengthen India's renewable energy sector** and **minimize reliance on imports**.
- **Increased Production Capacity**: The government believes **domestic producers can now compete with lower-cost imports**.
- This is one of the main reasons for **re-implementing the ALMM list**.
- **Import Substitution**: The goal is to increase domestic manufacture to meet local demand for solar equipment. However, **imports have not been completely prohibited**.

India's Dependency on Importing Solar PV Cells

- To achieve its **grid-connected solar power demands**, India relies significantly on **imports of solar modules and cells from China and Vietnam**.
- India has been the top solar cell importer, spending **\$11.17 billion on solar cells and modules** during the last five years, **accounting for 0.4% of total exports** during this time period.

- **China is the major provider of solar cell imports**, accounting for **53% of India's total imports**. Furthermore, it is the primary provider of solar PV modules, accounting for **63% of total imports**.
- China dominates the scope of production in the solar energy market, whereas **India's capacity is still limited** but concentrated on the final assembly stage.



Challenges

- **Capital-intensive:** Solar cell manufacture necessitates a significant investment.
- **High Debt Cost:** India's debt interest rates (11%) are higher than those in China (5%), **reducing cost competitiveness**.
- **Technology Intensive:** The complexity of the manufacturing process necessitates the use of advanced technology.
- **Limited Access to New Technologies:** Companies are **hesitant to share R&D achievements**, limiting technology access.
- **Lack of Integrated Set-up:** Despite FDI, a **fragmented setup results** in increased production costs.

Way Forward

- **Enacting policies** that encourage and promote domestic manufacturing, such as **tax benefits, subsidies, and tariff protection**. Continuously examining and revising laws to foster investment and growth in the solar PV cell industry.
- **Providing grants, subsidies, and low-interest loans** to promote investment in **solar PV cell manufacturing plants**. This could involve the continuance and development of programmes such as the **Production Linked Incentive (PLI) scheme**.

• Investing in R&D to promote innovation and the development of indigenous solar PV cell manufacturing technologies.

• Collaboration among government, academia, and business can speed up scientific breakthroughs and improve the efficiency and cost-effectiveness of solar PV cells.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. With reference to the Solar power production in India, consider the following statements:

1. India is third largest in the world in manufacture of the silicon wafers used in photovoltaic units.
2. The solar power tariffs are determined by the Solar energy corporation of India.

Which of the statements given above is/are correct?

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

Answer: d

Descriptive Question

Q. What challenges or concerns might arise from the imposition of import limits on solar modules, and how can they be addressed to ensure a smooth transition towards domestic manufacturing? [15 Marks] [250 words]

INDIA AIMS FOR LIVING WAGE STANDARD BY 2025

Why in News: Recently, India's government has set an ambitious goal for **replacing the minimum wage system with a living wage framework by 2025**.

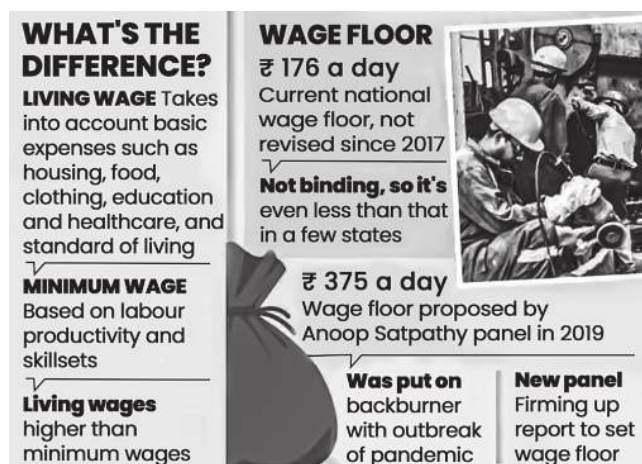
Key Details

- India's workforce stands at over 500 million, with a significant portion employed in the unorganized sector.
- The **current minimum wage system, plagued by inconsistencies and inadequacy, fails to ensure a decent standard** of living for many workers.
- In this context, the government's proposal to establish a **living wage standard (Article 43 of Our Constitution)** by

2025 holds immense promise for improving worker well-being and fostering inclusive growth.

Current Wage System in India

- **National Floor Level Minimum Wage (NFLMW):** It was established under the Code on Wages 2019, the NFLMW sets a baseline for minimum wages across states. However, states have the flexibility to revise these rates.
- **Challenges with Minimum Wage Implementation:** Limited enforcement mechanisms and variations across states create wage discrepancies, especially in the vast unorganized sector with over 90% of India's workforce.



Difference between living wage and minimum wage		
Differential Aspects	Living Wage	Minimum Wage
Definition	The wage level necessary to afford a decent standard of living for workers and their families.	The lowest legal hourly wage that employers must pay their workers.
Aim	To improve workers quality of life	To protect workers from exploitation .

Challenges in Implementing Living Wages

- **Variations in Living Costs:** The cost of living varies significantly across regions, making it difficult to establish a uniform national living wage.
- **Challenges in the Unorganized Sector:** Ensuring implementation and enforcement in the vast unorganized sector will require robust mechanisms.
- **Fiscal Implications for Businesses and Government:** Higher wage costs may impact businesses, particularly smaller firms, and could increase government expenditure.
- **Lack of Worker Awareness:** Limited knowledge about minimum wage provisions and labor rights amongst workers, particularly in remote areas, needs to be addressed.
- **Impact of Automation and Gig Economy:** The rise of

automation and the gig economy pose challenges in maintaining fair wages in a changing job landscape.

Way Forward

- **Government Legislation and Policies:** Stronger legislation with provisions for regular inflation adjustments and effective enforcement mechanisms will be crucial.
- **Multidimensional Poverty Index:** Considering multidimensional factors like health, education, and standard of living in defining living wages can provide a more holistic approach.
- **Integration with Sustainable Development Goals:** Aligning living wages with the Sustainable Development Goals can promote fair compensation and contribute to a more equitable future.

Conclusion

India's ambitious plan to implement living wages by 2025 presents both opportunities and challenges. Collaboration between all stakeholders, including the government, businesses, labour organizations, and the ILO, will be key to navigate these challenges and ensure a successful transition to a living wage framework.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

- Q. Which of the following statements well describes the term 'Living Wage'?
- It is a bare minimum wage sufficient for survival, like food and shelter, but wouldn't cover a basic but decent standard of living.
 - Financial aid provided to eligible unemployed individuals to help cover basic living expenses while they search for a new job.
 - It is a universal wage that applies equally to all sectors of the economy regardless of cost of living.
 - The remuneration received for a standard workweek by a worker in a particular place sufficient to afford a decent standard of living for the worker and her or his family.

Answer: d

Descriptive Question

- Q. What are the key differences between the minimum wage system and a living wage framework? Why has the Indian government decided to transition to the latter? [15 Marks] [250 words]

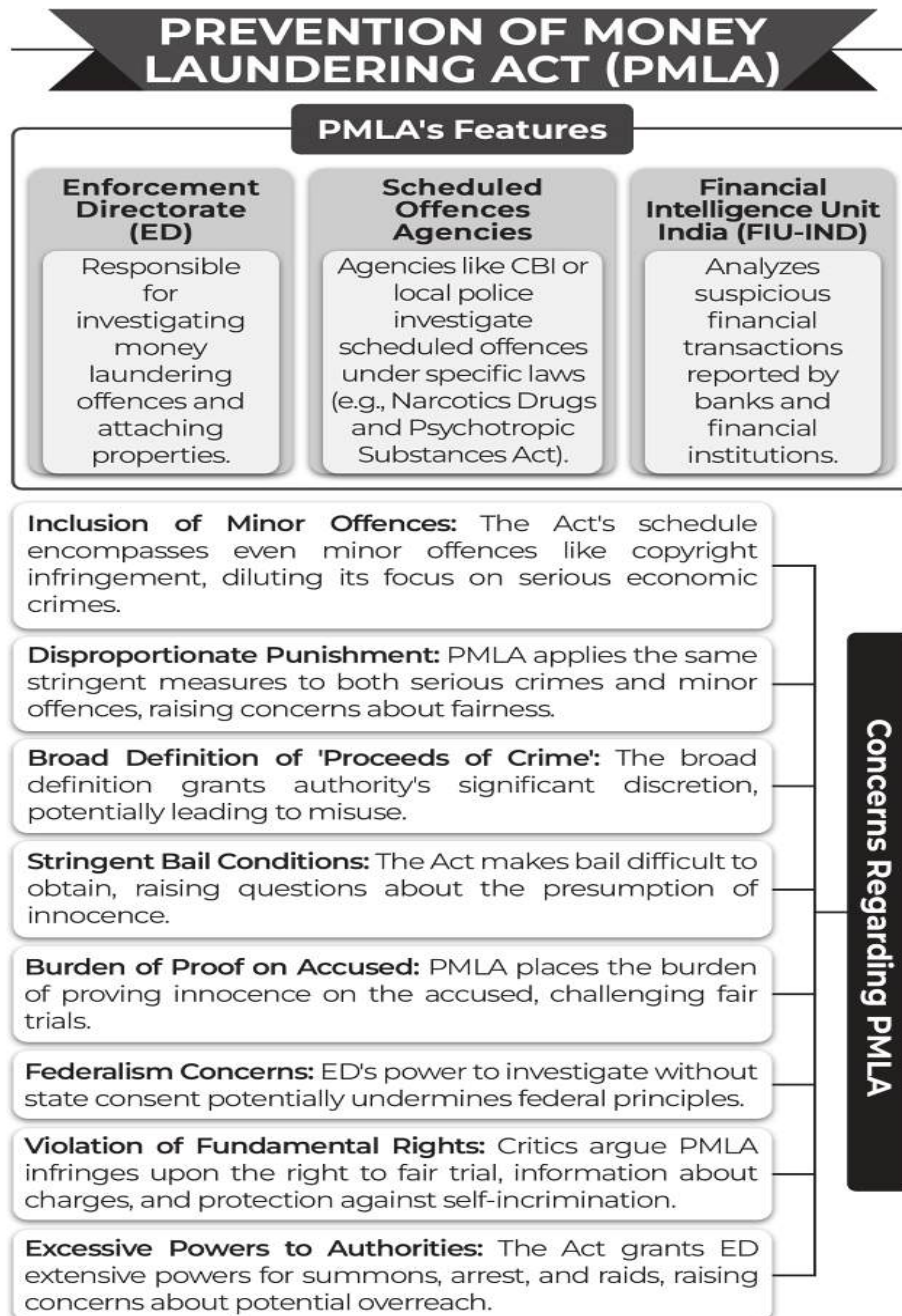
THE PREVENTION OF MONEY LAUNDERING ACT (PMLA)

Why in News: The **Prevention of Money Laundering Act (PMLA), 2002**, is a crucial piece of legislation in India's fight against financial crime. However, the Act has been under scrutiny for its broad scope and potential infringement on individual rights.

Objectives and Background

- It was enacted in 2002, the PMLA aims to curb money laundering, the process of concealing the illicit origins of income derived from criminal activities like drug trafficking, terror financing, human trafficking and corruption. The Act mandates stringent measures for:
- The PMLA's enactment fulfills **India's obligations** under international treaties like the **United Nations Convention against Transnational Organized Crime** and the **Financial Action Task Force (FATF) recommendations**.

- **Prevention:** Implementing robust systems to monitor financial transactions and deter money laundering attempts.
- **Detection:** Empowering agencies to investigate suspected money laundering activities.
- **Confiscation:** Authorizing the seizure of assets acquired through illegal means.
- **International Cooperation:** Collaborating with other nations to combat money laundering on a global scale.



Supreme Court's Observations

- **Strict Bail Conditions:** While the Court initially struck down the PMLA's stringent bail provision in 2018, Parliament subsequently restored it with amendments. In 2022, the Court upheld the constitutionality of these amendments.
- **ED's Overreach:** The Court, in the **Pankaj Bansal case**, highlighted inconsistencies and lack of transparency in the ED's operations.
- **Procedural Violations:** The Court has observed instances of procedural violations and misuse of the PMLA by authorities, emphasizing the need for adherence to legal standards.

Way Forward

- **Precise Definition of "Proceeds of Crime":** A more precise definition can mitigate potential abuse by authorities.
- **Reassessing Burden of Proof:** Shifting the burden of proof to a more equitable distribution between the prosecution and the accused can be considered.
- **Oversight Mechanism:** Establishing an independent body to monitor law enforcement actions can prevent overreach.
- **Reviewing Bail Conditions:** Stringent bail conditions for minor offenses should be relaxed.
- **Transparency and Accountability:** Measures like regular reporting and disclosure by the ED can enhance public confidence in the institution.

Conclusion

The PMLA is a powerful tool in combating financial crime. However, **striking a balance between effective enforcement and individual rights is essential**. By incorporating the suggested reforms, India can ensure the PMLA fulfills its objectives while upholding the principles of fairness and justice.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements:

1. Cryptocurrency transactions do not fall within the ambit of the Prevention of Money Laundering Act, 2002 (PMLA).
2. Cryptocurrencies are regulated by Securities and Exchange Board of India (SEBI).

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

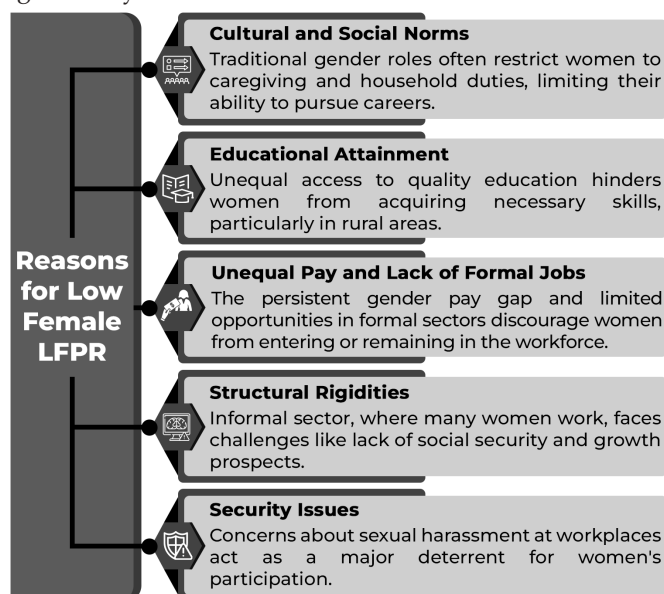
Answer: d

Descriptive Question

- Q. Discuss the significance of the Prevention of Money Laundering Act (PMLA), 2002, in India's efforts to combat financial crime and ensure the integrity of the financial system? [15 Marks] [250 words]

LOW FEMALE LABOR FORCE PARTICIPATION RATE (LFPR)

Why in News: India's labour market presents a paradox. While overall indicators are improving, female LFPR remains significantly lower than males (78.5% vs. 37% in 2023).



Government Initiatives

- **Legislative Measures:** The Code on Wages (2019) promotes equal pay for equal work, while the Maternity Benefit Act (2017) aims to create a supportive work environment for mothers.
- **Financial Empowerment Schemes:** Rashtriya Mahila Kosh and National Rural Livelihoods Mission provide microfinance and skill training to women for self-employment ventures.
- **Employment Programs:** MGNREGA guarantees rural households 100 days of work, with a focus on women's participation.

Way Forward

- **Demand-Side Interventions:** Promote labor-intensive sectors in manufacturing and services to create formal job opportunities.
- **Public Investment:** Infrastructure development in safety, transportation, and affordable childcare and eldercare services would incentivize women to join the workforce.
- **Skill Development & Education:** Invest in quality education for girls and bridge the skill gap through targeted training programs.

- **Attitudinal Change:** Address societal norms through awareness campaigns promoting gender equality in work spheres.
- **Safe Workplaces:** Implement stricter regulations and ensure swift action against workplace harassment to create a secure environment.

Conclusion

Enhancing female LFPR is not just about economic growth but also about creating a more equitable society. **By addressing structural barriers, investing in social infrastructure, and fostering a supportive ecosystem,** India can unlock the full potential of its women workforce.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements:

1. The 'Female Labour Force Participation Rate' (FLFPR) has continuously increased in the last six consecutive years.
2. Periodic Labour Force Survey Report is released by the Department of Economic Affairs.

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

Descriptive Question

Q. Critically analyze the underlying factors contributing to the disparity in labor force participation rates between males and females in India? What are the economic implications of the gender gap in labor force participation for India's overall economic growth. [15 Marks] [250 words]

GROWING SPACE ECONOMY

Why in News: Recently, the World Economic Forum has released report titled 'Space: The \$1.8 Trillion Opportunity for Global Space Economic Growth by 2035'.

What is the Space Economy?

- The Organization for Economic Co-operation and Development (OECD) **defines the space economy** as the full spectrum of activities and the utilization of resources that generate value and benefits for humankind in space exploration, research, understanding, management, and utilization.
- It encompasses the development of goods and services produced in space for use in space or on Earth.

Current Trends in the Space Economy

- **Economic Expansion:** The Space Report 2022 estimates the space economy to be worth \$469 billion in 2021, reflecting a 9% increase from the previous year. The global space market is projected to reach \$1 trillion by 2040.
- **Rise in State-backed Investment:** There has been a global surge in state-backed investment in space projects, with a 19% jump in overall government spending on military and civilian space programs in 2021.

Reduced Launch Costs: The cost of launching satellites and rockets has witnessed a dramatic decline over the past two decades, dropping by a factor of 10.

Decreasing Price of Data and Connectivity: As demand for space-based data and connectivity surges by 60% by 2035, the price is expected to fall by at least 10%, further incentivizing investment in the sector.

Commercial Innovations: Advancements in space technology, such as the improved resolution of Earth-observation technology, are driving down costs and making space-based applications more accessible.

Diversification of Technologies: The space sector is witnessing a rapid diversification of technologies and activities, including space tourism, which is attracting significant interest from private companies.

Growing Cultural Awareness: The rising cultural awareness and general enthusiasm for space exploration are igniting a passion for space among younger generations, ensuring a future workforce for the space economy.

What are the Drivers of the Space Economy?

Challenges of the Space Economy

- **Space Debris Mitigation:** Growing space activity increases the risk of collisions and debris generation, hindering future exploration. International cooperation is crucial for developing sustainable practices.
- **Regulation and Governance:** A clear legal framework is needed to address issues like resource extraction on celestial bodies and space traffic management.
- **Accessibility and Equity:** Ensuring equitable access to space technology and its benefits for all nations remains a challenge. Developed countries should facilitate knowledge transfer and collaboration.

The Indian Space Economy

- India's space sector is **currently estimated to account for around 2%** of the global space economy. However, it has the **potential to reach a value of \$44 billion by 2033**, capturing an impressive 8% of the global share due to the following reasons:
- **Strong Foundation:** India boasts a well-established space agency with expertise in satellite launches and missions.
- **Policy Reforms:** The Indian Space Policy 2023 and the creation of IN-SPACe encourage private sector participation, fostering innovation and growth.
- **FDI and Talent Pool:** India's 100% FDI allowance and large scientific talent pool make it an attractive destination for space companies.

- **Target and Vision:** India's ambitious target of reaching \$44 billion in its space economy by 2033 reflects its commitment to this sector.

Conclusion

The space economy presents an exciting opportunity for **economic growth, technological innovation, and addressing global challenges**. By effectively navigating the existing hurdles and leveraging its strong foundation and policy reforms, India can become a significant player in this burgeoning sector.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

- Q. 'Space: The \$1.8 Trillion Opportunity for Global Space Economic Growth by 2035' report is published by the
- (a) NASA
 - (b) World Bank
 - (c) World Economic Forum
 - (d) International Monetary Fund

Answer: c

Descriptive Question

- Q. Evaluate the potential benefits and challenges associated with the projected expansion of the global space economy, both from an economic and socio-political perspective. [15 Marks] [250 words]

AGROFORESTRY MORE BENEFICIAL TO SMALL AND MARGINAL FARMERS

Why in News: The Ministry of Agriculture recognised water availability as a challenge when it drafted the **National Agroforestry Policy in 2014**. Yet the problem remains relevant and is especially acute for smallholders.

Key Details

- Agriculture in India has historically been a diversified land-use practice, integrating crops, trees, and livestock. This technique, broadly called agroforestry.
- Small and marginal holding farmers in India **cultivate 44% of the total area**, yet **produce 60% of food grain** (49% rice, 40% wheat, 29% coarse cereals, 27% pulses) and **over half of fruits and vegetables**. (Agricultural census, 2014).
- In India, small and marginal farmers' average size of holdings is about **0.38 ha** when compared to **17.37 ha for large farmers**. As per India's Agriculture Census 2015-16, **86.1 percent of Indian farmers are small and marginal (SMF)**.

Benefits of agroforestry for small farmers

- Can **enhance farmer livelihoods and the environment**. To tackle **climate induced salination** of land around coastal areas.
- ✓ Example, Following the Gaja cyclone's devastation of coconut trees and soil salinity in **Pudukkottai district, Tamil Nadu farmers** faced crop uncertainty. They united resources, choosing to cultivate jackfruit and mango trees instead. Six years later, they are reaping promising profits from this strategic shift.
- To **tackle the problem of loss fertility** due to monocropping inspired by the Green Revolution.
- Agroforestry provides farmers with **food, fodder, fuel, fruit, and timber, boosting production and rural employment**.
- Eucalyptus, Poplar, and Casuarinas are common species, with **wood serving fuel, plywood, paper, and match industries**.
- Source of additional **income in the draught conditions**.

Some of the issues with adoption of Agroforestry

- Farmers often favour fast-growing, herbivore-repelling non-native species, which **can harm soil health and human well-being**. Selecting suitable tree species based on location and purpose is crucial for agroforestry to improve livelihood sustainability.
 - Example, Casuarina and eucalyptus, non-native timber species, thrive in saline soils and require minimal labour inputs due to their fast growth. However, they are unsuitable for intercropping or tree-crop combinations, which are essential for small landholdings.
- **Existing government policies and schemes** lack customization for land-holding size and regional biophysical variations, leading to exclusion of smallholders.
 - The **Indian Forest and Wood Certification Scheme 2023**, which certifies agroforestry and wood-based products as sustainable, makes almost all farmers and industries eligible indirectly excluding small farmers.
- Smallholder farmers seldom grow trees because of their **long gestation**, a lack of incentive or investment-based capital, and weak market linkages.
- **Transition Finance** have been big concern for small farmers.
- Lucrative **market linkages** are absent.
- **A recurrent water problem** as there is around 67 per cent farmers depend on rain fed agriculture. The Ministry of Agriculture recognised water availability as a challenge when it drafted the National Agroforestry Policy in 2014.
- **Finding the right native species** Water availability is critical for saplings but becomes a persistent concern when trees compete with crops in water-constrained

environments like hard rock aquifers and low-rainfall regions.

- It tends to benefit large farmers more, potentially impacting agricultural labourers and risking food and industrial material scarcity.

Government Policies



भारत सरकार
GOVERNMENT
OF INDIA

India's significant policy endeavors, including the National Forest Policy 1988, the National Agriculture Policy 2000, National Bamboo Mission 2002, National Policy on Farmers 2007, and Green India Mission 2010, consistently underscore the vital role of agroforestry

The Sub-Mission on Agroforestry (SMAF) Scheme,

- Initiated by the Department of Agriculture, Cooperation, and Farmers Welfare (DAC & FW) since 2016-17.
- Seeks to incentivize farmers to integrate multi-purpose trees with their agricultural crops, fostering climate resilience and additional income streams.
- Access to benefits under this scheme requires farmers to possess a soil health card.

The five year 'Trees Outside of Forests India' (TOFI) initiative-

- Joint initiative of the U.S. Agency for International Development (USAID) and India's Ministry of Environment, Forest and Climate Change.
- TOFI aims to increase the number of trees in seven Indian states by locating potential areas for growth and applying the appropriate pressure.
- Seven states: Andhra Pradesh, Assam, Haryana, Odisha, Rajasthan, Tamil Nadu, and Uttar Pradesh.

NITI Aayog GROW Report

- The GROW portal, hosted on the Bhuvan platform, grants universal access to state and district-level data on agroforestry suitability.
- Users can obtain detailed maps and assessments across India, using thematic datasets from remote sensing and GIS.
- Notably, the portal includes the Agroforestry Suitability Index (ASI), facilitating national-level prioritization. It also presents insights into India's current agroforestry extent, distribution, and overall coverage.

National Agroforestry Policy (2014)

- The National Agroforestry Policy of 2014 prioritizes sustainable land management, aiming to enhance productivity and conserve resources.
- It targets 10 million hectares of degraded land for agroforestry by 2022, with a projected annual income increase of INR 18,000 per hectare for smallholders.
- The policy emphasizes research, capacity building, and institutional support, allocating INR 2.5 billion for implementation.
- It integrates agroforestry into national development plans, recognizing its potential to sequester 50-100 million tons of carbon annually.

Way Forward

- **Grow trees that don't compete with the crops for water-** (TOFI) initiative collaborated with Bengaluru-based WELL Labs, customized the **open-source water-accounting tool 'Jaltol'** to analyse trade-offs. This adaptation yielded valuable insights; for instance, **mango plantations in central Karnataka plateau don't compete with kharif crops**, while coconut trees in Tamil Nadu's uplands require more water than crops year-round. rewrite crisp.
- The **'Diversity for Restoration'** tool offers a customized list of climate-resilient species, tailored to restoration goals. It will soon be launched for the Western Ghats, with plans for expansion to other regions.
- The viability of current Central and State policies and programs as a **transitional financing route** for agroforestry must also be taken into account by policymakers.
- **Ecosystem credits and payment for ecosystem services (PES)** are potential incentive mechanisms that reinforce nature-centred economics. PES involves a service user, like a food processing company, paying a service provider, such as a small farmer, for services like pollination provided by trees.

Conclusion

Scaling up agroforestry in India requires the inclusion of smallholders, who own the majority of agricultural land. However, **ecological and socio-economic barriers** hinder this adoption. While **secure land tenure is essential**, **economic viability and sustainable practices are crucial for empowering these farmers through market linkages**.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following pairs:

Agroforestry	Main components
1. Agrisilviculture	Crops + Trees
2. Silvopastoral	Crops + Pasture + Trees
3. Agrosilvopastoral	Pasture/Livestock + Trees

How many of the above pairs are correctly matched?

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

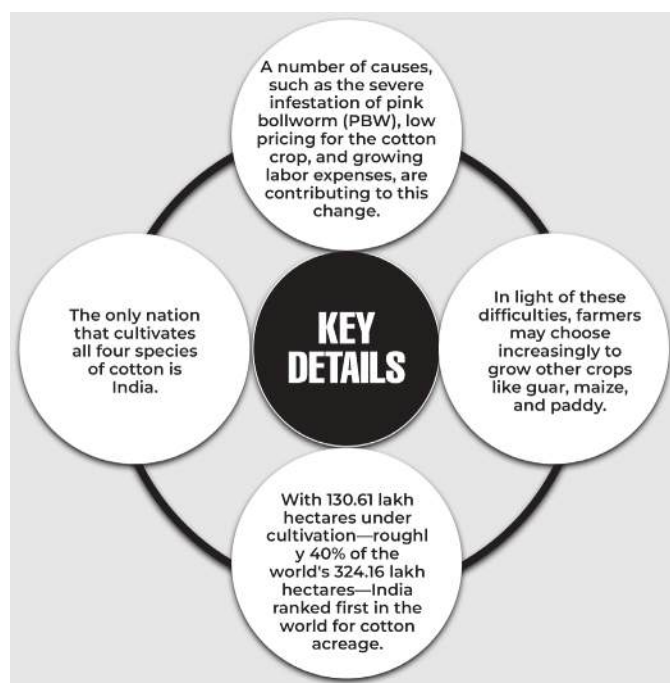
Answer: a (1 only)

Descriptive Question

Q. What are the economic benefits of agroforestry for smallholder farmers? What are the challenges faced by small farmers in adopting agroforestry practices? How can these obstacles be addressed through supportive policies? [15 Marks] [250 words]

COTTON CULTIVATION IN NORTH INDIA

Why in News: A possible decline in cotton acreages is anticipated by stakeholders as the 2024–25 kharif cotton planting season in North India gets near.



Pink Bollworm (PBW) Infestation

- Within the **American bollworm complex**, PBW (*Pectinophora gossypiella*) is a significant pest that mostly affects cotton crops.
- PBW, commonly referred to as **Saunders**, harms cotton fruits that are still developing, including the **square-shaped flower bud** and the **seed-filled boll**.
- The pest deposits its eggs on buds, blooms, and bolls. The hatched larvae burrow into the bolls to feed on the seeds, which degrades the quality of the lint and damages it.
- To reduce hazards, Bt Cotton which has been genetically modified to withstand pests like PBW was introduced. But over time, PBW have grown resistant to Bt Cotton, which makes the issue worse.

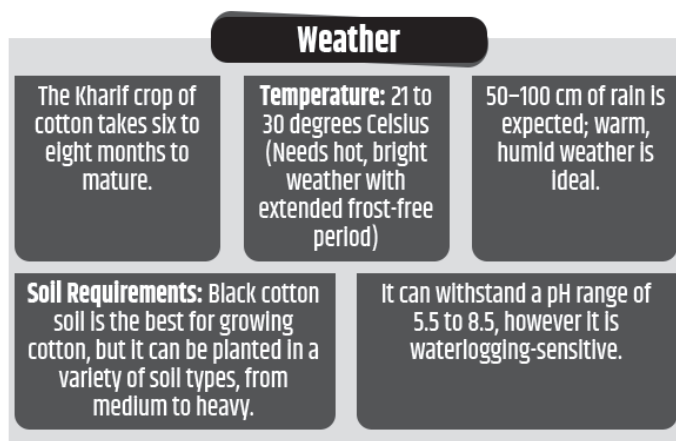
Factors responsible for Resistance Development

- In the **centre and southern cotton-growing zones**, continuous cotton planting without crop rotation boosted PBW persistence.
- Farmers' illicit production of Bt/Ht seeds** without authorization played a role in the establishment of PBW resistance.
- Long-duration hybrids** were grown for an extended period of time, giving PBW constant host availability.
- Extending the cotton crop past the advised times** helped promote PBW reproduction and survival.

- By exposing PBW to Bt protein continuously, noncompliance with refugia planting accelerated the establishment of resistance.
- **Natural enemies of cultivated plants** can find refuge and sustenance in the biodiversity plants known as refugias.

Effects on Crop Yields and Economy

- PBW infestation reduces cotton yield** significantly and degrades the quality of the fiber, which has an effect on farmers' sustainability and income.
- Cotton crops in Haryana have suffered severe damage, according to entomologists; about **25% of farms have reported a 50% loss**.
- The damage rate in Punjab is 65%, while the worst loss on the list is 90% in Rajasthan. This highlights the serious financial consequences for farmers and the local economy.



Significance of cotton to India

- Principal source**, accounting for two thirds of India's total use of textile fibers, for the textile sector.
- Cakes and meals** made from cottonseed are used as animal and poultry feed as well as for cooking.
- The **third-largest vegetable oil** produced in India is cottonseed oil.
- One of India's most significant commercial crops**, cotton makes for around 25% of the world's total production.
- The term "**White-Gold**" is frequently used to describe it because of its economic importance.

Some of the government initiatives

- Minimum Support Price (MSP)
- Kasturi cotton
- National Food Security Mission-Commercial Crops (NFSM-CC)
- Cotton Corporation of India (CCI)

Conclusion

India, one of the world's largest cotton producers, faces both opportunities and challenges in its cotton industry. Despite being a major contributor to the global market, issues like pest management, water scarcity, and fluctuating market prices persist. Sustainable practices and technological advancements are crucial for ensuring consistent and profitable cotton production in India.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements:

1. India got 1st place in the world for area under cotton cultivation.
2. More than 50% of India's cotton is produced in irrigated lands.
3. India is the only country which grows all four species of cotton.

How many of the above statements are correct?

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

Answer: (d) and (c) only

Descriptive Question

Q. How do weather conditions, market dynamics, input costs, and government policies influence farmers' decisions regarding crop choices, particularly regarding cotton cultivation? Illustrate the importance of cotton to India and Indian economy. [15 Marks] [250 words]

AGRICULTURE SECTOR POISED FOR HIGH GROWTH IN 2024-25

Why in News: The agriculture sector in India is expected to witness significant growth in the coming year, with NITI Aayog projecting a rise of more than 6% in 2024-25.

Key Details

- **Favorable Monsoon:** Various agencies predict normal or above-normal monsoon rainfall, which is crucial for agricultural productivity in India. A well-distributed

monsoon across the country would significantly benefit crop yields.

- **Low Base Effect:** The agricultural sector's growth in 2023-24 was modest at 0.67%. This relatively low base provides a springboard for a more substantial increase in 2024-25.

Significance of Agriculture in India

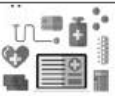
- **Livelihood Source:** Agriculture is the primary source of income for approximately 45% of India's population. Millions of farmers and their families depend on agriculture for their sustenance.
- **Global Agricultural Powerhouse:** India is a major player in the global agricultural sector, ranking second in the production of fruits, vegetables, tea, farmed fish, sugarcane, wheat, rice, cotton, and sugar.
- **Organic Farming Leader:** India occupies the fifth position globally in terms of total area dedicated to organic farming, highlighting its commitment to sustainable agricultural practices.

Recent Trends and Challenges

- **Declining Share of GVA:** The agriculture sector's contribution to India's Gross Value Added (GVA) has declined from 35% in 1990-91 to 15% in 2022-23, primarily due to the rapid growth of the industrial and service sectors.
- **Stagnant or Falling Prices:** While the government has increased Minimum Support Prices (MSPs) for major foodgrain crops, market prices of agricultural produce have stagnated or even fallen, impacting farmer incomes.
- **Real Income Decline:** The real income of agricultural households from cultivation witnessed a decline of about 1.4% between 2012-13 and 2018-19.
 - This decrease can be attributed to both stagnant agricultural prices and rising input costs, particularly fertilizers.
- **Limited Public Investment:** Public investment in agriculture, including research and extension services, has stagnated or even declined in the past decade.
 - This lack of investment hinders long-term growth and innovation in the sector.
- **Rising Input Costs:** The real prices of agricultural inputs, such as fertilizers, have been rising for several years, putting a strain on farmers' profit margins.



GOVERNMENT INITIATIVES



1	PM-KISAN	This income support scheme provides ₹6,000 annually to farmers in three installments.	
	PMKSY	This scheme focuses on improving water use efficiency through micro-irrigation, watershed development, and promotion of water management practices.	2
3	PMFBY	This crop insurance scheme aims to reduce premium rates and increase insured amounts for farmers.	
	Per Drop More Crop	This scheme promotes micro-irrigation technologies to enhance water use efficiency and farm productivity.	4
5	PM-AASHA	This initiative aims to ensure farmers receive remunerative prices for their produce through various price support mechanisms.	
	Namo Drone Didi	This scheme facilitates drone services for agricultural purposes such as pesticide and fertilizer application, managed by women Self Help Groups (SHGs).	6
7	KCC Scheme	This scheme offers subsidized credit to farmers for agricultural activities.	
	e-NAM	This online platform creates a unified national market for agricultural commodities, enabling farmers to sell their produce across the country and access better prices.	8

Conclusion

By addressing these challenges and implementing effective measures, India can unlock the true potential of its agricultural sector, ensuring not only growth but also improve livelihoods for millions of farmers.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

- Q. Which of the following activities constitute a real sector in the economy?
1. Farmers harvesting their crops
 2. Textile mills converting raw cotton into fabrics
 3. A Commercial bank lending money to a trading company
 4. A corporate body issuing Rupee Denominated Bonds overseas

Select the correct answer using the code given below.

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

Answer: a

Descriptive Question

- Q. Critically evaluate the role of government policies and initiatives in fostering the projected growth of more than 6% in India's agriculture sector for the upcoming fiscal year. What policy reforms are necessary to sustain and accelerate this growth? [15 Marks] [250 words]

INDIA'S DIRECT TAX COLLECTIONS SURGE IN FY 2023-24

Why in News: India's government witnessed a significant boost in direct tax collections during the financial year 2023-24 (FY 2023-24). This positive development is a promising sign for the country's fiscal health.

Exceeding Expectations

- Net direct tax collections for **FY 2023-24 reached a staggering ₹19.58 lakh crore**, reflecting a remarkable 17.7% increase compared to the previous year's ₹16.64 lakh crore.
- This growth surpassed even the revised estimates set by the government in the Union Budget.
- The initial Budget Estimates (BE) for **direct tax revenue were set at ₹18.23 lakh crore**, which were subsequently revised upwards to ₹19.45 lakh crore (Revised Estimates or RE).
- The actual collections exceeded the BE by a healthy 7.40% and the RE by a marginal 0.67%.

Tax	
Direct Tax	Indirect Tax
• Income Tax • Wealth Tax • Gift Tax • Capital Gains Tax	• Value Added Tax • Octroi Tax • Service Tax • Customs Duty

Breaking Down the Numbers

The positive trend extends to gross collections (before adjusting for refunds) as well. Gross direct tax collections for FY 2023-24 stood at ₹23.37 lakh crore, representing an impressive 18.48% growth compared to ₹19.72 lakh crore collected in FY 2022-23.

- **Corporate Tax:** Both gross and net corporate tax collections witnessed significant growth.
 - Gross corporate tax collection reached ₹11.32 lakh crore, reflecting a 13.06% increase year-on-year.

- **Personal Income Tax:** Personal income tax collections, including Security Transaction Tax (STT), displayed robust growth.
 - Gross personal income tax collection, including STT, reached ₹12.01 lakh crore in FY 2023-24, showcasing a substantial 24.26% growth compared to the previous year.
- **Refunds:** It's important to note that the government issued tax refunds amounting to ₹3.79 lakh crore in FY 2023-24. This represents a 22.74% increase compared to the ₹3.09 lakh crore refunded in FY 2022-23.

Way Forward

- **Enhancing Tax Administration:** Streamlining tax collection processes, reducing tax evasion, and promoting wider tax compliance can further improve tax revenue.
- **Simplifying Tax Laws:** Regularly reviewing and simplifying tax laws can make compliance easier for taxpayers and encourage greater participation in the tax system.
- **Focus on Digitalization:** Leveraging digital technologies for tax filing, assessment, and payment can improve efficiency and transparency in tax administration.
- **Expanding Tax Base:** Exploring ways to broaden the tax base by bringing more individuals and entities under the tax net, while ensuring a fair and progressive tax structure, can increase tax revenue.
- **Promoting Investment and Growth:** Policies that encourage investment and economic growth can lead to higher incomes and ultimately, higher tax collections.

By implementing these measures, the government can ensure sustained growth in direct tax collections, enabling it to better serve the nation's developmental needs.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following taxes:

1. Octroi Tax
2. Securities Transaction Tax (STT)
3. Gift Tax
4. Angel Tax

How many of the above are the Direct Taxes?

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

Answer: c (2, 3 and 4 only)

Descriptive Question

Q. Assess the impact of the boost in direct tax collections on income distribution and inequality in India. How can the government ensure that increased tax revenues contribute to equitable development and social welfare? [15 Marks] [250 words]

'PRIORITY WATCH LIST'

Why in News: The United States Trade Representative's (USTR) annual "Special 301 Report" on intellectual property (IP) protection and enforcement placed India on its "priority watch list" for 2024.

What is the Special 301 Report?

The Special 301 Report identifies countries with inadequate IP protection and enforcement practices that hinder American innovation and investment. It focuses on issues like:

- Weak enforcement mechanisms leading to online piracy and counterfeit goods.
- Lack of robust trade secret protection.
- Market access barriers for US rights holders.
- Challenges in copyright protection, particularly for online transmissions.

What is Intellectual Property?

- Intellectual property (IP) encompasses products of human intellect, such as inventions, literary and artistic works, designs, and symbols or names used in commerce.
- These creations are safeguarded by legal mechanisms like patents, copyrights, and trademarks, granting individuals the ability to gain recognition or financial rewards for their innovations.
- By balancing the interests of creators with the broader public good, the IP framework aims to nurture an environment conducive to creativity and innovation.

Types of Intellectual Property:

- **Patent:** An exclusive right granted for a novel invention, whether a product or process, offering a new method or technical solution to a problem.
- **Copyright:** Legal rights held by creators over their literary and artistic works.
- **Trademark:** A distinctive symbol capable of identifying the goods or services of one entity from others.
- **Industrial Design:** Concerns the aesthetic or ornamental features of an object.
- **Geographical Indications and Appellations of Origin:** Identifiers used for products with specific geographical origins, possessing unique qualities or characteristics attributed to that location.
- **Trade Secrets:** Protection for confidential information that may be commercially valuable, available for sale or licensing.

National IPR Policy 2016

This policy establishes a framework for implementing, monitoring, and reviewing IP laws. It aims to incentivize innovation and creativity.

Cell for IPR Promotion and Management (CIPAM)

This body coordinates the implementation of the National IPR Policy.

India's Initiatives in IP

National Intellectual Property Awareness Mission (NIPAM)

This program aims to raise awareness about IP rights in educational institutions.

Cell for IPR Promotion and Management (CIPAM)

This scheme supports startups by providing them with resources to protect and manage their IP assets.

Why is India on the Priority Watch List?

- **Inadequate IP Enforcement:** High rates of online piracy, trademark backlog, and insufficient legal safeguards for trade secrets are major concerns.
- **Incomplete Implementation of WIPO Treaties:** India hasn't fully adopted the World Intellectual Property Organization (WIPO) Internet Treaties, impacting copyright protection.
- **Patent Revocation Concerns:** The potential for patent revocations based on discretionary criteria in the Indian Patents Act creates uncertainty for US companies.

Way Forward

1. **Strengthening IP Enforcement:** Investing in robust enforcement mechanisms to tackle online piracy and counterfeit goods is crucial.
2. **Full Implementation of WIPO Treaties:** Enacting necessary amendments to fully adopt the WIPO Internet Treaties would enhance copyright protection.
3. **Transparency in Patent Revocation Process:** Providing clear guidelines and predictability in patent revocation procedures can alleviate concerns for foreign companies.

Conclusion

By taking these steps, India can create a more robust IP regime, fostering innovation and attracting foreign investment while promoting domestic creativity.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

- Q. Consider the following statements with reference to the Intellectual Property Rights of the 'Industrial Designs':
1. Stamps and tokens can not be considered as an article for the purpose of registration of Design.
 2. The duration of the registration of a Design is initially twenty years from the date of registration.

3. A registered Design, the copyright of which has expired cannot be re-registered.

How many of the above statements are correct?

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

Answer: (b) Only two

Descriptive Question

- Q. Discuss the potential implications of India's inclusion on the 'priority watch list' of the USTR's Special 301 Report for its trade relations with the United States and other global partners. How might this designation impact India's competitiveness in the global market? [15 Marks] [250 words]

30 YEARS OF THE MARRAKESH AGREEMENT

Why in News: The World Trade Organization (WTO) is commemorating a significant milestone – the 30th anniversary of the Marrakesh Agreement.

About WTO

- The **Marrakesh Agreement** represents a cornerstone of the modern multilateral trading system.
- It was **signed in 1994**, paving the way for the establishment of the WTO itself in 1995.
- It established a framework for fair and open trade between nations, fostering economic growth and development.

About the Agreement

- **Comprehensive Framework:** It acts as the foundation for trade relations among all WTO members.
- **Expanded Scope:** It broadened the focus beyond just goods, encompassing trade in services, intellectual property (IP), and other areas.
- **Institutional Framework:** It established the WTO's governance structure, including the **Ministerial Conference (top decision-making body)**, **General Council**, and **specialized councils to facilitate negotiations**, dispute settlement, and economic cooperation.

Achievements of the WTO

- **Reduced Barriers:** Since its inception, the real volume of world trade has nearly tripled, and average tariffs have almost halved.

- **Global Value Chains:** Trade within these interconnected production networks now accounts for almost 70% of global merchandise trade.
- **Developing Country Growth:** The WTO era has witnessed the fastest decline in poverty rates and a rise in purchasing power across the globe.
- **Trade Agreements & Rules:** The WTO has facilitated numerous trade agreements like the TRIPS Agreement, the Nairobi Package, and the Trade Facilitation Agreement, promoting international trade rules and regulations.

Challenges

Dispute Settlement System Impasse: The WTO's dispute settlement mechanism, once a hallmark achievement, is currently paralyzed due to disagreements over appointments to the Appellate Body.

Evolving Trade Landscape: The rise of digital trade, new technologies, and concerns about environmental sustainability necessitate the WTO to adapt and address these emerging issues.

Geopolitical Tensions: Rising trade tensions between major economies pose a threat to the smooth functioning of the multilateral trading system.

Way Forward

Refurbish the Dispute Settlement System: Reaching a consensus on reforming the Appellate Body appointment process is crucial to restore confidence in the WTO's dispute settlement mechanism.

Embrace New Trade Issues: The WTO must actively engage with issues like digital trade, e-commerce, and the impact of trade on climate change.

Reinvigorate Multilateral Negotiations: Renewed focus on multilateral trade negotiations can lead to more comprehensive trade agreements that benefit all members.

Conclusion

The Marrakesh Agreement's legacy lies in fostering a more interconnected and prosperous world. By addressing current challenges and adapting to the evolving global landscape, the WTO can continue to play a vital role in promoting free and fair trade for the benefit of all nations.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. With reference to the World Trade Organization (WTO), consider the following statements:

1. It was established under the provisions of the Marrakesh Agreement.
2. The WTO agreements apply only to the goods and services but do not apply to intellectual property rights.

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

Descriptive Question

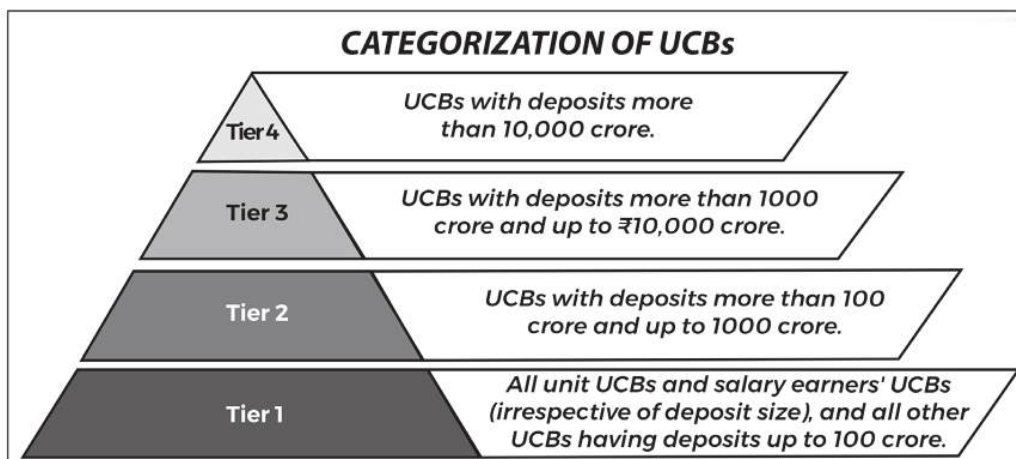
Q. Assess the achievements and challenges faced by the World Trade Organization (WTO) since its inception. How have WTO agreements impacted global trade dynamics and economic development? [15 Marks]
[250 words]

URBAN COOPERATIVE BANKS (UCB)

Why in News: The Reserve Bank of India (RBI) has imposed restrictions on several Urban Cooperative Banks (UCBs), including capping withdrawal limits for National Urban Co-operative Bank Ltd and Sarvodaya Co-operative Bank.

Understanding UCBs

- **Definition:** UCBs are primary cooperative banks operating in urban and semi-urban areas.



- **Regulation:** They function under the respective State Cooperative Societies Act or Multi-State Cooperative Societies Act, 2002.
- **RBI's Categorization:** RBI categorizes UCBs into four tiers based on their deposit size for regulatory purposes.

Dual Regulation of UCBs

- **RBI's Role:** Regulates and supervises banking functions under the Banking Regulation Act, 1949.
- **State/Central Registrar's Role:** Oversees managerial, administrative, and other non-banking matters.
- **Deposit Insurance Cover:** Eligible depositors in these banks are entitled to claim up to Rs. 5 lakhs from the Deposit Insurance and Credit Guarantee Corporation (DICGC).

Issues Plaguing UCBs

- **Financial Instability**
 - Inadequate capital base and low capital adequacy ratios.
 - High gross non-performing assets (NPA) ratio of 8.7% compared to the banking sector average.
- **Regulatory Disparity:** Lack of uniformity in regulations across different states.
- **Governance Concerns:** Influence of political interests in the management of certain UCBs.

STEPS TAKEN TO ADDRESS UCBs

Banking Regulation Act Amendment (2020): Brought management, governance, and winding-up procedures under RBI's purview. 1

Supervisory Action Framework: Aimed at swift resolution of financial stress faced by UCBs. 2

3 National Federation of UCBs: Established as an umbrella organization to strengthen the sector.

Way Forward

- **Strengthening Capital Base:** UCBs need to improve their capital adequacy ratios to enhance financial resilience.
- **Tackling NPAs:** Effective NPA recovery measures and stricter loan disbursement practices are crucial.
- **Uniform Regulatory Framework:** A consistent regulatory framework across all states is essential for improved governance.
- **Professionalizing Management:** Minimizing political interference and promoting professional management practices within UCBs.
- **Technology Adoption:** Embracing digital technologies can improve operational efficiency and transparency.

By addressing these critical issues, the RBI and relevant authorities can work towards ensuring the stability and growth of the UCB sector, safeguarding the interests of depositors and promoting a healthy financial ecosystem in India.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. With reference to Urban Cooperative Banks in India, consider the following statements:

1. They are supervised and regulated by local boards set up by the State Governments.
2. They can issue equity shares and preference shares.
3. They were brought under the purview of the Banking Regulation Act, 1949 through an Amendment in 1996.

Which of the statements given above is/are correct?

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

Answer: d

Descriptive Question

Q. What are the issues faced by the Urban Cooperative Banks (UCBs)? Examine the reasons behind the Reserve Bank of India's decision to impose restrictions, including capping withdrawal limits, on several Urban Cooperative Banks (UCBs). [15 Marks] [250 words]

UNCTAD REPORT ON GLOBAL TRADE

Why in News: The United Nations Conference on Trade and Development (UNCTAD) recently published a concerning update to its Trade and Development Report.

Key Details

- Global trade dipped 3% to USD 31 trillion in 2023 after peaking in 2022. The downturn was driven by less demand in developed economies and weaker trade in East Asia and Latin America.
- The downturn was driven by a 5% fall in trade in goods. Meanwhile, trade in services bucked the negative trend, growing by 8%.
- **Developed Economies' Monetary Policy Impact:** Tightening monetary policies in major developed economies have had a cascading effect on developing countries:
 - Increased Debt Servicing Costs.
 - Currency Depreciation.
 - Domestic Economic Slowdown.
- **Global Debt Crisis:** Developing countries are grappling with a worsening debt crisis:
 - **Net Negative Resource Transfer:** In 2022, developing countries collectively paid \$50 billion more to external creditors than they received in new loans, marking the first net negative resource transfer since 2008.

Challenges

- **Unsustainable Debt Burdens:** Developing countries require debt relief and restructuring mechanisms to alleviate their unsustainable debt burdens and free up resources for critical development needs.
- **Vulnerability to External Shocks:** The report highlights the vulnerability of developing countries to external economic shocks originating from developed economies, emphasizing the need for a more equitable and resilient global financial system.
- **Need for Coordinated Action:** Effective solutions require coordinated international action to address the debt crisis, stabilize global trade, and ensure inclusive economic growth.

Related Development

- **IMF (International Monetary Fund) Executive Board endorsed reforms:** Recognizing the gravity of the situation, the International Monetary Fund (IMF) has endorsed reforms to enhance its capacity to support countries undergoing debt restructuring.
- These reforms aim to streamline the debt resolution process and facilitate timely interventions during debt crises.

Way Forward

- **Debt Relief and Restructuring:** Implement mechanisms for debt relief and restructuring to provide developing countries with fiscal space for essential investments.
- **International Financial System Reform:** Advocate for reforms to the international financial system to make it more equitable and responsive to the needs of developing countries.
- **Multilateral Cooperation:** Foster stronger multilateral cooperation to address global economic challenges collectively and ensure inclusive growth.
- **Diversification and Resilience Building:** Support developing countries in diversifying their economies and building resilience against external economic shocks.
- **Sustainable Development Goals Prioritization:** Integrate debt crisis solutions with strategies to achieve the Sustainable Development Goals, ensuring that developing countries have the resources necessary to meet their development needs.

Conclusion

By acknowledging the interconnectedness of global economic challenges and taking coordinated action, the international community can work towards a more stable and equitable future for all nations.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q1. In the context of the Indian economy, non-financial debt includes which of the following?

1. Housing loans owed by households
2. Amounts outstanding on credit cards
3. Treasury bills

Select the correct answer using the code given below.

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

Answer: d

Q2. Consider the following statements:

1. Most of India's external debt is owed by governmental entities.
2. All of India's external debt is denominated in US dollars.

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: d

Descriptive Question

Q. Discuss the key findings highlighted in the latest update of the United Nations Conference on Trade and Development's (UNCTAD) Trade and Development Report. What are the major challenges identified in the global trade and development landscape? [10 Marks] [150 words]

SOIL EROSION IN WESTERN GHATS

Why in News: A recent study by the Indian Institute of Technology Bombay (IIT-Bombay) has revealed a significant increase in soil erosion rates across the WGR between 1990 and 2020.

Key Findings of Study

- The IIT-Bombay conducted study, using data from LANDSAT-8 satellites and rainfall records, that reveals a disturbing trend.
- Specific areas in Tamil Nadu and Gujarat witnessed a staggering increase in soil erosion – 121% and 119% respectively, compared to 1990.
- While Kerala registered the lowest soil loss, the overall erosion rate across the Western Ghats rose by a concerning 94%.
- Furthermore, Maharashtra recorded the highest absolute soil loss in 2020, with an average of 79 tons per hectare per year.

Western Ghat

The Western Ghats stretch for about 1,600 km along India's western coast, encompassing six states: Gujarat, Maharashtra, Goa, Karnataka, Kerala, and Tamil Nadu.

They are recognized as one of the world's eight "hottest hotspots" for biodiversity and are best known for their non-equatorial tropical evergreen forests.

The Western Ghats act as a barrier, influencing monsoon patterns and contributing to the region's unique climate.

Causes of Soil Erosion

Increased Rainfall Erosivity: The potential of rainfall to cause soil erosion has intensified.

Steep Slopes and High Rainfall: The WGR's topography makes it inherently susceptible.

Climate Change: Altered weather patterns likely exacerbate these issues.

Unsustainable Land Use: Practices like cultivating tea and coffee on slopes can accelerate erosion.

Consequences of Soil Erosion

Threat to Biodiversity	Reduced Agricultural Productivity	Deteriorating Water Quality
The WGR is one of the world's 36 biodiversity hotspots and a UNESCO World Heritage Site. Soil erosion can destroy critical habitats, leading to a decline in plant and animal life.	Loss of fertile topsoil diminishes the land's capacity to support agriculture, impacting food security in the region.	Eroded soil can wash into rivers and streams, increasing sedimentation and degrading water quality. This can impact downstream ecosystems and water supplies.

Protection Measures

Committee Recommendations	Strengthening Institutions	Protected Areas
Both the Gadgil Committee & Dr. K. Kasturirangan Committee reports have made recommendations for sustainable management of the WGR. Implementing their suggestions is crucial.	The Western Ghats Natural Heritage Management Committee under the Ministry of Environment, Forest and Climate Change needs stronger enforcement power and resources to effectively manage the region.	Expanding the network of protected areas like National Parks, Wildlife Sanctuaries, and Tiger Reserves can safeguard critical ecological zones.

Way Forward

- **Climate-Smart Practices:** Adopting climate-smart agricultural practices that can better withstand changing weather patterns is essential.
- **Research and Monitoring:** Continuous research on soil erosion and mitigation strategies is crucial for effective management.

Conclusion

Soil erosion presents a serious threat to the WGR's ecological

health and the well-being of millions who depend on it. By adopting a multi-pronged approach that integrates policy changes, sustainable practices, and community participation, we can conserve this vital ecosystem for future generations.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements:

1. The Western Ghats are geologically older than the Himalayan Mountain ranges.
2. Western Ghats are fold mountain.

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

(a) :Answer

Descriptive Question

Q. Discuss the potential consequences of heightened soil erosion rates on the ecological integrity, biodiversity, and socio-economic dynamics of the Western Ghats region. [10 Marks] [150 words]

STATE OF THE GLOBAL CLIMATE REPORT 2023

Why in News: The World Meteorological Organization's (WMO) "State of the Global Climate 2023" report paints a grim picture, highlighting 2023 as the hottest year on record with unprecedented extremes in weather patterns.

Current State of Climate Finance

- Climate finance flows nearly doubled between 2019-20 and 2021-22, reaching a total of \$1.3 trillion.
- However, this is far from sufficient. A six-fold increase in investments is needed by 2030 to stay on track for a 1.5°C warming pathway as outlined in the Paris Agreement.
- The report reveals an uneven distribution of climate finance. A significant portion (90% of the increase) went to just six countries: China, the USA, Europe, Brazil, Japan, and India.
- Additionally, sectors with high mitigation potential, such as agriculture and industry in developing countries, are receiving insufficient funds.
- The report also emphasizes the need for better tracking of adaptation efforts undertaken by the private sector.

Challenges in Climate Finance

- **Financing Gap:** Investments need to grow six-fold by 2030 to achieve a 1.5°C pathway, as outlined in the Paris Agreement.

- **Inequitable Distribution:** Climate-vulnerable nations and vital sectors like agriculture lack adequate funding despite their mitigation potential.
- **Data Tracking:** Private sector adaptation actions remain inadequately tracked, hindering effective resource allocation.

Recommendations for Mobilizing Climate Finance

- The WMO report proposes a multi-pronged approach:
- **Transforming Financial Systems:** This involves prioritizing concessional financing, de-risking investments, and bridging the gap between climate and development needs.
- **Mobilizing Domestic Capital:** Enabling policies and regulatory frameworks are critical to unlock domestic capital markets for climate action.
- **Data Improvement:** Availability of high-quality, granular data is essential to measure progress and ensure efficient resource management.

Initiatives to Improve Climate Finance

Positive developments includes:

- **Global Climate Finance Framework (COP28, Dubai):** This framework aims to streamline climate finance and improve accountability.
- **France's AFD 2050 Facility:** This initiative supports developing countries in implementing the Paris Agreement.
- **Just Energy Transition Partnerships (JETPs):** These partnerships assist developing nations in transitioning to clean energy in a just and equitable manner.

Conclusion

The WMO report underscores the urgency of mobilizing adequate climate finance. Addressing the challenges through a combination of innovative financial instruments, domestic resource mobilization, and improved data collection will be crucial to bridge the funding gap and ensure a sustainable future.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. "State of the Global Climate 2023" report was published by

- (a) World Meteorological Organization.
(b) Intergovernmental Panel on Climate Change.
(c) World Resources Institute
(d) United Nations Office for Disaster Risk Reduction

(a) :Answer

Descriptive Question

Q. What steps can be taken to enhance global cooperation and coordination in addressing climate change, including efforts to reduce emissions, increase resilience, and support vulnerable communities? [10 Marks] [150 words]

WORLD WATER DEVELOPMENT REPORT 2024

Why in News: The United Nation's World Water Development Report 2024, titled "Water for Prosperity and Peace," sheds light on the crucial role water plays in maintaining global stability and economic well-being.

Key Findings of Report

- **Current Water Resource Status:** The report highlights several alarming statistics:
 - **Agriculture's Dominance:** A staggering 70% of global freshwater withdrawals are used for agriculture.
 - **Shrinking Water Bodies:** Lake Chad, a vital source of water in Africa, has shrunk by a staggering 90% in just 60 years, signifying the alarming rate of depletion.
 - **Uneven Cooperation:** While collaboration over shared surface water resources seems to be improving, groundwater, a crucial source, remains largely neglected in terms of cooperative management.
- **The Challenge of Achieving SDG 6:** The report underscores the immense challenge in achieving SDG 6 due to:
 - **Water Scarcity's Grip:** A significant portion of the world's population (around 50%) grapples with severe water scarcity for at least part of the year.
 - **Food Security at Risk:** Regions like Northwest India and North China are identified as hotspots where water scarcity poses a major threat to food production.
- **The Water-Prosperity Paradox:** The report introduces the concept of the "Water-Prosperity Paradox."
 - While developed water infrastructure can promote economic growth, it often comes at a high cost, limiting access to less wealthy nations.

Recommendations for Sustainable Water Management

The report proposes several key recommendations to ensure the sustainable management of water resources:

1. **Transboundary Agreements:** Collaborative agreements between countries sharing water resources as crucial for equitable and sustainable management.
2. **Increased Private Investment:** The report estimates that achieving universal water access requires an annual investment of around US \$114 billion until 2030. Increased private sector participation can help bridge this gap.
3. **Decoupling Water and Production:** Industries must strive to reduce their water footprint. The report cites Tata Chemicals as an example, highlighting their success in reducing groundwater usage by 99.4% through water recycling and management practices.

The Link Between Water, Peace, and Prosperity

Water and Peace

Water scarcity poses a significant threat to peace in several ways

Increased Local Disputes	Migration and Instability	Food Insecurity
As witnessed in the Sahel region, water scarcity can exacerbate existing tensions and lead to local conflicts over access to this critical resource.	Water scarcity can trigger mass migration, placing strain on receiving areas and potentially leading to social unrest.	Scarcity of water for agriculture can lead to heightened food insecurity, further destabilizing regions.

Water and Prosperity

Water plays a multifaceted role in fostering prosperity

Environmental Sustainability	Economic Growth	Inclusion and Equity
Water is essential for maintaining a healthy environment, which underpins long-term prosperity.	In low and lower-middle-income countries, a significant portion of jobs (around 70-80%) are water-dependent, highlighting the link between water security and economic well-being.	Girls and women are disproportionately affected by water scarcity. Limited access to water hinders their education, economic opportunities, and safety, highlighting the importance of water management for achieving gender equality.

Conclusion

The UN World Water Development Report 2024 serves as a stark reminder that water is not just a resource, but a cornerstone of peace and prosperity.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

- Q. With reference to the United Nations Water (UN Water), consider the following statements:
- (a) The United Nations agencies, programs and funds with a water-related mandate are members of UN Water.

- (b) United Nations Water Conference, 2023, was co-hosted by the Governments of Denmark and the USA.

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

(a) :Answer

Descriptive Question

Q. What is the significance of a water for sustainable development and peace? How does water insecurity exacerbate existing inequalities and conflicts within and between nations? [15 Marks] [250 words]

DECODING THE JUDGMENT ON JIM CORBETT

Why in News: Recently, the Supreme Court discovered the fraudulent collaboration between politicians, forest officials, and local contractors that resulted in the illegal destruction of 6,000 trees in Jim Corbett National Park.

Key Details

- The court deemed the case a “classic case” of a link between politicians and authorities collaborating to devastate the environment for short-term commercial gain.
- Rural Litigation and Entitlement Kendra vs. State of Uttar Pradesh: According to the Supreme Court, “economic

growth cannot be achieved at the cost of environmental destruction and people’s right to a healthy environment.”

Key Points of the Judgement

- The Supreme Court **underlined the necessity of an eco-centric approach** rather than **anthropocentrism in ecotourism management**.
- Precautionary Principle of Environmental Conservation:** Under the Precautionary Principle, it states that “where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent such environmental degradation.”

Loopholes

- Undefined approach:** The court’s strategy to recoup repair expenditures lacks a clear approach, raising questions about its effectiveness.
- Ecosystem-Based Valuation:** To accurately quantify environmental harm, propose a valuation method based on ecosystem services. In restoration plans, there is a strong emphasis on conservation over money production.
- Prioritizing Ecosystem Services:** The court fails to set a precedent by putting ecosystem services ahead of ecotourism in conservation efforts.
- Reference to International Precedents:** Drawing on international precedents, such as the rationale offered by the International Court of Justice in Costa Rica v. Nicaragua, could have improved understanding of procedures for assessing environmental harm and compensating for losses.

National Parks & Sanctuaries of Uttarakhand



Conclusion

Thus, incorporating ecosystem service valuation into legal and policy frameworks might have given a holistic method to deal with environmental deterioration and providing fair compensation for its effects.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements:

1. The concept of "Tiger Safari" in the wild was introduced by the Government in the Tourism Guidelines, 2012.
2. The concept of 'Safari' is mentioned the Wild Life (Protection) Act, 1972.
3. The Tiger Safari in the core regions of the National parks is prohibited.

How many of the above statements are correct?

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

Answer: (c) (All Three)

Descriptive Question

Q. How has this illegal deforestation affected the biodiversity, ecosystem services, and natural heritage? Explain legal and regulatory mechanisms are in place to prevent and prosecute illegal deforestation and environmental crimes in protected areas such as national parks and wildlife sanctuaries? [15 Marks] [250 words]

TAIWAN'S RECENT EARTHQUAKE

Why in News: On April 3rd, 2024, Taiwan experienced its strongest earthquake in nearly 25 years, registering a magnitude of 7.2.

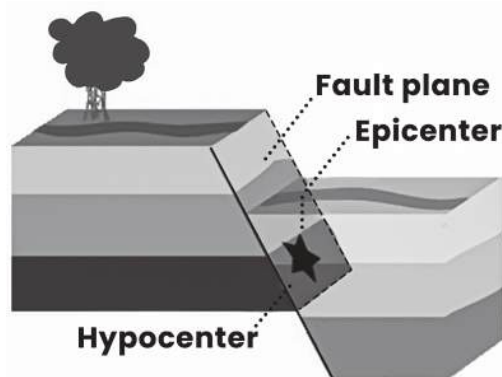


Understanding of Earthquakes

- Taiwan's vulnerability to earthquakes stems from its location along the Pacific Ring of Fire.
- This horseshoe-shaped zone encircles the Pacific Ocean and is characterized by intense geological activity due to the interaction of tectonic plates.
- The Philippine Sea Plate and the Eurasian Plate constantly grind against each other, accumulating tension that releases abruptly as earthquakes.

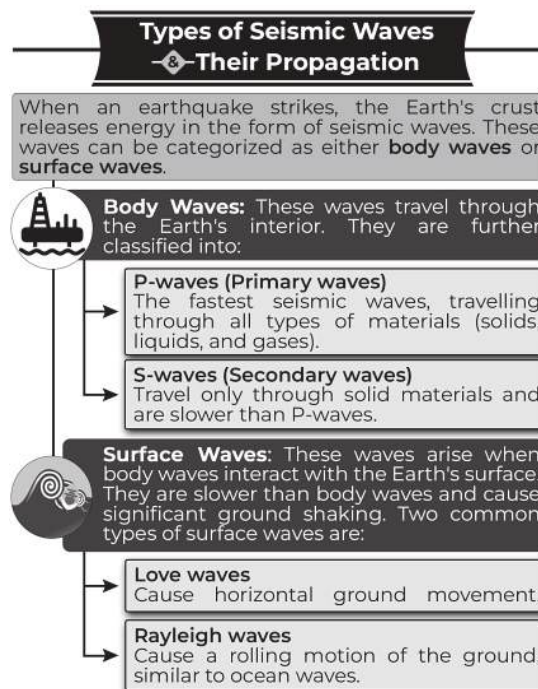
The Science Behind Seismic Activity

- Earthquakes occur due to the sudden release of energy stored in the Earth's crust. This energy travels outward in the form of waves called seismic waves.
- These waves originate at the focus, or hypocenter, located deep within the Earth.
- The point directly above the focus on the surface is called the epicenter, and it experiences the initial tremors.



Measuring Earthquake Strength

- Seismographic networks equipped with seismic stations monitor and measure these seismic waves.



- From the **wave amplitude**, scientists can estimate the energy released, which translates to the earthquake's **magnitude** on the **Richter scale**.

The Pacific Ring of Fire

The Pacific Ring of Fire is notorious for its frequent earthquakes and volcanic eruptions. This intense activity is a direct consequence of tectonic plate movement. Subduction zones, where one plate dives underneath another, are particularly prone to volcanic activity.



Case of Taiwan

- Taiwan's recent earthquake serves as a reminder of its vulnerability due to its location on the Pacific Ring of Fire.
- While casualties were fortunately limited, the temblor caused infrastructure damage and power outages. The economic impact is still being assessed.

Mitigating Measures

- Earthquake-resistant building codes:** Implementing and enforcing stricter building codes that consider earthquake forces can minimize structural damage and casualties.
- Early warning systems:** Establishing robust early warning systems can provide crucial seconds for evacuation and preparation.
- Land-use planning:** Avoiding construction in high-risk zones like landslide-prone areas can minimize potential damage.
- International cooperation:** Sharing expertise, technology, and resources for earthquake preparedness, response, and reconstruction can enhance global resilience.

Conclusion

Earthquakes are inevitable, but their impacts can be mitigated through proactive measures. By prioritizing earthquake-resistant infrastructure, public preparedness, and international cooperation, societies like Taiwan can build resilience and minimize the socio-economic and environmental consequences of these natural disasters.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements:

- All natural earthquakes take place in the asthenosphere.
- Velocity of the earthquake waves increases with increase in density of material through which they travel.
- Direction of the earthquake waves changes as they reflect or refract when coming across materials with different densities.

Which of the statements given above is/are correct?

- (a) 1 only (b) 2 only
(c) 1 and 3 (d) All of the above

Answer: (c) 1 and 3

Descriptive Question

Q. Why Pacific Ring of Fire is notorious for its frequent earthquakes and volcanic eruptions? Also explain, what are the potential secondary hazards associated with the earthquake? [15 Marks] [250 words]

ROLE OF NUCLEAR ENERGY IN MITIGATING CLIMATE CHANGE

Why in News: Nuclear energy, with its low carbon footprint and reliable baseload power generation, has emerged as a potential contender in the fight against climate change.

Nuclear Energy & Climate Change

- **Low-Carbon Champion:** Nuclear power plants are champions of low-carbon electricity generation. Their operation emits virtually no greenhouse gases, unlike fossil fuels which are the primary culprits behind climate change.
 - The International Atomic Energy Agency (IAEA) estimates **nuclear power's life-cycle emissions to be a mere 5-6 grams of CO₂ per kilowatt-hour**, significantly lower than coal and even renewable sources like solar and wind.
 - Historically, nuclear power has **prevented an estimated 70 billion tonnes of carbon dioxide** emissions.
- **Reliable Baseload Power:** Unlike wind and solar, which are intermittent, nuclear power plants are reliable baseload sources, providing consistent power generation 24/7.
 - This stability is crucial for maintaining grid stability and integrating a higher share of renewables into the energy mix.
- **Decarbonization Engine:** Nuclear energy can directly replace fossil fuel plants, accelerating the transition to a clean energy future.
 - Its potential extends beyond electricity generation.
 - High-Temperature Reactors (HTRs) can provide process heat for industrial applications like steel and cement production, further decarbonizing these sectors.

Nuclear Capacity of India

- Nuclear energy stands as the fifth-largest contributor to India's electricity, constituting approximately 3% of the nation's total power generation.
- India boasts over 22 nuclear reactors distributed across 7 power plants, collectively generating 6780 MW of nuclear energy.
- Furthermore, the Kakrapar Atomic Power Project (KAPP-3) successfully linked to the grid in January 2021.
- Among these reactors, 18 are Pressurised Heavy Water Reactors (PHWRs) while 4 are Light Water Reactors (LWRs).
- Notably, KAPP-3 represents India's inaugural 700 MWe unit and the most substantial domestically engineered variant of the PHWR.

ROLE OF NUCLEAR ENERGY IN MITIGATING CLIMATE CHANGE

Challenges of Nuclear Energy



Safety Concerns

Accidents like Fukushima (2011) and the ongoing crisis at Zaporizhzhya in Ukraine have understandably raised public anxieties about nuclear safety.



Waste Disposal

The recent controversy surrounding Japan's plan to release contaminated water from Fukushima exemplifies this challenge.



Economic Considerations

High upfront costs for setting up nuclear power plants, including stringent safety measures, can make them less economically attractive compared to other energy sources.



Public Perception

Fear of radiation and nuclear accidents often leads to public opposition towards nuclear power plants, hindering the construction of new facilities.



Regulatory Hurdles

Stringent regulations, while crucial for safety, can slow down the development and deployment of new nuclear reactors.



Non-proliferation Concerns

The potential misuse of nuclear technology and materials for military purposes remains a concern that needs to be addressed through international cooperation and robust safeguards.

Way Forward for a Sustainable Future

Prioritize Safety

Continuous improvement in safety standards, transparent communication, and a focus on building public trust are essential.

Innovation for Waste Management

Research and development efforts should focus on innovative solutions for safe and sustainable long-term radioactive waste management.

Cost Optimization

Technological advancements and streamlining processes can help bring down the initial capital costs of nuclear power plants.

Effective Public Engagement

Open communication with the public, addressing concerns and emphasizing safety measures, is vital for gaining social acceptance.

Streamlining Regulations

Striking a balance between stringent safety regulations and facilitating the development of new, safer reactor designs is key.

Conclusion

Nuclear energy presents a complex yet compelling solution in the fight against climate change. While acknowledging its safety and waste disposal challenges, it is crucial to leverage its potential for clean energy generation.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. With reference to the fast breeder nuclear reactor, consider the following statements:

1. It is a machine that produces more nuclear fuel than it consumes.
2. It uses the Uranium-Plutonium Mixed Oxide (MOX) fuel.
3. It uses the liquid sodium as coolant.

How many of the above statements are correct?

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

Answer: (c) (All Three)

Descriptive Question

Q. Critically evaluate the environmental benefits and risks associated with nuclear power, including its contribution to reduce greenhouse gas emissions, as well as concerns about nuclear waste disposal, accidents, and proliferation? [15 Marks] [250 words]

RIGHT AGAINST ADVERSE EFFECTS OF CLIMATE CHANGE

Why in News: In its recent judgement, the Supreme Court of India's has significantly expanded the scope of Articles 14 and 21 of the Constitution. This landmark decision recognizes the "right against the adverse effects of climate change" as a fundamental right.

Key Details

ARTICLES 14 AND 21

The court identified Articles 14 and 21 as the source of the right to a clean environment and protection from climate change.

Article 14

This article guarantees **equality before the law and equal protection** of laws. It prohibits discrimination and requires the state to address the unequal impact of climate change.

Article 21

This **article protects the right to life and personal liberty**. Climate change poses a significant threat to both, justifying its inclusion within the ambit of Article 21.

This judgement came in response to a **plea seeking protection for the Great Indian Bustard (GIB)**, an endangered bird threatened by habitat loss due to power transmission lines.

- The court acknowledged the interconnectedness between climate change and various human rights, including health, indigenous rights, gender equality, and development.

The Importance of Fundamental Rights

- Fundamental rights, enshrined in Part III (Articles 14 to 32) of the Constitution, provide essential safeguards against government overreach.
- They guarantee justice, fair play, and standards of conduct. These rights are justiciable, which means individuals can approach courts for their protection.

ARTICLES 48A AND 51A

While not directly enforceable, Articles 48A and 51A emphasize the importance of environmental protection:

Article 48A

This article directs the state to work towards environmental improvement, forest and wildlife protection.

Article 51A

This article casts a duty upon every citizen to protect the environment and show compassion for living creatures.

Way Forward

- **Strengthening Environmental Legislation:** Existing environmental laws can be reviewed and strengthened to better address climate change concerns.
- **Policy and Planning with Climate in Mind:** Policymakers need to integrate climate change considerations all aspects of development planning.
- **Climate Litigation:** This judgement could pave the way for increased climate litigation, holding the government accountable for inaction.

Conclusion

The Supreme Court's recognition of the right against climate change marks a significant step forward. By taking the steps outlined above, India can effectively tackle this global challenge and ensure the well-being of its citizens.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Which of the following constitutional provisions declares the "Right against the adverse effects of climate change" as a Fundamental Right?

- (a) Article 14 and Article 48A
- (b) Article 21 and Article 51A
- (c) Article 14 and Article 51A
- (d) Article 14 and Article 21

(d) :Answer

Descriptive Question

Q. How does Supreme court expanded the interpretation and application of Articles 14 (right to equality) and 21 (right to life and personal liberty) of the Indian Constitution to encompass environmental protection and climate justice over the time? [15 Marks] [250 words]

GLACIAL LAKE OUTBURST FLOODS (GLOFS)

Why in News: The Uttarakhand government has constituted two teams of experts to evaluate the risk posed by five potentially hazardous glacial lakes in the region.

Understanding of GLOFs

- GLOFs are sudden and catastrophic floods caused by the outburst of water from glacial lakes.
- These lakes form when retreating glaciers leave depressions that fill with meltwater.
- As glaciers recede due to rising temperatures, these lakes can grow larger and become increasingly unstable.
- Unstable surrounding terrain, avalanches, or landslides can trigger the sudden release of massive amounts of water, sediment, and debris, leading to devastating downstream floods.

Geographical Distribution of GLOFs

- **Mountainous Regions:** GLOFs are prevalent in glacial regions, especially in the Himalayas, Andes, and Alps.
- **Focus on the Himalayas:** Since 1980, GLOFs have become more frequent in the Himalayas, particularly in southeastern Tibet and the China-Nepal border.
- **India's Vulnerability:** The National Disaster Management Authority (NDMA) has identified 188 glacial lakes in the Indian Himalayas prone to breach due to heavy rainfall.



Mitigation Strategies for GLOF Risks

- **Risk Assessment and Early Warning Systems:** A thorough risk assessment of all glacial lakes, including those beyond the initial five, is crucial.
 - This should be followed by the development of robust early warning systems to detect potential GLOF events and provide timely warnings to downstream communities.
- **Enhanced Research:** Increased research on glacial lake dynamics and past GLOF events is crucial for better risk assessment.
- **Advanced Monitoring:** Utilizing satellite imagery and remote sensing technologies can facilitate continuous monitoring of glacial lakes.
- **Community Preparedness:** Developing and disseminating clear and localized emergency preparedness plans for at-risk communities is essential.
- **Infrastructure Development Regulations:** Implementing stricter regulations for infrastructure development in vulnerable areas can minimize disruption to natural drainage patterns.
- **Addressing Climate Change:** Combating climate change is the root cause of glacial retreat and increased GLOF risk.

Conclusion

GLOFs pose a significant threat to the Indian Himalayas due to their increasing frequency and destructive potential. Addressing this challenge requires a multi-pronged approach, including enhanced research, advanced monitoring, robust early warning systems, community preparedness, and sustainable development practices.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements related to Glacial Lake Outburst Floods (GLOFs):

1. It can be caused due to the failure of the moraine dam.
2. It can occur in various geological settings where landslides block rivers or valleys, leading to the formation of landslide-dammed lakes.

Which of the statements given above is/are correct?

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

Answer: (c) (both 1 and 2)

Descriptive Question

Q. What are the specific criteria used to identify and prioritize the five potentially hazardous glacial lakes in Uttarakhand for risk assessment, and what factors contribute to their susceptibility to outburst floods? [15 Marks] [250 words]

ELECTRIC VEHICLE (EV) BATTERY RECYCLING STARTUPS

Why in News: Recently, India-EU initiative for EV battery recycling startups which presents a significant opportunity to accelerate India's clean energy transition.

Key Details

- **Identifying Promising Players:** Six innovators each from India and the EU will be selected to present their cutting-edge EV battery recycling technologies.
 - This will not only provide a platform for these startups/SMEs to showcase their expertise but also allow them to connect with potential partners and investors.
- **Facilitating Collaboration:** By bringing together key players from both regions, the event intends to foster deeper customer relationships and explore avenues for trade and investment in the domain of EV battery recycling technologies.

India's Startup Culture

- India's startup scene is booming, solidifying its position as one of the world's top three startup ecosystems.
- In 2021, a staggering 44 Indian startups achieved unicorn status. This growth is further fueled by a significant surge in funding, with total funding for startups increasing by 15 times from 2015 to 2022.

Significance of EV Battery Recycling

- **Resource Recovery:** EV batteries contain valuable non-renewable materials like lithium, nickel, and zinc.
 - Recycling recovers these materials, reducing dependence on virgin resource extraction, which can be environmentally destructive.
- **Environmental Protection:** Improper battery disposal can lead to heavy metal contamination of soil and water.
 - Recycling minimizes waste and promotes a circular economy.
- **Cost Reduction:** Recovered materials can be used in new battery production, reducing costs and promoting affordability.
 - India aims to achieve 90% battery recycling by 2026-27 under the Battery Waste Management Rules, 2022.
- **Economic Potential:** India's EV battery recycling market is projected to reach \$300 billion by 2030, creating new jobs and economic opportunities.



India's Efforts

- **Battery Waste Management Rules (Amendment) 2023:** These rules establish mandatory phase-in targets for using recycled materials in new batteries, aiming to reach 20% by 2030-31 for both portable and EV batteries.
- **Extended Producer Responsibility (EPR):** The rules introduce a system of transactable EPR certificates for producers based on the weight of batteries processed, incentivizing them to invest in environmentally sound management systems.

Way Forward

- **Collaboration and Technology Transfer:** India-EU collaboration can facilitate knowledge sharing, technology transfer, and joint research and development in EV battery recycling technologies.
- **Standardization and Investment:** Developing standardized processes and investing in infrastructure will improve efficiency and attract private investments.
- **Financial Incentives:** Providing subsidies or tax breaks can encourage setting up recycling units and promote the use of recycled materials.

Conclusion

By addressing the existing challenges and leveraging India-EU collaboration, India can establish a robust and sustainable EV battery recycling ecosystem. This will not only contribute to a cleaner environment and resource security but also unlock significant economic benefits and propel India's clean energy transition.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. In India, 'Extended Producer Responsibility' was introduced as an important feature in which of the following?

- The Bio-medical waste (Management and Handling) Rules, 1998
- The Recycled Plastic (Manufacturing and Usage) Rules, 2011
- The e-waste (Management and Handling) Rules, 2011
- The Food Safety and Standard Regulation, 2011

(c) : Answer

Descriptive Question

Q. What policy frameworks and regulatory measures are necessary to facilitate the sustainable and responsible recycling of EV batteries in India? What are the potential environmental and socio-economic benefits of effective EV battery recycling? [15 Marks] [250 words]

"SYNCHRONIZING ENERGY TRANSITIONS TOWARD POSSIBLE NET ZERO FOR INDIA" REPORT

Why in News: Recently, the "Synchronizing energy transitions toward possible Net Zero for India" report has been launched by the Office of the Principal Scientific Adviser to the Government of India.

Key Details

- **Coal's Continued Role:** The report acknowledges coal's continued relevance as the backbone of India's energy system for the next two decades.
 - This reflects the reality of India's current energy mix and the need for a gradual transition.
- **Indispensability of Nuclear and Renewable Energy:** However, achieving net zero by 2070 demands a significant increase in nuclear and renewable energy generation.
 - This shift is crucial for decarbonizing the electricity sector, a major contributor to greenhouse gas emissions.
- **Critical Minerals:** The report emphasizes the importance of refurbishing, recycling, and recovering minerals. This is essential to meet the future demand for minerals required in clean energy technologies.
- **Carbon Capture Technologies:** Exploring carbon dioxide removal technologies like bioenergy with carbon capture and storage (BECCS) and carbon capture, utilization, and storage (CCUS) becomes vital for offsetting residual emissions.

Recommendations and their Implications

- **Life Cycle Assessments and Incentive Design:** The report recommends conducting life cycle assessments of alternative energy systems and linking incentives to their net mitigation potential.
- **Focus on Domestic Resources:** Investing in developing renewable and battery technologies based on domestically available mineral resources is crucial.
 - For instance, using vanadium-based flow batteries for stationary applications and EV charging infrastructure can leverage India's rich vanadium reserves.

Challenges and Way Forward



Balancing Cost and Clean Energy

Achieving a balance between minimizing power costs for consumers and maximizing clean energy generation remains a challenge.

➤ Investments in renewable energy infrastructure and grid modernization are essential for cost reduction in the long run.



Technological Advancements

The success of the recommended strategies hinges on significant advancements in renewable and nuclear technologies.

➤ Continued research and development are crucial for enhancing efficiency and reducing costs.



Policy and Public Awareness

Robust policy frameworks and public awareness campaigns are necessary to incentivize clean energy adoption and encourage behavioral changes that contribute to energy conservation.

- **Regulatory Changes for Hydrogen Blending:** Regulatory changes to reflect hydrogen blending limits in natural gas networks can facilitate a smoother transition towards cleaner fuels.

- **Uranium Storage Facilities:** The report highlights the need for uranium storage facilities to ensure resilience in the face of potential disruptions to nuclear power. This will be crucial for maintaining energy security during the transition.

Conclusion

The "Synchronizing energy transitions toward possible Net Zero for India" report offers a comprehensive roadmap for achieving net zero emissions while ensuring energy security and affordability. By implementing its recommendations and addressing the associated challenges, India can chart a sustainable energy future for all its citizens.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following:

1. Coal is projected to continue until the next two decades as the backbone of the Indian energy system.
2. Net-zero is not possible without substantial nuclear power and Renewable Energy (RE) generation.
3. Out of total finance the considerable amount must be foreign inflows.

How many of the above are the conclusions drawn by the Synchronizing Energy Transitions Toward Possible Net Zero for India: Affordable and Clean Energy for All Report?

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

Answer: (c) (All Three)

Descriptive Question

Q. What are the specific challenges and opportunities for India in transitioning to a low-carbon economy, considering its unique socio-economic context such as low per capita energy consumption and developmental priorities as a developing nation? [15 Marks] [250 words]

HEAT WAVE

Why in News: Recently, the India Meteorological Department's (IMD) released forecast of above-normal temperatures and heatwave days across most parts of India during the upcoming hot weather season (April-June) 2024.

What is Heat Wave?

- According to IMD criteria, a heat wave is announced when the maximum temperature at a weather station reaches a minimum of 40 degrees C in low-lying areas and at least 30 degrees C in mountainous regions, with a deviation of approximately 4.5-6.4 degrees C from the usual maximum temperature.

- Additionally, IMD has the authority to declare a heat wave if the recorded maximum temperature exceeds 45 degrees C, and categorize it as a 'severe heat wave' if it surpasses 47 degrees C.

Challenges of Above-Normal Temperatures and Heatwaves

- **Heat-Related Illnesses:** Heatwaves can cause heatstroke, dehydration, and exacerbate pre-existing medical conditions, particularly amongst vulnerable populations like children, the elderly, and outdoor workers.
 - A 2016 study by the **Indian Institute of Technology Delhi** attributed **1,826 deaths** to heatwaves in India between 1999 and 2016.
- **Impact on Agriculture:** For example, the 2015 heatwave in Maharashtra significantly impacted wheat production.
- **Water Scarcity:** Heatwaves increase evaporation rates, leading to a higher demand for water for irrigation and household needs.
- **Energy Demand and Emissions:** Rising temperatures drive up demand for electricity for cooling purposes, putting pressure on the power grid.
- **Climate Change:** Increased reliance on coal-fired power plants to meet this demand can lead to higher greenhouse gas emissions, contradicting India's NDC (Nationally Determined Contributions) under the Paris Agreement.
- **Ecosystems and Air Quality:** Heatwaves can disrupt ecological processes and increase air pollution due to stagnant air conditions.

Exacerbating Existing Issues

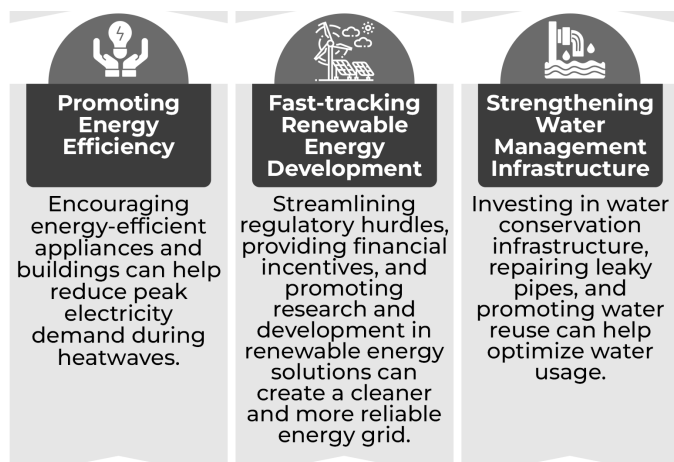
The IMD's forecast comes at a time when India is already grappling with challenges like:

- **Declining Hydropower Generation:** India's hydroelectricity output fell significantly in the year ending March 31, 2024, reducing the availability of clean energy during peak summer demand.
- **Power Shortage:** India faces an ongoing power shortage, and the heatwave is likely to exacerbate this problem, leading to potential blackouts and disruptions in essential services.

Way Forward

To mitigate the challenges and capitalize on the opportunities presented by the IMD's seasonal outlook, a multi-pronged approach is needed

		
Strengthening Early Warning Systems	Public Awareness Campaigns	Investing in Climate-Resilient Agriculture
IMD should refine its heatwave prediction models and disseminate timely and localized forecasts to enable communities to prepare.	Educating the public on heat-related illnesses, preventive measures, and first-aid response can significantly reduce mortality rates.	Promoting drought-resistant crop varieties, adopting efficient irrigation practices, and developing crop insurance schemes can help farmers adapt to changing weather patterns.



Conclusion

The IMD's seasonal outlook necessitates a proactive approach from the government, local authorities, and communities. By mitigating the risks associated with heatwaves and capitalizing on the potential for improved resource management and renewable energy development, India can navigate this challenging season and build resilience for a hotter future.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following:

1. Prevalence of the dry air
2. Absence of moisture in the upper atmosphere
3. Clear Skies
4. Large amplitude anti-cyclonic flow over the area

How many of the above are the factors that are collectively responsible for the occurrence of the heat waves in India?

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

Answer: (d) (All Four)

Descriptive Question

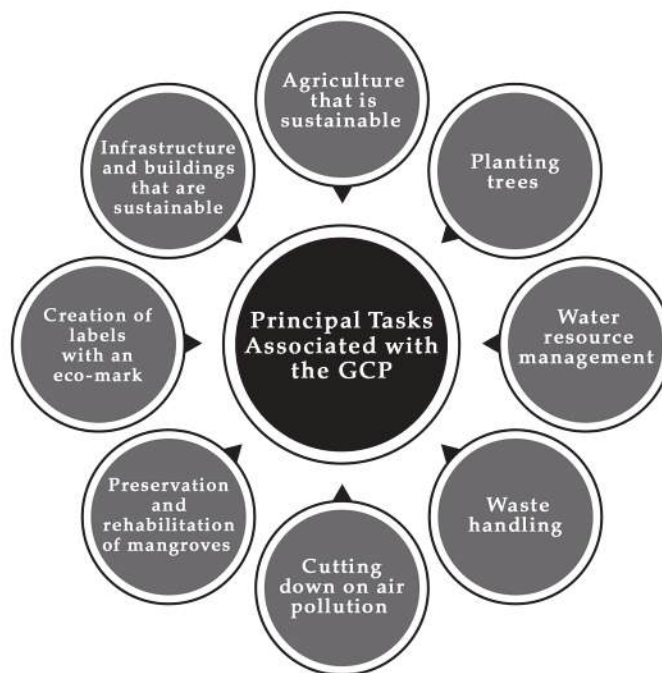
Q. What factors are driving the forecasted increase in temperatures and heatwave frequency in India? How can urban planning and infrastructure development incorporate strategies to reduce the urban heat island effect and enhance resilience to heatwaves? [15 Marks] [250 words]

GREEN CREDIT PROGRAM

Why in News: The Union Environment Ministry (MoEFCC) has released guidelines that States must rely on to determine how much it would cost to repair a damaged forest environment, raising concerns that the GCP would promote tree planting for financial benefit.

Key Details

- Its objectives are to promote sustainability, cut down on waste, and enhance the environment.
- According to a brochure from the Environment Ministry, the GCP initiative bills itself as a “innovative, market-based mechanism” to reward “voluntary actions” for environmental conservation.
- In October, 2023, pursuant to the Environment Protection Act of 1986, a new set of regulations were promulgated.



Potential Discrepancies and Clarifications in the Green Credit Programme (GCP) Guidelines

- **Previously:** Sources indicated that green credits issued under the GCP were not tradable.
- **Current Guidelines:** The notified 2023 GCP rules establish a program designed to incentivize environmentally beneficial actions through market mechanisms. These mechanisms explicitly include the trading of green credits on a designated domestic market platform.
- **Additional Considerations:** The guidelines acknowledge that verifiable reductions or removals of carbon emissions achieved through green credit generation may also qualify for carbon credits, which are currently traded on separate, established markets.
- **Calculation Discrepancy:** The latest guidelines seemingly shift the responsibility for calculating restoration costs of degraded forest landscapes to individual states.
- **Minimum Tree Count Removal:** Notably, the previous minimum requirement of 1,100 trees per hectare to qualify as a reforested landscape has been eliminated. The 2023 GCP empowers individual states to determine this threshold.

Conclusion

The Green Credit Initiative (GCI) aims to incentivize environmental actions through a market-based system awarding "Green Credits." Concerns exist regarding potential prioritization of financial gain over ecological restoration due to tradable green credits and state discretion in calculating restoration costs. Clarification is needed to ensure GCI aligns with its goals of sustainability and environmental improvement.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. With reference to the Green Credit Programme, consider the following statements:

1. Green Credits under this programme can be traded for financial benefits on a domestic market platform.
2. This programme was launched as part of the Carbon Credit Trading Scheme 2023.
3. It also grants Green credits to those involved in sustainable agriculture practices.

How many of the above statements are correct?

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

Answer: (b) (1 and 3 only)

Descriptive Question

Q. Elaborate the Green Credit Initiative (GCI)? What are the concerns about environmental conservation through a market-based system awarding? [15 Marks] [250 words]

EUROPE IS 'WARMING FASTER THAN ANY OTHER CONTINENT'

Why in News: According to recent research by the climate and meteorological service of the European Union, the number of heat-related deaths in Europe has increased by at least 30% in the last 20 years.

Key Details

- Europe is the **fastest-warming continent** and its temperatures are rising at roughly twice the global average.
- In a joint report, the **World Meteorological Organisation of the United Nations and Copernicus, the climate agency of the European Union**, stated that in response to the effects of climate change.
- The continent has the chance to develop focused strategies to accelerate the transition to **renewable resources like wind, solar, and hydroelectric power**.

Key Findings of the Report

- Europe's climate is changing rapidly, warming at double the global rate. This threatens human health, glaciers, and economic activity.
- In 2022, renewables surpassed fossil fuels for electricity generation for the second year in a row, reaching 43%.
- Compared to the global average of 1.3 degrees Celsius, Europe's temperatures are now 2.3 degrees Celsius higher than pre-industrial times.
- Heatwaves, wildfires, and melting glaciers are becoming more severe, causing health problems and economic losses.
- Europe has seen record-breaking temperatures for 10 months straight, ending in March 2023.
- Heat-related deaths are rising, and weather-related economic losses are estimated to exceed 13.4 billion euros in 2023.
- The Alps have lost about 10% of their glacial ice in just two years due to high temperatures and extreme weather.

Europe's Geography

Landmass and Location	• Second-smallest continent, bordering the Arctic Ocean (north), Atlantic Ocean (west), & Mediterranean, Black, Caspian Seas (south). • Stretches from Iceland (west) to Ural Mountains (east).	
Physical Geography • Western Uplands (ancient rock, fjords) - Scandinavia, Finland, British Isles, France, Spain, Portugal. • North European Plain (lowland, fertile) - UK (partially), France, Belgium, Netherlands, Germany, Poland, Baltics, Belarus. • Central Uplands (moderately high, wooded) - France, Belgium, Germany, Czechia, Switzerland, Austria. • Alpine Mountains (high peaks, plateaus) - Italy, Balkans, Spain, France. Highest peak: Mount Elbrus (Russia).	Climate and Vegetation • Tundra (treeless, mosses) - Iceland, northern Scandinavia, Russia. • Taiga (coniferous forests) - Southern Scandinavia, Russia. • Mixed forests (deciduous and coniferous) - Central Europe. • Mediterranean (drought-resistant plants) - Southern Europe.	
Human Impact • Habitat loss, pollution, and invasive species endanger wildlife (e.g., European bison). • Overfishing threatens marine life.		

Conclusion

Europe's rapid warming (double the global rate) poses dangers from heatwaves to glacial melt. Despite rising heat-related deaths and economic losses, Europe has an opportunity to combat climate change by transitioning to renewable energy sources like wind, solar, and hydropower.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q1. In the context of which of the following do some scientists suggest the use of cirrus cloud thinning technique and the injection of sulphate aerosol into the stratosphere?

- (a) Creating artificial rains in some regions
(b) Reducing the frequency and intensity of tropical cyclones

- (c) Reducing the adverse effects of solar wind on the Earth
(d) Reducing the global warming

(d) :Answer

Q2. With reference to the 'Heat Domes,' consider the following statements:

1. It occurs when the atmosphere traps hot ocean air like a lid.
2. This is the result of air convection from the sea surface.

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 (Both 1 and 2)

Descriptive Question

Q. How do heatwaves and extreme heat events affect human health, particularly vulnerable populations? What adaptation measures and public health interventions are being implemented in Europe to reduce the risks associated with heatwaves? [15 Marks] [250 words]

MOUNT RUANG

Why in News: Recently, the Ruang mountain volcano erupted multiple times, sending ash and lava hundreds of feet into the air, prompting Indonesian authorities to issue a tsunami alert.

About Mount Ruang

- Mount Ruang is located within the Sangihe Islands arc, in Indonesia's North Sulawesi province.

- This stratovolcano forms a separate island approximately 4 kilometers by 5 kilometers in dimension. Its summit features a partially formed lava dome, reaching an elevation of 725 meters.
- From this vantage point, one can observe the peaks of Klabat, Siau, and Ternate volcanoes respectively to the south, north, and east.
- The volcanic activity of Mount Ruang dates back to at least 1808, as documented by the first recorded eruption.

Reasons behind frequent eruptions in Indonesia this year?

- Indonesia's frequent volcanic eruptions are a consequence of its geographic location.
- The archipelago nation, populated by over 270 million people, is situated along the Pacific Ocean's "Ring of Fire."
- This horseshoe-shaped zone encompasses a series of seismic fault lines, making the region highly susceptible to volcanic activity.

What are Stratovolcanoes?

- Stratovolcanoes, also known as composite volcanoes, are a distinctive type of volcano characterized by their towering conical form and steep slopes. In contrast to shield volcanoes, which are broad and relatively flat, stratovolcanoes rise to impressive heights.
- These geological giants are frequently found along subduction zones, regions where tectonic plates converge. The Pacific Ocean's fiery rim, known as the Ring of Fire, is a prime example of such a zone and is home to numerous stratovolcanoes.

Alert Level	Criteria	Interpretation/Recommendation
0 Quiet or No Alert	Unremarkable level of volcanic earthquakes.	Quiescence; no magmatic eruption is foreseen. four-kilometer radius Permanent Danger Zone (PDZ).
1 Low Level of Volcanic Unrest	Slight increase in volcanic earthquake and steam/gas activity. Sporadic explosions from existing or new vents. Notable increase in the temperature of hot springs. Slight inflation or swelling of the edifice.	Hydrothermal, magmatic, or tectonic disturbances. The source of activity is shallow, near crater or in the vicinity of Irosin Caldera. Entry into the PDZ must be prohibited.
2 Moderate Level of Volcanic Unrest	Intermittent steam/ash explosion and above baseline Sulfur Dioxide (SO ₂) emission rates. Increased swelling of volcanic edifice.	Probable intrusion of magma at depth, which can lead to magmatic eruption.
3 High Level of Volcanic Unrest	Forceful and voluminous steam/ash ejections. Sustained increases in SO ₂ emission rates, ground deformation/swelling of the edifice.	Magma is near or at the surface, and activity could lead to hazardous eruption in weeks. Danger zones may be expanded up to eight (8) kilometers from the active crater.
4 Hazardous Eruption Imminent	Intensifying unrest characterized by earthquake swarms and volcanic tremor, many perceptible.	Danger Zone may be extended up to nine (9) kilometers or more from the active crater.
5 Hazardous Eruption in Progress	Magmatic eruption characterized by explosive production of tall ash-laden eruption columns.	Life-threatening eruption producing volcanic hazards that endanger communities.

- Comprising roughly 60% of Earth's volcanoes, stratovolcanoes erupt with a unique type of lava – andesite and dacite. These lavas are cooler and thicker than common basalt, making them more sluggish in their flow. This characteristic viscosity traps gas within the magma, leading to frequent and often explosive eruptions.
- Stratovolcanoes are aptly named for their layered structure, a consequence of alternating episodes of lava flows and the expulsion of pyroclastic material (ash and rock fragments).

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. The Ruang volcano, recently in the news for its frequent eruptions, is located on

- (a) Spratly Islands (b) Barren Islands
(c) Ogasawara Islands (d) Sulawesi Islands

(d) :Answer

Descriptive Question

Q. What are Stratovolcanoes? State the reasons behind frequent volcanic eruptions in the Indonesia. [10 Marks] [150 words]

INDIA POWERS AHEAD IN RENEWABLE ENERGY

Why in News: India's renewable energy sector is witnessing a significant surge, with a 21% increase in capacity addition in FY24 compared to the previous year.

Growth Trajectory and Leading States

- Driven by solar (12.78 GW) and wind energy (2.27 GW) installations, India's total renewable energy capacity has witnessed a remarkable increase from 76.37 GW in 2014 to 178.98 GW in October 2023.
- This translates to nearly 2.34 times growth in less than a decade.
- States like Gujarat and Rajasthan (27 GW each) hold the top spot in terms of installed renewable energy capacity, followed by Tamil Nadu (22 GW), Karnataka (21 GW), and Maharashtra (17 GW).
- Himachal Pradesh and Andhra Pradesh have also made significant contributions with 11 GW each.

Aiming for a Greener Future

- At COP26, India pledged an ambitious target of achieving a 500 GW non-fossil fuel energy capacity by 2030.
- This translates to fulfilling at least half of the country's energy requirements through renewable sources.
- To achieve this, the MNRE is aiming to bid around 50 GW of renewable energy projects annually.
- India's existing non-fossil fuel capacity, including large hydro and nuclear, has seen a massive 396% increase in the last 8.5 years, reaching over 190.97 GW.
- This currently constitutes around 44% of the nation's total capacity (as of Feb 2024).
- The renewable energy sector has the potential to generate significant employment opportunities. Estimates suggest that by 2030, the sector could create around one million jobs, primarily driven by small-scale renewable energy projects.

Challenges

- Despite the progress, challenges persist. The financial health of state-owned power distribution companies (DISCOMs) is a major concern.
- The long and unsustainable payment cycles for renewable energy purchases act as a roadblock.
- Land acquisition is another hurdle. Issues like lack of proper land use policies, poorly maintained land records, and lengthy permission processes from local bodies hinder large-scale project implementation.

The government is actively working to address these challenges. Initiatives like

- ▶ Permitting 100% Foreign Direct Investment (FDI) to attract foreign investments.
- ▶ Waiving Inter-State Transmission System (ISTS) charges for inter-state sale of solar and wind power.
- ▶ Raising awareness through various schemes and media campaigns to promote the use of renewable energy.

Implementing major renewable energy schemes like

- Scheme for Development of Solar Parks and Ultra Mega Solar Power Projects.
- Central Public Sector Undertaking (CPSU) Scheme Phase-II.
- Production Linked Incentive (PLI) Scheme for National Programme on High Efficiency Solar PV Modules.
- PM-KUSUM Scheme.
- Rooftop Solar Programme Phase II.
- Green Energy Corridors (GEC).
- Bio-Energy Programme.

Way Forward

India's record capacity addition in FY24 signifies a positive step towards a sustainable future. Going forward, the following measures can further propel the nation's renewable energy journey:

- Streamlining Land Acquisition:** Implementing a robust land use policy for efficient land allocation and quicker project approvals.
- Grid Modernization:** Upgrading and expanding the national grid to handle the integration of large-scale renewable energy sources.
- Storage Solutions:** Investing in energy storage solutions like pumped hydro storage to address the intermittent nature of renewable energy sources.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements with reference to the Solar Thermal Power Plant:

1. It converts the mechanical energy into electricity by using a turbine.
2. It is able to store the energy in the form of heat to generate electricity during the night time.
3. It uses nuclear fusion of the Deuterium and Tritium to generate the heat.

How many of the above statements are correct?

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

Answer: (c) (1 and 2 only)

Descriptive Question

Q. How does the expansion of India's renewable energy sector contribute to job creation, economic growth, energy security, and climate mitigation efforts? [10 Marks] [150 words]

ENVIRONMENTAL PERFORMANCE INDEX (EPI)

Why in News: India's ranking at the bottom of the 2022 Environmental Performance Index (EPI) has sparked debate about the effectiveness of the Swachh Bharat Mission (SBM).

Understanding the EPI and its Connection to SBM

- The EPI is a global ranking system that assesses countries' performance across three key areas: climate change, environmental health, and ecosystem vitality.
- Sanitation, a key focus of SBM, falls under the environmental health category.
- India's poor ranking on the EPI raises questions about whether SBM has adequately addressed broader environmental issues related to sanitation, such as waste management.

The Swachh Bharat Mission and its Achievements and Impact:

It was launched in 2014, SBM aimed to achieve universal sanitation coverage by 2019. SBM comprised two sub-missions: Swachh Bharat Mission (Gramin) for rural areas and Swachh Bharat Mission (Urban) for cities.

The Swachh Bharat Mission and its Achievements and Impact

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The mission's first phase (SBM-G Phase I) witnessed significant progress. The mission, particularly its rural component (SBM-G), has witnessed remarkable success:



Way Forward

Achieving lasting environmental improvement requires a collaborative approach:

- **Sustained Government Intervention:** Continued government support for infrastructure development, public education, and capacity building at the local level is essential.
- **Role of Civil Society:** Civil society organizations can play a crucial role in promoting behavior change, monitoring progress, and advocating for resource allocation.
- **Focus on Waste Management:** Developing sustainable waste management systems across rural and urban areas is key to achieve clean and healthy environments.
- **Data-Driven Strategies:** Utilizing data to identify persisting challenges and tailor interventions to specific needs will optimize resource allocation and program effectiveness.

Conclusion

The Swachh Bharat Mission has undoubtedly transformed India's sanitation landscape. However, the EPI ranking serves as a reminder of the need for a broader environmental approach.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. With reference to the Swachh Bharat Mission (Gramin), consider the following statements:

1. Swachh Bharat Mission (Gramin) is the only sanitation programme implemented by the Department of Drinking Water and Sanitation.

2. Construction of Community Sanitary Complexes (CSCs) is one of the objectives of this programme.

Which of the statements given above are correct?

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

Answer: (c) (Both 1 and 2)

Descriptive Question

Q. How has the Swachh Bharat Mission (SBM) contributed to improving access to sanitation, reducing open defecation, and addressing other environmental challenges related to water quality, waste management, and public health in India? [15 Marks] [250 words]

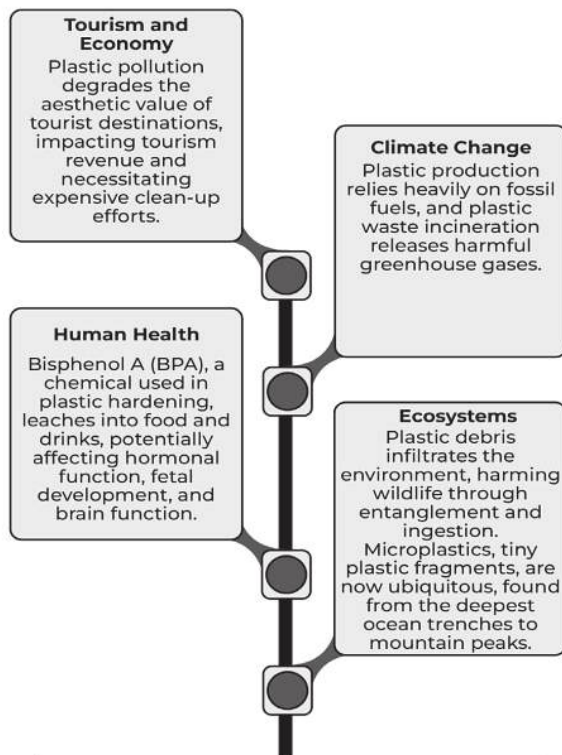
COMBATING PLASTIC POLLUTION

Why in News: Negotiations for the first-ever global treaty to tackle plastic pollution kick off in Ottawa, Canada, with the aim of curbing plastic production and its environmental impact.

Why a Global Treaty?

- Plastic production has witnessed an alarming surge, rising from a mere 2 million tonnes in 1950 to over 450 million tonnes in 2019.
- With plastic's slow decomposition rate and limited recycling (less than 10%), plastic pollution has reached staggering levels.

Studies estimate nearly 6 billion tonnes of plastic waste contaminate our planet, posing a significant threat to:



Global Efforts to Address Plastic Waste

Several international initiatives have addressed plastic pollution:

- London Convention (1972):** Regulates dumping waste and other matter in the ocean.
- Clean Seas Campaign (2017):** A UN Environment Programme campaign raising awareness about plastic pollution.
- Basel Convention (amended in 2019):** Regulates plastic waste as a controlled material.
- India's Initiatives:** Policies like Extended Producer Responsibility (EPR), Plastic Waste Management Rules, Swachh Bharat Abhiyan, Plastic Parks, and beach clean-up drives demonstrate India's commitment to tackle plastic pollution.

Challenges to the Treaty

Negotiating a global treaty presents significant hurdles:

- Geopolitical Disagreements:** Countries like Saudi Arabia, Russia, and Iran oppose production caps and employ delaying tactics to impede progress.
- Consensus vs. Majority Vote:** The agreement mechanism (consensus or majority vote) remains undecided.
- High-Ambition Coalition:** A group of 65 nations pushing for ambitious targets, including production reduction, lacks the US, a major fossil fuel producer.

Way Forward

The proposed treaty has the potential to be a landmark environmental agreement, comparable to the 2015 Paris Agreement on climate change. It could:

- Establish Binding Targets:** Set legally binding targets for plastic reduction, recycling, and recycled content in products.
- Financial Assistance:** Outline how developed nations can support developing countries in achieving plastic reduction goals.
- Ban Certain Plastics:** Potentially ban specific plastic types, products, and harmful chemical additives.

A successful treaty hinges on overcoming industry resistance, achieving international consensus, and ensuring strong enforcement mechanisms. Global cooperation is crucial to curb plastic pollution and safeguard our planet for future generations.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements with reference to Plastic Waste Management Rules, 2016:

1. These rules were notified under the Environment (Protection) Act, 1986.
2. These rules aim to increase the minimum thickness of plastic carry bags from 40 to 50 microns.

Which of the statements given above is/are correct?

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

Answer: (c) (Both 1 and 2)

Descriptive Question

Q. Evaluate the key environmental and human health concerns associated with plastic pollution? What are the roles and responsibilities of different stakeholders, including governments, industry, civil society organizations, and consumers, in addressing plastic pollution? [15 Marks] [250 words]

UN REPORT CALLS FOR URGENT ACTION ON SDG FINANCING

Why in News: The recent release of the United Nations' "Financing for Sustainable Development Report 2024" paints a concerning picture.

Understanding the SDGs

- It was adopted by all UN member states in **2015**. The SDGs are a **set of 17 interconnected goals** aimed at achieving a **sustainable future** for all by 2030.
- These goals encompass aspects like **poverty eradication, quality education, good health, clean water and sanitation, and climate action**.

A Journey of Global Collaboration

- The SDGs represent the culmination of a long-standing commitment to sustainable development.
- This journey began with Agenda 21, adopted at the 1992 Earth Summit in Rio de Janeiro.
- Subsequent milestones like the Millennium Summit and Rio+20 the, World Summit on Sustainable Development in South Africa in 2002, further emphasized the need for international cooperation on sustainability.



Impact on Development Goals

These financing challenges have a domino effect, jeopardizing progress on various SDGs. The report warns that:

- **Extreme Poverty Persists:** Nearly 600 million people could remain trapped in extreme poverty by 2030, with women disproportionately affected.
- **Stalled Progress:** Existing gains in healthcare, education, and other development areas are at risk of backsliding without adequate investment.



Way Forward

- **Closing Financing Gaps:** Urgent action is needed to mobilize resources and close the financing gap for SDG and climate investments.

- **Policy and Institutional Reforms:** Reforming international financial institutions and addressing policy inconsistencies are critical.
- **Building Trust and Credibility:** Both international and domestic efforts require enhanced transparency and accountability.
- **New Development Pathways:** Formulating and financing innovative pathways for sustainable development are essential.
- The report also calls for a comprehensive reform of the international financial system (IMF and World Bank), arguing that the current system, established in 1944, is no longer fit for purpose. This reform should
 - **Strengthen multilateral development banks:** These institutions need increased resources to support sustainable development projects in developing countries.
 - **Improve the global safety net:** A more robust safety net is essential to help all countries weather crises and invest in long-term development goals.

Conclusion

The “Financing for Sustainable Development Report 2024” serves as a stark wake-up call. It underscores the urgency of collective action to bridge the funding gap, reform international institutions, and chart new paths for sustainable development.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

- Q. Internet based interactive ‘SDG Financing Tool’ was released by
- United Nations Development Programme
 - World Bank
 - International Monetary Fund
 - Asian Development Bank

(c) :Answer

Descriptive Question

- Q. What are the major challenges identified in the Sustainable Development Report 2024 regarding financing for sustainable development? State some of the measures to bridge the funding gap for sustainable development. [15 Marks] [250 words]

SOIL ACIDIFICATION ERODING INDIA’S AGRICULTURAL FUTURE

Why is News: A recent publication in the journal Science revealed that soil acidification in India could potentially deplete billions of tons of crucial carbon, thereby impacting crop growth.

Understanding Soil Acidification

Causes of Soil Acidification

- ▶ **Natural Phenomena:** Natural processes like weathering of minerals and acidic rain (pH of 5.6) gradually decrease soil pH.
- ▶ **Anthropogenic Causes:** Human activities significantly accelerate acidification. These include:
 - **Excessive use of ammonium-based fertilizers:** When these fertilizers break down, they release hydrogen ions, increasing soil acidity.
 - **Leaching of nitrate nitrogen:** This removes base cations further exacerbating acidity.
 - **Deforestation and improper land management practices:** These practices deplete organic matter, a natural buffer against acidification.

Impact of Soil Acidification

Soil acidification poses a significant threat to agricultural productivity and ecosystem health:

Reduced Nutrient Availability	Increased Vulnerability to Stress	Soil Carbon Depletion
Acidic soils hinder the availability of essential plant nutrients, leading to stunted growth and lower crop yields.	Acidified soils make plants more susceptible to other environmental stresses like pests, diseases, and drought.	Acidic conditions promote the depletion of soil inorganic carbon (SIC), a crucial component for soil health and carbon storage.

- Soil acidification is a process where soil pH levels decrease over time. This primarily happens due to the displacement of base cations (calcium, magnesium, potassium, and sodium) by acid-forming hydrogen and aluminum ions.
- Intensive agricultural practices and industrial activities accelerate this process, affecting both surface and sub-soil layers.

Soil Inorganic Carbon (SIC) or Soil Organic Carbon (SOC)?

- SIC comprises mineral carbon forms like calcium carbonate, generated through the weathering of soil parent material or from the interaction of soil minerals with atmospheric carbon dioxide.
- SOC is involved in nutrient cycling and constitutes the primary component of soil organic matter, encompassing materials like plant and animal residues, microbes, and their byproducts.

Extent of the Problem

- **Globally:** Future global warming is projected to worsen soil acidification, leading to a potential loss of 1.35 to 5.83 GtC of carbon from the topsoil layer by 2100.
 - Additionally, over 1 billion tonnes of inorganic carbon are lost from global soil annually.
- **In India:** Over 30% of cultivable land in India suffers from acidic soil, impacting nearly 48 million hectares.
 - The northeastern region is particularly affected, with almost 95% of its soil exhibiting acidity.

The Indian Scenario

The study predicts a potential loss of 3.3 billion tonnes of SIC from India's topsoil layer over the next 30 years due to acidification. This loss can severely impact soil health, hindering its ability to:

- **Regulate Nutrient Levels:** Healthy soil acts as a natural reservoir for nutrients, releasing them gradually for plant uptake. Acidification disrupts this process.
- **Foster Plant Growth:** Healthy soil provides a conducive environment for root development and nutrient absorption, promoting plant growth.
- **Store Carbon:** Soil acts as a crucial carbon sink. Acidification reduces this capacity, impacting climate change mitigation efforts.

Way Forward

1. Promoting Sustainable Practices:

- **Organic Farming:** Encouraging organic farming practices that replenish soil organic matter, a natural buffer against acidity.
- **Judicious Fertilizer Use:** Promoting balanced and targeted use of fertilizers to minimize nutrient loss and acidification.
- **Cover Cropping:** Integrating cover crops into crop rotations helps maintain soil health and reduce reliance on synthetic fertilizers.

2. Soil Amelioration Techniques:

- **Liming:** Applying appropriate liming materials like calcium carbonate to neutralize soil acidity.
- **Compost Application:** Adding compost rich in potassium helps improve soil fertility and buffer acidity.

Government Initiatives

- **Soil Health Card Scheme:** This scheme provides farmers with data on soil health parameters, enabling targeted interventions.
- **Paramparagat Krishi Vikas Yojana:** This scheme promotes organic farming practices, contributing to improved soil health.

- **Neem Coating of Urea:** This initiative slows down urea breakdown, improving fertilizer use efficiency and reducing soil acidification.

Conclusion

Soil acidification is a looming threat to India's agricultural productivity and environmental well-being. By implementing sustainable practices, promoting responsible land management, and fostering public awareness, we can combat this issue and ensure the health of our soil for future generations.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following:

1. Heavy rainfall
2. Decomposition of organic residues
3. Acid rain
4. Application of liming materials to soils

How many of the above causes soil acidification?

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

Answer: (c) (1, 2 and 3 only)

Descriptive Question

Q. What is the soil acidification? How does soil acidification poses a significant threat to agricultural productivity and ecosystem health? [10 Marks] [150 words]

CRITICAL MINERALS FOR CLEAN ENERGY TRANSITION

Why in News: The United Nations has taken a significant step towards ensuring a sustainable and equitable clean energy transition by establishing a panel on Critical Energy Transition Minerals.

Key Details

- This panel aims to create a framework for responsible sourcing and management of these minerals, which are crucial for renewable energy technologies but face challenges related to geographical concentration, environmental impact, and ethical practices.

THE UN PANEL

The newly formed UN panel brings together governments, industry players, and other stakeholders to develop a set of global principles for the responsible management of critical energy transition minerals. These principles will focus on:

Equity

Ensuring fair benefits are shared across the supply chain, including local communities where mining takes place.

Transparency

Promoting open and accountable practices throughout the mining and processing stages.

Investment

Encouraging responsible investment in projects that prioritize sustainability and social responsibility.

Sustainability

Minimizing environmental damage caused by mining and processing activities.

Human Rights

Upholding ethical labor practices and preventing human rights abuses like child labor.



- The clean energy transition requires a massive shift towards technologies like wind turbines, solar panels, and electric vehicles.
- These technologies rely heavily on critical minerals such as lithium, cobalt, and nickel.
- However, the extraction and processing of these minerals can have negative consequences, including environmental damage, human rights abuses, and geopolitical tensions due to geographically concentrated reserves.

Challenges and Issues in Critical Mineral Supply Chains

- **Geographical Concentration:** A few countries hold the majority of reserves for some critical minerals. This can lead to:
 - **Geopolitical Tensions:** Competition for access to these resources could exacerbate international tensions.
 - **Supply Chain Disruption:** Political instability or natural disasters in resource-rich regions can disrupt the supply of critical minerals.
 - **Example:** The “Lithium Triangle” of Argentina, Chile, and Bolivia holds a significant portion of the world’s lithium reserves.
- **Unsustainable Practices:** Irresponsible mining practices can lead to:
 - **Environmental Degradation:** Water pollution, air pollution, and destruction of ecosystems.
 - **Human Rights Issues:** Child labor, unsafe working conditions, and exploitation of local communities.
- **Growing Demand vs. Limited Supply:** The demand for critical minerals is expected to skyrocket in the coming years, outpacing current supply. According to the International Energy Agency, demand is set to grow by three and a half times by 2030.

Way Forward

1. **Technological Advancements:** Research and development of new technologies that require less critical minerals or utilize them more efficiently can reduce overall demand.
2. **Circular Economy Practices:** Implementing circular economy principles, such as recycling and reusing critical minerals from old technologies, can help manage resource scarcity.
3. **Supporting Local Communities:** Development projects that create economic opportunities for local communities can incentivize responsible mining practices and mitigate potential social and environmental consequences.

India’s Initiatives

India is recognizing the importance of critical minerals for its clean energy ambitions, and has taken several proactive steps:

- **Identification of Critical Minerals:** The government has identified 30 critical minerals crucial for self-reliance in clean energy technologies.
- **Strategic Partnerships:** India has partnered with countries like Australia for lithium and cobalt and Argentina for lithium to secure reliable sources of these minerals.
- **Khanij Bidesh India Limited (KABIL):** This government-owned company focuses on securing critical minerals from overseas locations to meet India’s domestic needs.

Conclusion

The UN panel on **Critical Energy Transition Minerals** represents a critical step towards a responsible and sustainable clean energy transition. By addressing the challenges associated with sourcing and managing these essential resources, the panel can help pave the way for a greener future.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

- Q. ‘Critical Energy Transition Minerals’ Panel’, recently seen in the news, was established by
- (a) United Nations
 - (b) International Seabed Authority (ISA)
 - (c) International Coal Group
 - (d) World Trade Organization (WTO)

(a) Answer

Descriptive Question

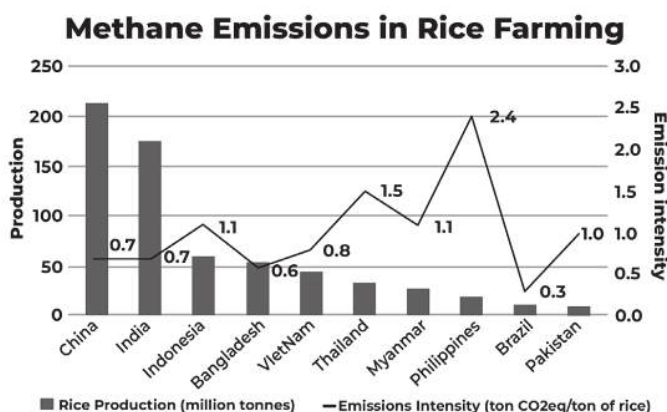
- Q. What are Critical Energy Transition Minerals, and why are they important for achieving a sustainable and equitable clean energy transition? [10 Marks] [150 words]

METHANE EMISSION

Why in News: Rice, a staple food for billions, also carries a hidden environmental cost that is methane emissions. Vietnamese rice farmers are pioneering innovative methods to cultivate rice while reducing their methane emission.

Key Details

- Rice thrives in **flooded paddies**, creating ideal conditions for methane-producing bacteria.
- Decomposing rice straw and excessive use of nitrogen fertilizers contribute to the problem.
- Globally, rice cultivation accounts for roughly 10% of human-caused methane emissions.



The Vietnamese Model

Vietnamese rice farmers are at the forefront of climate-smart rice cultivation. Some key strategies they're adopting:

Alternate Wetting and Drying (AWD)

This water-saving technique keeps paddies moist but not constantly flooded.

- AWD significantly reduces methane emissions while maintaining rice yields.

Drone Technology

Drones are being used to precisely

- monitor crop health, apply fertilizers and pesticides, and assess irrigation needs. This not only reduces labor costs but also minimizes environmental impact through targeted resource use.

Sustainable Stubble Management

Traditionally, rice stubble is burned after harvest, causing air pollution.

- Vietnamese farmers are now collecting stubble for alternative uses, such as livestock feed and growing mushrooms.

India's Methane Challenge

- India faces a significant challenge in reducing agricultural methane emissions.
- In 2016, 73.96% of India's methane emissions originated from the agriculture sector, with rice cultivation and livestock enteric fermentation being the primary culprits.

National Initiatives to Curb Methane Emissions

The Indian government is actively tackling agricultural methane emissions through various initiatives:

- National Mission on Sustainable Agriculture (NMSA):** This mission promotes climate-smart agricultural practices, including techniques to reduce methane emissions from rice cultivation.
- Livestock Management:** The National Livestock Mission encourages practices like green fodder production, silage making, and improved feed management to decrease methane emissions from enteric fermentation in animals.
- Biogas Programs:** The New National Biogas and Organic Manure Programme (NNBOMP) and the Gobar-Dhan scheme promote the use of biogas produced from cattle dung and organic waste. Biogas offers a cleaner alternative to traditional fuels and reduces methane emissions from waste decomposition.

Way Forward

- Scaling-up Vietnamese Techniques:** Promoting AWD, drone technology, and sustainable stubble management practices across rice-growing regions globally.
- International Collaboration:** Encouraging knowledge exchange and technology transfer between rice-producing countries like Vietnam and India.
- Financial Incentives:** Providing economic support to farmers transitioning to sustainable practices, including cost-sharing for AWD infrastructure and drone technology.

Conclusion

Vietnamese rice farmers are demonstrating that sustainability and economic viability can go hand-in-hand. By adopting innovative techniques, they are leading the way in reducing methane emissions from rice cultivation.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Among the following crops, which one is the most important anthropogenic source of both methane and nitrous oxide?

- (a) Cotton (b) Rice
(c) Sugarcane (d) Wheat

(b) Answer

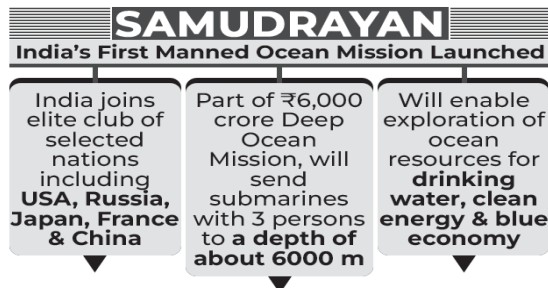
Descriptive Question

Q. Evaluate the traditional methods of rice cultivation that contribute to methane emissions, and how do these emissions contribute to greenhouse gas concentrations and climate change? Enumerate the environmental benefits of reducing methane emissions from rice cultivation. [10 Marks] [150 words]

SCIENCE & TECHNOLOGY

SAMUDRAYAAN MISSION TO EXPLORE DEEP OCEAN

Why in News: India is poised to take a giant leap forward in ocean exploration with the upcoming Samudrayaan mission, aiming to send a crewed submersible 6 kilometers deep into the ocean by the end of 2025.



Diving Deep with 'Matsya6000'

The centerpiece of the Samudrayaan mission is the 'Matsya6000,' a state-of-the-art human submersible designed to withstand the immense pressure of the deep ocean. Closer look at Matsya6000's capabilities are following:

**Built for Endurance:**

Constructed from robust titanium alloy, Matsya6000 can endure the crushing pressure of up to 6,000 meters (600 bar) – a testament to India's engineering expertise.

**Scientific Exploration:**

Equipped with a suite of scientific instruments, Matsya6000 will enable scientists (aquanauts) to conduct observations, collect samples, record data, and even perform experiments during their 12-hour missions, with the capability to extend up to 96 hours in emergencies.

**Manned Exploration:**

Matsya6000 can accommodate a crew of three, facilitating firsthand scientific exploration of the deep ocean environment.

DEEP OCEAN MISSION

EXPLORING THE DEEP OCEAN THE FINAL FRONTIER ON PLANET EARTH

- Oceans are the key to sustenance of life on our planet. They are the driving force for monsoons, flywheel of
- Climate, vital source of natural resources and act as a trigger for ocean hazards. Oceans contribute immensely to "Blue Economy" through sectors such as Fisheries, Renewable Energy, Oil & Gas, Minerals, Shipping, Tourism, etc. The lives and livelihoods of about 350 million population living along the 7500 km long coastline of India are intricately linked to the Oceans. Climate change and anthropogenic impacts are threatening ocean health and biodiversity. Yet, 95% of the deep ocean remains unexplored.
- India's Deep Ocean Mission will contribute to our understanding of the oceans, realising our "Blue Economy" vision and managing our Oceans sustainably. Being undertaken at a cost of 4077 Crore over the next 5 years, the Mission will be spearheaded by the Ministry of Earth Sciences in synergy with other Central Ministries, National Institutions, Universities and Industry.

Technologies for Autonomous Underwater Vehicles and Deep Sea Mining

Manned submersible capable of diving up to 6000 m to the bottom of the ocean.

Mining tools to explore 300 MMT of valuable metal deposits in a 75,000 square kilometre area in the Indian Ocean sea bed.

Ocean Climate Change Advisory Services

Accurate future projection of sea level change and extreme events like cyclones, storm surges and waves to safeguard our coastal population, economy and infrastructure.

A suite of state-of-the-art ocean models and an improved network of ocean observations based on deep sea gliders, deep Argos, etc.

Advanced marine station for Ocean Biology

Translate research in ocean biology and engineering into industrial application and product development through establishment of on-site business incubator facilities.

Deep Ocean Survey and Exploration

Construction of a state-of-the-art research vessel to explore hydrothermal deposits in mid-ocean ridges for precious metals like Copper, Zinc.

Aluminum, Silver, and Platinum, etc.

Exploration and Conservation of Deep Sea Biodiversity

Inventorization of deep sea fauna and flora including microbes.

Products of industrial importance from the deep-sea microbes

Energy and freshwater from the Ocean

Engineering capabilities to scale up offshore Ocean Thermal Energy Conversion (OTEC) powered energy generation and desalination plant for clean energy and fresh water.



Significance of the Mission

The successful completion of the Samudrayaan mission will propel India into an elite group of nations with deep-sea crewed exploration capabilities, currently including the US, Russia, China, France, and Japan. This achievement signifies:

- **Scientific Advancement:** DOM contributes to the 'Decade of Ocean Science' (2021-2030) declared by the United Nations, fostering global understanding of the deep oceans.
- **Blue Economy Growth:** The mission aligns with the "New India 2030" vision, which identifies the blue economy as a key driver of India's growth.
 - Sustainable exploration of marine resources can unlock immense economic potential.
- **Strategic Importance:** Deep-sea exploration capabilities hold strategic significance, allowing India to independently access and utilize valuable resources crucial for various industries.

Way Forward

1. **International Collaboration:** Collaborating with experienced nations in deep-sea exploration can provide valuable knowledge and technical expertise, accelerating India's progress.
2. **Skilled Workforce Development:** Investing in training and education programs will be essential to create a skilled workforce to operate and maintain deep-sea technologies.
3. **Regulatory Framework:** Establishing a robust regulatory framework for deep-sea resource exploration is crucial to ensure responsible and sustainable practices.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following:

1. To explore avenues for deep sea mining
2. To develop underwater vehicles and underwater robotics
3. To develop offshore based desalination techniques
4. To develop renewable energy generation techniques

How many of the above are objectives of the Deep Ocean Mission?

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

Answer: (d) (All Four)

Descriptive Question

Q. What are the primary objectives of the Samudrayaan mission? What is significance and challenges of the mission for the India? [10 Marks] [150 words]

INDIA'S APPLICATION TO EXPLORE NIKITIN SEAMOUNT

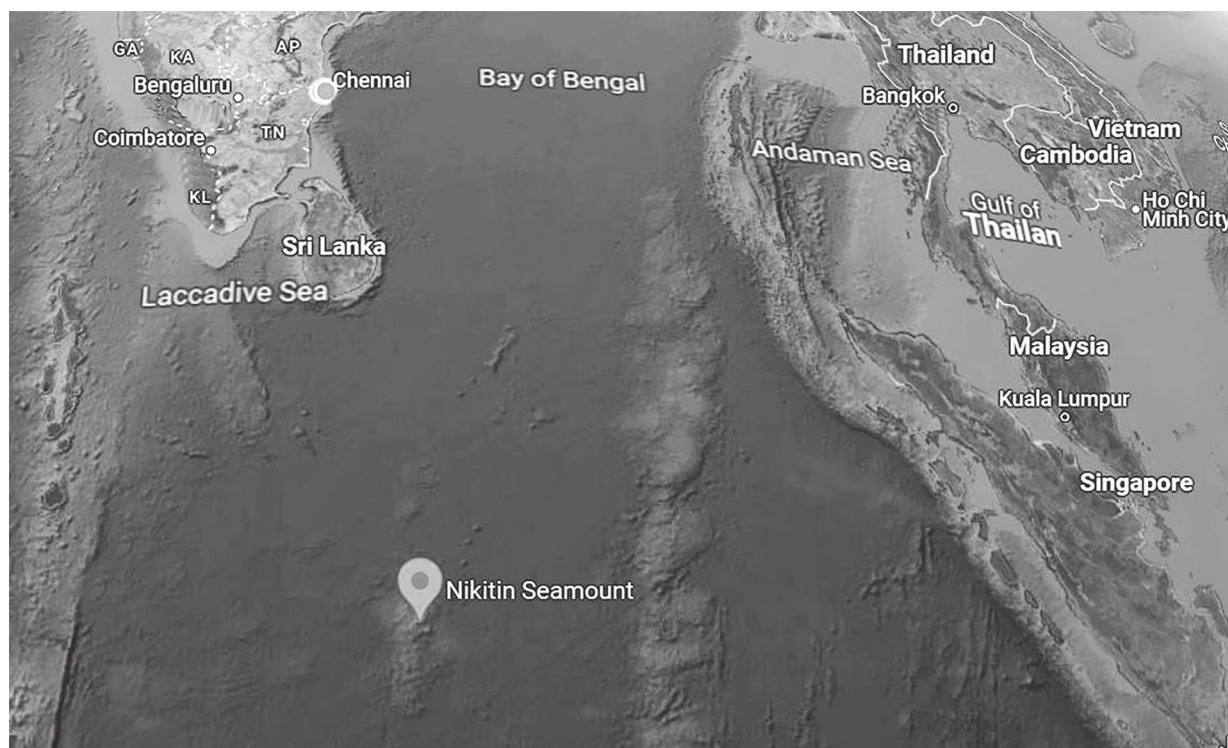
Why in News: Recently, India has taken a significant step by applying to the International Seabed Authority (ISBA) for exploration rights beyond its Jurisdiction, Including Cobalt-Rich Afanasy Nikitin Seamount.

India's Exploration Targets

- **Afanasy Nikitin Seamount (AN Seamount):** This prominent feature, located approximately 3,000 kilometers from the Indian coast, is particularly rich in deposits of cobalt, nickel, manganese, and copper.
 - India's application for exploration rights in this region, known for its cobalt-rich crust, has garnered significant attention.
- **Carlsberg Ridge:** Lying in the Central Indian Ocean, the Carlsberg Ridge is another target for exploration.
 - Here, India seeks permission to investigate polymetallic sulphides, which are mineral deposits often associated with hydrothermal vent activity.
 - These deposits are believed to be rich in copper, zinc, gold, and silver.

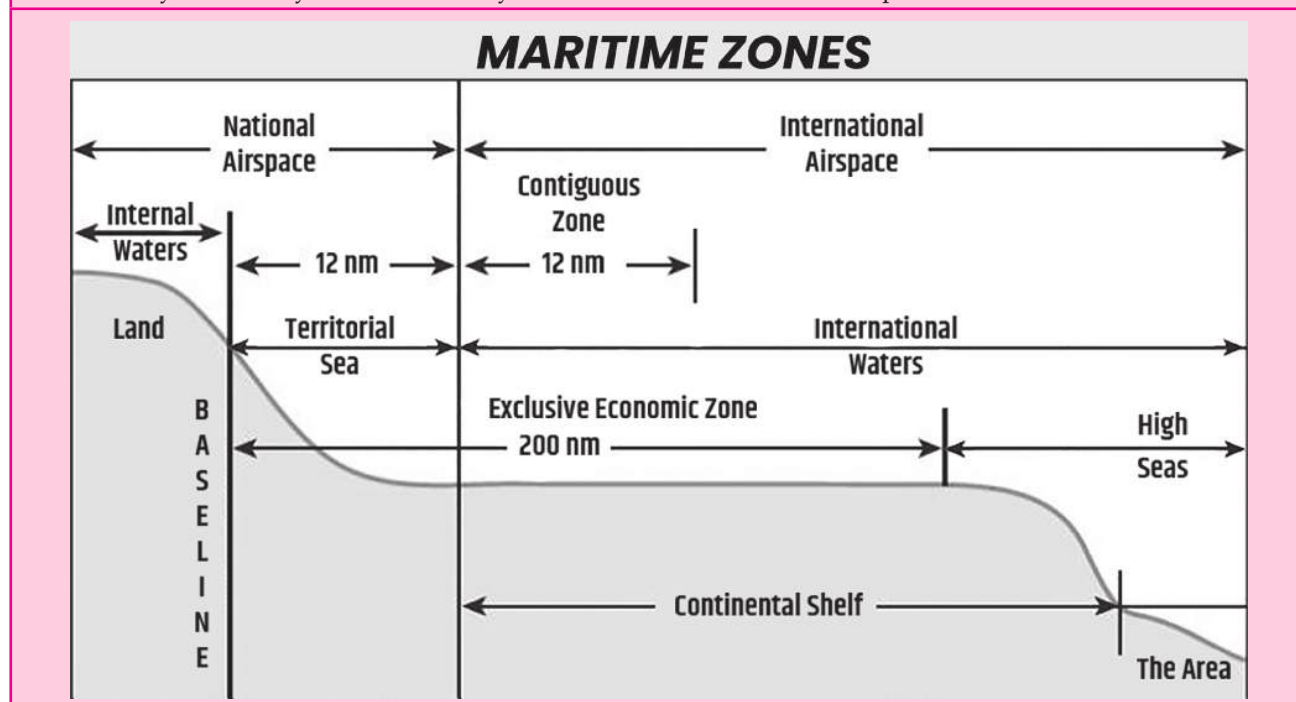
India's Strategic Considerations: Several factors underpin India's pursuit of deep seabed exploration rights:

- **Unveiling the Indian Ocean's Potential:** The Indian Ocean is a largely untapped resource frontier.
- **Meeting the Growing Demand for Critical Minerals:** The global transition towards clean energy technologies has driven a surge in demand for critical minerals like cobalt, essential components in lithium-ion batteries.
- **Securing Resources for India's Ambitious Renewable Energy Goals:** The World Bank projects a fivefold increase in critical mineral extraction by 2050 to meet clean energy demands. India's reliance on imports makes exploration crucial.
- **Countering China's Dominance:** China controls a staggering share of the global supply for resources like natural graphite, dysprosium, cobalt, lithium, and manganese.
 - India's exploration efforts represent a strategic move to diversify its resource portfolio and lessen dependence on a single supplier.
- **Economic Benefits:** Growth and create new industries.
- **Scientific Advancement:** Exploration will involve extensive scientific research, furthering India's oceanographic knowledge and expertise in deep-sea mining technologies.



The International Seabed Authority (ISA)

- The ISA, established under the United Nations Convention on the Law of the Sea (UNCLOS) 1982, serves as the governing body for exploration and exploitation of mineral resources in international waters.
- The organization came into force in 1994 and is headquartered in Kingston, Jamaica.
- For any commercial extraction to occur, countries must first obtain an exploration license from the ISA.
- Currently, no country has commercially extracted resources from the deep seabed.



Challenges

- **Overlapping Claims:** Sri Lanka's claim on the exploration area necessitates diplomatic negotiations to find a mutually agreeable solution.

- **Technical Hurdles:** Deep-sea exploration is a complex and expensive undertaking. Technological advancements are needed for efficient and sustainable extraction.
- **Environmental Impact:** Potential damage to the fragile deep-sea ecosystem requires rigorous environmental impact assessments and adherence to strict regulations.

Way Forward

- **International Cooperation:** Collaboration with other countries for technology sharing and resource management can optimize exploration efforts.
- **Compliance with UNCLOS:** Adherence to the regulations of the International Seabed Authority (ISA) ensures responsible exploration and environmental protection.
- Development of Indigenous Technologies.

Conclusion

India's application for deep seabed exploration rights marks a significant step towards securing critical resources for its economic and energy security.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements:

1. **Statement I:** India requires permission from the International Seabed Authority to explore the Afanasy Nikitin Seamount for Cobalt deposits.
2. **Statement II:** India does not enjoy exclusive rights for exploring, exploiting, conserving, and managing natural resources in high seas.

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

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

(a) :Answer

Descriptive Question

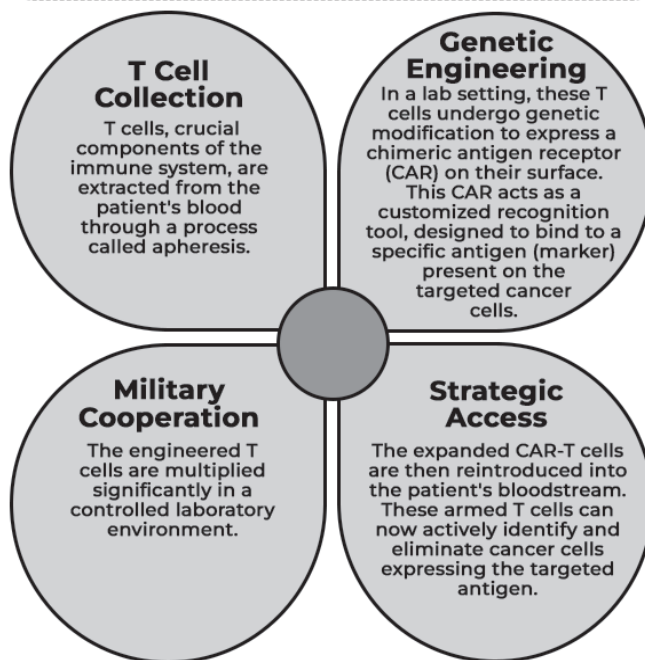
Q. What are the specific reasons behind India's interest in exploring the Afanasy Nikitin Seamount and the Carlsberg Ridge? Enumerate the technological challenges associated with exploring and extracting resources from such remote and deep-sea locations? [10 Marks] [150 words]

INDIA'S FIRST HOME-GROWN CAR-T CELL THERAPY (NEXCAR19)

Why in News: Recently, the launch of India's first indigenous CAR-T cell therapy, NexCAR19, by IIT Bombay and Tata Memorial Hospital, marks a significant breakthrough with the potential to revolutionize cancer treatment.

Understanding CAR-T Cell Therapy

CAR-T cell therapy, or chimeric antigen receptor T-cell therapy, is a form of immunotherapy that engineers a patient's T cells to recognize and attack specific cancer cells. Breakdown of the process is following:

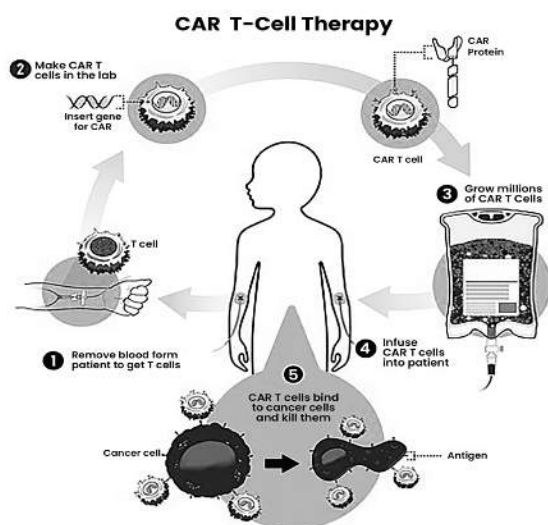


Significance of NexCAR19

- **Targeted Therapy:** CAR-T cell therapy offers a more targeted approach compared to conventional options.
 - It engineers a patient's own immune system to recognize and destroy cancer cells, minimizing harm to healthy tissues.
- **Promising Results:** Early trials of CAR-T cell therapy have shown remarkable remission rates, particularly for B-cell cancers like leukemia and lymphoma.
- **Cost-Effectiveness:** Traditional CAR-T cell therapies are expensive due to import dependence.
 - NexCAR19, developed domestically, has the potential to be significantly more affordable, making this life-saving treatment accessible to a larger patient population in India.
- **Boost to Medical Innovation:** The successful development of NexCAR19 signifies India's growing prowess in cutting-edge medical research.

Applications of CAR-T Cell Therapy

- **Acute Lymphoblastic Leukemia (ALL):** Studies have shown high remission rates in children and young adults with relapsed/refractory ALL.
- **Chronic Lymphocytic Leukemia (CLL):** CAR-T cell therapy offers hope for patients with advanced CLL who haven't responded to other treatments.
- **Non-Hodgkin Lymphoma (NHL):** This therapy is being explored for aggressive NHL subtypes with limited treatment options.
- **Multiple Myeloma:** CAR-T cell therapy targeting specific antigens on myeloma cells is under investigation for this blood cancer.



Challenges and Limitations

- **Manufacturing Complexity:** Producing CAR-T cells is a complex process requiring specialized infrastructure and expertise. Scaling up manufacturing to meet patient needs will be crucial.
- **Side Effects:** CAR-T cell therapy can cause severe side effects like cytokine release syndrome (CRS) and neurotoxicity.
- **Limited Availability:** Initially, NexCAR19 might be available only in select healthcare institutions with the necessary infrastructure and expertise.
- **High Cost:** Even with domestic development, NexCAR-T cell therapy might remain expensive compared to conventional treatments.
- **Limited Application:** Currently it has been tested for treating blood cancer while cancer has many varieties.

Way Forward

- **Clinical Trials:** Large-scale clinical trials involving diverse patient populations are needed to establish the long-term efficacy and safety of NexCAR19.
- **Infrastructure Development:** Investing in infrastructure for large-scale, standardized manufacturing of CAR-T cells is vital to meet treatment demands.

- **Healthcare Workforce Training:** Healthcare professionals need specialized training in administering CAR-T cell therapy and managing its associated side effects.
- **Cost Control Measures:** Exploring cost-effective manufacturing methods and developing insurance coverage for CAR-T cell therapy can improve accessibility.
- **R & D:** Continued research is needed to develop CAR-T cell therapies.

Conclusion

The development of NexCAR19 marks a significant milestone in India's fight against cancer. This indigenous CAR-T cell therapy offers a promising new avenue for targeted and potentially curative treatment.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. With reference to the CAR-T cell therapy, consider the following statements:

1. It uses genetically modified cells to treat various diseases.
2. Unlike chemotherapy which targets the normal cells along with cancer cells, the CAR-T Cell therapy specifically attacks the cancer cells.

Which of the statements given above is/are correct?

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

Answer: (c) (Both 1 and 2)

Descriptive Question

Q. Explain the applications of CAR-T Cell Therapy. What are the challenges and limitations associated with CAR-T cell therapy. [15 Marks] [250 words]

SOUTH KOREA'S "ARTIFICIAL SUN"

Why in News: Recently, South Korea's Superconducting Tokamak Advanced Research (KSTAR) fusion reactor has achieved a significant milestone in the race towards clean and limitless energy.

Key Details

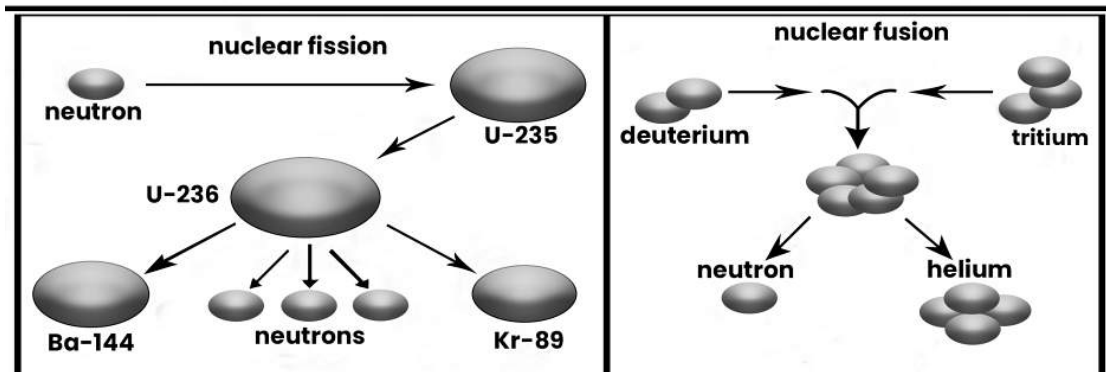
- KSTAR recently set a new world record by sustaining plasma, a hot, charged gas, at a **scorching temperature of 100 million degrees Celsius** for a record-breaking 48 seconds.
- This temperature is **seven times hotter than the Sun's core**, earning KSTAR the nickname "artificial sun."

- Notably, KSTAR also managed to maintain a **stable plasma state (H-mode)** for over 100 seconds, further demonstrating progress in controlling the fusion process.

What is Nuclear Fusion?

- Nuclear fusion is the process that powers the Sun and other stars. It involves fusing lighter atomic nuclei into heavier ones, releasing enormous amounts of energy in the process.
- KSTAR replicates this reaction within a tokamak, a donut-shaped reactor where hydrogen isotopes are heated to extremely high temperatures to create plasma.

Nuclear Fission and Nuclear Fusion



Challenges on the Road to Fusion Power

- Material Challenges:** Developing materials that can withstand extreme temperatures and pressures within a fusion reactor for extended periods is a major hurdle.
- Plasma Physics Mysteries:** Scientists are still working to fully understand the complex physics governing plasma behavior.
 - Maintaining the extreme temperatures and stability required for sustained fusion poses a significant challenge.
- Technical Hurdles:** Maintaining extremely high temperatures (around 50 million degrees Celsius) for extended periods remains a technical hurdle that needs to be overcome.

Nuclear Fission vs Nuclear Fusion

A heavy nucleus breaks up to form two lighter nuclei.

It involves a chain reaction.

The heavy nucleus is bombarded with neutrons.

We have proper mechanisms to control fission reaction for generating electricity.

Disposal of nuclear waste is a great environmental problem.

Raw material is not easily available and is costly.

Two nuclei combine to form a heavy nucleus.

Chain reaction is not involved.

Light nuclei are heated to an extremely high temperature.

Proper mechanisms to control fusion reaction are yet to be developed.

Disposal of nuclear waste is not involved.

Raw material is comparatively cheap and easily available.

Way Forward

- International Collaboration:** Global collaboration between research institutions like KSTAR and ITER (International Thermonuclear Experimental Reactor) is crucial to accelerate advancements.
- Material Research:** Developing advanced materials capable of withstanding the harsh fusion environment is a critical area of focus.
- Plasma Physics Research:** Deepening our understanding of plasma physics is essential for controlling, maintaining, and optimizing the fusion process.

Conclusion

KSTAR's record-breaking achievement represents a significant milestone in the pursuit of clean and limitless energy through nuclear fusion. While challenges remain, continued international collaboration, research, and technological advancements offer a promising path towards a future powered by the stars.

SIGNIFICANCE OF NUCLEAR FUSION

- Abundant Clean Energy**
Nuclear fusion promises a virtually limitless source of clean energy.
➤ When achieved, it could generate nearly four million times more energy than burning fossil fuels like coal, oil, or gas.
- Reduced Proliferation Risk**
Unlike nuclear fission reactors, fusion reactors don't require enriched uranium, a material that can be used in nuclear weapons.
➤ This significantly reduces the risk of nuclear proliferation.
- Inherent Safety**
Fusion reactors are considered inherently safe. Unlike fission reactors, they cannot undergo meltdowns, a major safety concern associated with traditional nuclear power plants.
- Inexpensive Fuel**
The fuel for nuclear fusion, isotopes of hydrogen, is readily available and abundant in nature (deuterium can be extracted from seawater).

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. With reference to the nuclear fusion reaction, consider the following statements:

1. It does not involve the chain reaction.
2. It forms the radioactive deuterium as a byproduct at the end of reaction.
3. It produces a temperature that is several times hotter than the Sun's core.

Which of the statements given above are correct?

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

Answer: (b) (1 and 3 only)

Descriptive Question

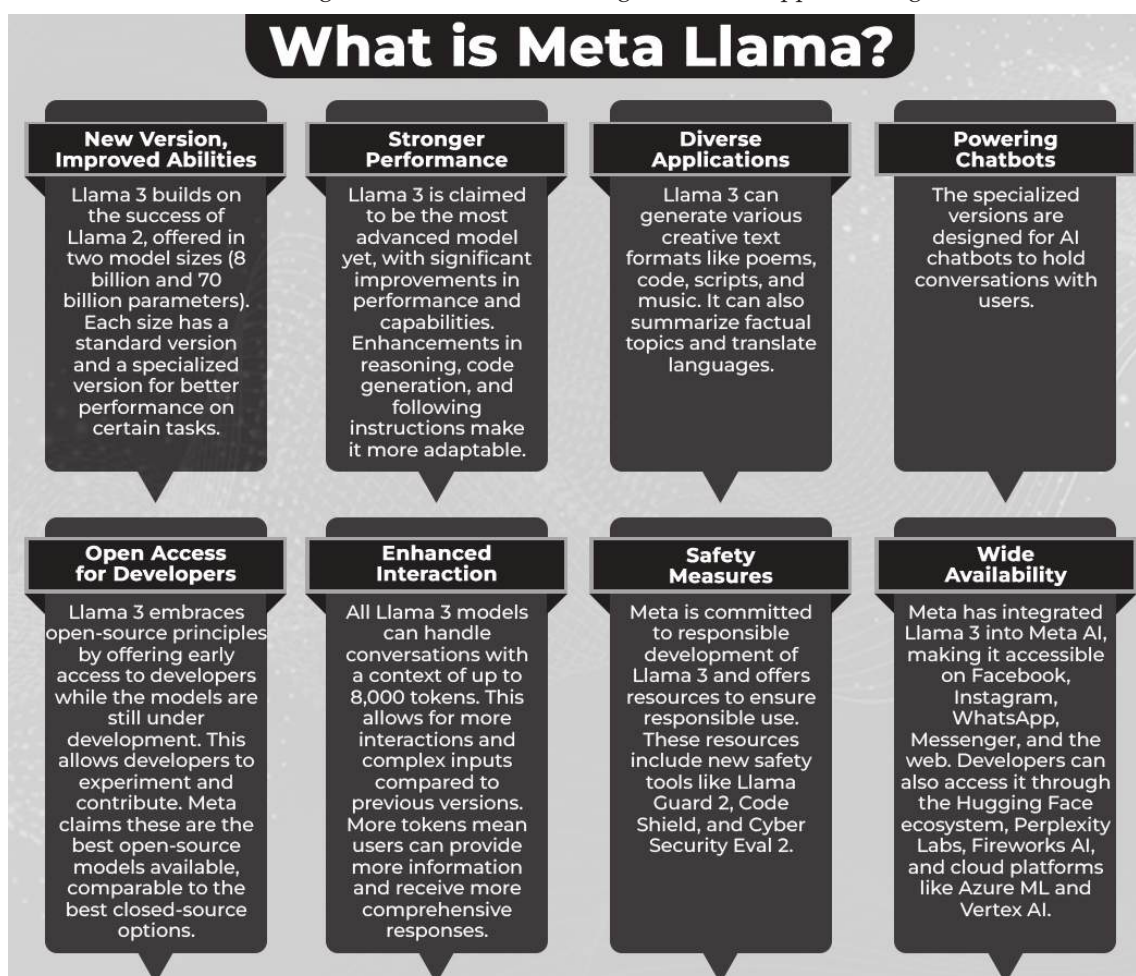
Q. What is the difference between nuclear fission and nuclear fusion? Elaborate the challenges to attain the generation of fusion power capacities. [15 Marks] [250 words]

LARGE LANGUAGE MODEL (LLM) "META LLAMA3"

Why in News: Meta, the company behind Facebook, Instagram, and WhatsApp, has unveiled its most advanced large language system yet, called Meta Llama 3.

Key Details

- In addition to its image generator that can modify pictures based on user prompts, Meta AI has also developed a powerful language model called Llama.
- First introduced in February 2023, Llama has since been upgraded with a significant improvement in its capabilities, as seen with the release of Llama 2 in July of the same year.
- Meta introduces sophisticated AI models, surpassing competitors like Google and Mistral.
- The updated Meta AI assistant integrates into Facebook, Instagram, WhatsApp, Messenger, and a standalone website.



Conclusion

Meta unveiled its most advanced large language model, Llama 3, surpassing competitors in capabilities. Llama 3 offers improved performance in reasoning, code generation, and following instructions. It can generate creative text formats, translate languages, and hold conversations with users.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. The term, "Meta Llama 3," recently mentioned in the news in context of

- Large Language modal
- Optical communication system
- Fast Breeder Reactor
- Gene editing

(a) :Answer

Descriptive Question

Q. What is Meta Llama? What are the ethical considerations and potential biases associated with language models, and how can these issues be addressed in AI research and development? [15Marks] [250 words]

SODIUM BATTERIES

Why in News: South Korean scientists have recently created next-generation sodium batteries that can be charged quickly just a few seconds.

What are the sodium batteries?

The materials used in supercapacitors and conventional batteries are combined in these novel hybrid sodium-ion batteries.	Compared to the traditional lithium-ion batteries seen in electric cars and smartphones, these are both safer and less expensive.	While sodium (Na) has the potential to be more efficient and chargeable than lithium-ion batteries, it is also 500 times more abundant than lithium.	Because of its sluggish charging speed and limited energy storage capacity, sodium-ion batteries have not been widely used.
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Faster charging times than existing lithium-ion batteries are provided by this revolutionary battery.	Greater energy density (247 Wh/kg) compared to commercial lithium-ion batteries.
High density of power (34,748 W/kg).	Consumer electronics and electric cars are two possible uses for it.

Why better?

Advantages of next-generation sodium batteries

- High Capacity and Rapid Charging:** Hybrid sodium-ion battery that combines anode materials from conventional batteries with cathodes from supercapacitors.
- Abundance of Sodium Resources:** Sodium is significantly more abundant than lithium, up to 1,000 times more.

- Safety Improvements:** By combining metallic sodium with specially tailored lignin-based carbon, researchers have managed to retain the energy capacity benefits while reducing safety risks associated with dendrite buildup (which can cause batteries to short-circuit).
- Cost-Effectiveness and Scalability:** Sodium-ion batteries use widely available and inexpensive raw materials, making them promising in terms of cost-effectiveness.
- Sustainability:** Sodium-ion batteries align well with the requirements of grid-scale energy storage and integration of intermittent renewable generation. Their sustainability benefits, coupled with their potential for high energy density and storage capacity, make them an attractive option.

Conclusion

Development and adoption of sodium-ion batteries mark an exciting chapter in the evolution of energy storage. With ongoing research and innovation, these batteries could redefine the landscape of sustainable energy solutions, offering a reliable and eco-friendly alternative to traditional lithium-ion batteries.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements with reference to the Battery Waste Management Rules, 2022:

- These rules state that producers of batteries are responsible for collection and recycling/refurbishment of waste batteries.
- Entities involved in recycling of Waste Batteries registered under these rules shall provide certificates for Waste Battery processing.
- These rules mandate the battery producers to register with the Central Pollution Control Board.

How many of the above statements are correct?

- Only one
- Only two
- All three
- None

(c) :Answer

Descriptive Question

Q. How do new sodium batteries compare to traditional lithium-ion batteries in terms of charging speed, energy density, and environmental impact? Discuss the potential applications and industries that could benefit from the use of sodium batteries with quick-charging capabilities. [15Marks] [250 words]

ZIKA & DENGUE VIRUS

Why in News: Through a sophisticated set of tests, scientists demonstrated that certain extracellular vesicles have the same proteins on their surface that certain viruses utilise to infiltrate cells.

Key Details

- In order to infect cells, viruses must find compatible targets. Viruses have specific proteins on their surface that can only connect with certain receptors on host cells. Only cells with matching receptors can be infected by a particular virus.
- For example, HIV targets cells that display a protein called CD4, such as T-cells and macrophages. In contrast, SARS-CoV-2 uses a different receptor, ACE2, which is found on cells in the respiratory tract.
- Therefore, HIV cannot infect respiratory cells, and SARS-CoV-2 cannot infect T-cells.
- The spread of a virus depends on a race within the host. The virus tries to replicate and spread before the immune system eliminates it or the host dies.



What does a virus do inside the body?

- Viruses exploit specific host cell receptors to establish infection. This selectivity, called tropism, determines which cells a virus can invade.
- Understanding these interactions, like those between HIV and CD4 or SARS-CoV-2 and ACE2, is crucial for developing targeted therapies and controlling viral spread.

What is the PS receptor?

- Viruses can exploit the PS receptor for entry, its presence in a bodily fluid doesn't necessarily signify transmission.
- Further research is needed to determine the specific route of viral spread for optimal prevention strategies.

How does the body defend itself?

- In a significant advancement, researchers identified a natural defense mechanism that thwarts Zika and similar viruses.
- Extracellular vesicles in saliva and semen, rich in virus-binding proteins, act as decoys, effectively preventing viral transmission through these fluids.
- This discovery offers promising insights for developing novel antiviral strategies.

About Zika Virus

- Caused by a Flavivirus genus, Flaviviridae family.
- Mostly transmitted through bite of infected Aedes species mosquito.
- Causes microcephaly in newborns and Guillain-Barré syndrome.
- Named after the Zika Forest in Uganda.
- First human case reported in 1952.
- Caused significant epidemic in Brazil in 2015.
- WHO declared Zika virus, neurological illnesses, and microcephaly as PHEIC in 2016.
- **Spread in India:** Zika virus has been reported in different parts of India like Gujarat, Madhya Pradesh, Rajasthan, Kerala and Maharashtra

Conclusion

In a significant advancement for immunology, researchers identified a novel defense mechanism: PS-coated vesicles inhibit viruses that exploit a specific receptor for entry. This targeted inhibition offers promising avenues for future investigation, potentially leading to innovative therapeutic strategies.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements:

1. In tropical regions, Zika virus disease is transmitted by the same mosquito that transmit Dengue.
2. Sexual transmission of Zika virus disease is possible.

Which of the statements given above is/are correct?

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

Answer: (c) (Both 1 and 2)

Descriptive Question

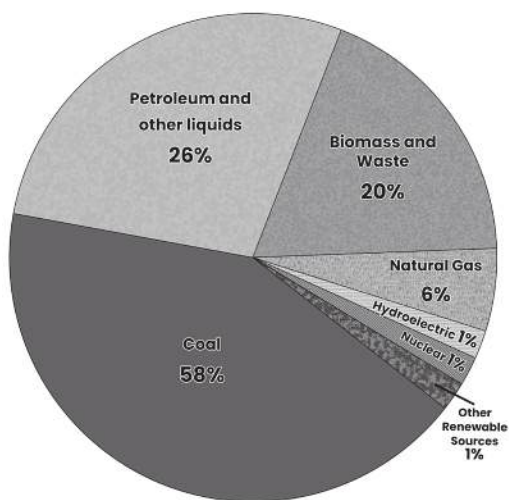
Q. What are viruses and how do they differ from other microorganisms? How can advancements in virology and molecular biology contribute to our understanding of viruses and the development of novel strategies for virus control and prevention? [15Marks] [250 words]

INDIA RAMPS UP GAS-BASED POWER GENERATION TO MEET RISING ELECTRICITY DEMAND

Why in News: India is facing an early onset of summer and a consequent rise in electricity demand. To address this, the government has directed all gas-based power plants to operate at full capacity from May 1 to June 30, 2024.

India's Gas-Based Power Sector

- India boasts a significant gas-based power generation capacity with 62 power stations utilizing natural gas as their primary fuel, generating a combined output of 23,845 MW.
- The International Energy Agency (IEA) predicts a 6% rise in India's natural gas demand in 2024, driven by increased consumption in fertilizers, power generation, and industries.
- While the world average share of natural gas in the energy basket is 23%, it is only 6% for India. However, the government of India has set the target to make it 15% by 2030.



Challenges Faced by the Sector:

- Import Reliance:** India lacks sufficient domestic gas reserves and depends heavily on imports, primarily from Qatar, Australia, and the United States.
- Infrastructure Constraints:** Developing the necessary infrastructure, including pipelines, LNG terminals, and city gas distribution networks, is crucial.
 - > However, land acquisition issues, regulatory hurdles, and funding limitations hinder expansion.
- Competitive Pricing:** Natural gas competes with other fuels like coal, renewable energy, and imported LPG.
 - > The relative pricing of these fuels determines the attractiveness of gas for various applications.
- Environmental Concerns:** While cleaner than coal, natural gas still produces greenhouse gas emissions during extraction, transportation, and combustion.
 - > Addressing methane leakage, air pollution, and carbon emissions is crucial for sustainable development.

Government Initiatives

The government is actively promoting the growth of the gas-based power sector through various initiatives:

- Infrastructure Development:** A significant pipeline network expansion is underway, with a target to increase coverage by 54% by 2024-25 and connect all states to the national network by 2027.
 - > Projects like Pradhan Mantri Urja Ganga (PMUG) focus on developing eastern India's gas pipeline infrastructure.
- Gas Price Rationalization:** Policies like the New Domestic Gas Pricing Guidelines and the Hydrocarbon Exploration and Licensing Policy (HELP) aim to incentivize domestic gas production while ensuring affordability for consumers.
- Natural Gas Infrastructure Development Fund (NGIDF):** This fund provides financial support for gas infrastructure development.
- Promotion of LNG Imports and Terminals:** The government encourages investment in LNG import terminals to diversify gas supply sources and enhance energy security.
- City Gas Distribution (CGD) Network Expansion, Natural Gas Marketing Reforms etc.**

Conclusion

By implementing these measures, India can leverage the benefits of gas-based power generation to meet its growing electricity demand while ensuring environmental sustainability and energy security.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q1. Consider the following statements with reference to the Solar Thermal Power Plant:

- It converts the mechanical energy into electricity by using a turbine.
- It is able to store the energy in the form of heat to generate electricity during the night time.
- It uses nuclear fusion of the Deuterium and Tritium to generate the heat.

How many of the above statements are correct?

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

Answer: (b) (1 and 2 only)

Descriptive Question

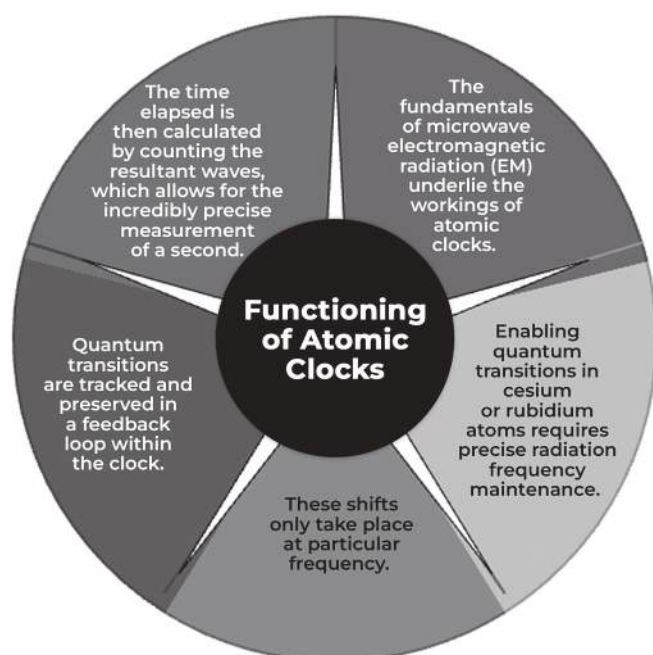
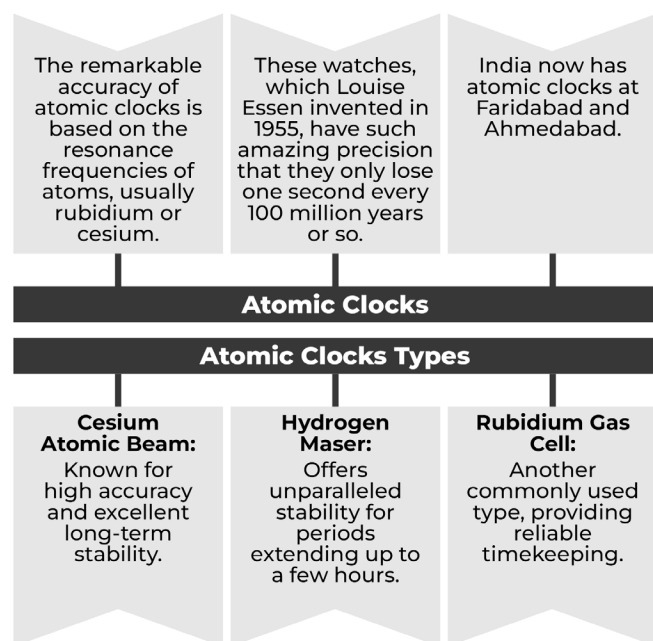
Q. What are the broader energy policy objectives and long-term strategies being pursued to enhance energy security and resilience in India, especially in light of changing climate patterns and energy demand trends? [15Marks] [250 words]

ATOMIC CLOCKS: ONE-NATION ONE-TIME

Why in News: In an endeavour that was started more than 20 years ago, India is installing atomic clocks all around the nation.

Key Details

- It is to guarantee that the time displayed on digital gadgets such as laptop, smartphone, and digital watch is indeed based on Indian Standard Time.
- Installation of these atomic clocks are done by the National Physical Laboratory (NPL) under the Ministry of Consumer Affairs and Ministry of Science and Technology.



Need of atomic clocks for India

- National Infrastructure and Technology:** Atomic clocks are crucial for various applications, including satellite navigation systems, telecommunications, and scientific research.
 - Strategic Applications:** Precision timing is essential for various strategic applications, such as synchronization of communication networks, financial transactions, and military operations.
 - The Kargil War involved the blackout of Global Positioning System (GPS) for India.
- Space Exploration:** India's space program, exemplified by organizations like the Indian Space Research Organisation (ISRO), relies heavily on precise timing for satellite navigation, Earth observation, and interplanetary missions for critical facilities such as the NavIC, or Indian Regional Navigation Satellite System (IRNSS).
- Global Collaboration:** By participating in international initiatives, India can exchange knowledge, expertise, and resources with other countries.

Challenges for deployment of atomic clocks

- Cost, Size and Portability:** Traditional atomic clocks are often large and bulky. Miniaturizing atomic clock technology without compromising accuracy remains a significant challenge.
- Power Consumption, Environmental Sensitivity:** External factors such as temperature fluctuations, electromagnetic interference, and radiation can affect the performance of atomic clocks.
- Frequency Standardization:** Achieving global standardization of atomic clock frequencies is challenging due to differences in measurement techniques, calibration methods, and reference standards across countries and organizations.
- Long-Term Stability:** Factors such as atomic frequency drift, aging effects, and environmental variations can degrade long-term clock accuracy, requiring continuous monitoring and calibration.
- Interference and Jamming:** Such as intentional electromagnetic interference or natural phenomena.

Conclusion

Atomic clocks represent a cornerstone of precision timekeeping for India, offering unmatched accuracy and stability across diverse applications. While challenges such as cost and environmental sensitivity persist, India's commitment to advancing atomic clock technology underscores its dedication to scientific excellence, technological innovation, and national development.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. With reference to the Atomic Clocks, consider the following statements:

1. These clocks use electromagnetic radiation to vibrate the atoms to measure the time.
2. These clocks operate in a vacuum to minimise collisions with gas molecules that can disrupt the vibrations of atoms.

Which of the statements given above is/are correct?

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

Answer: (c) (Both 1 and 2)

Descriptive Question

Q. What is the purpose behind India's initiative to install atomic clocks across the nation? How do atomic clock function, and why are they considered crucial for modern technologies and services? [15Marks] [250 words]

PETER HIGGS (HIGGS MECHANISM)

Why in News: British physicist Peter Higgs, who won the Nobel Prize in physics and postulated the existence of a mass-giving particle (sometimes referred to as the "God particle" or Higgs boson), passed away at the age of 94.

Key Details

- One of the three groundbreaking articles published in Physical Review Letters (PRL) in 1964 that suggested the origin of mass of fundamental particles in general and the W and Z bosons in particular might be explained by spontaneous symmetry breaking in electroweak theory.
- These were written by Higgs alone.
- The discovery of the Higgs boson, a new particle that this Higgs mechanism predicted would exist, became one of physics' primary goals.

Higgs Boson

- The fundamental force carrying particle of the Higgs field that gives fundamental particles their mass is called the Higgs boson.
- The particle bears Peter Higgs's name, who first suggested this field in the mid-1960s.
- On July 4, 2012, scientists working at the world's most potent particle accelerator, the Large Hadron Collider (LHC), situated at the European particle physics laboratory CERN in Switzerland, made the particle's discovery.

- The standard model of particle physics was finalized with the confirmation of the Higgs field's existence and the process responsible for mass formation by the LHC.
- It is one of the 17 fundamental particles that comprise the Standard Model of particle physics, the most comprehensive theory now available to scientists explaining the behaviors of the simplest objects in the universe.
- In subatomic physics, the Higgs boson is so essential that it is sometimes called the "God particle."

Features

- The Higgs boson is 130 times heavier than a proton, with a mass of 125 billion electron volts.
- In addition, it has zero spin and is chargeless angular momentum's quantum mechanical counterpart.
- It is the only non-spin elementary particle.

Boson

- One "force carrier" particle that enters the picture when particles interact with one another is a boson, which is transferred in the process. For instance, the force-carrying particle of electromagnetic fields, a photon, is exchanged when two electrons engage.
- A boson can alternatively be thought of as a wave in a field since quantum field theory describes both the microscopic realm and the quantum fields that fill the cosmos with wave mechanics.
- Accordingly, the Higgs boson is the particle or "quantized manifestation" that emerges from the excited Higgs field, whereas a photon is a particle and a wave that develops from an excited electromagnetic field.

The Large Hadron Collider (LHC)

Purpose and Construction

The LHC is the world's largest and most powerful particle accelerator. It was built by the European Organization for Nuclear Research (CERN).

Construction began in 1998 and was completed in 2008. The LHC is located under the border between France and Switzerland.

Its primary purpose is to explore fundamental questions about the universe by colliding particles at extremely high energies.

Technical Features

The LHC consists of a 27-kilometer (16.8 miles) ring of superconducting magnets. These magnets accelerate particles (such as protons) to nearly the speed of light.	Thousands of different types of magnets, including dipole and quadrupole magnets, are used to direct and focus the particle beams.
The accelerator tubes and collision chambers are located 100 meters (328 feet) underground.	The magnets are cooled to an astonishingly low temperature of -271.3°C (colder than outer space) using liquid helium.
The beams of particles travel in opposite directions within separate beam pipes, guided by a strong magnetic field created by superconducting electromagnets.	Just before collision, additional magnets "squeeze" the particles closer together to increase the chances of collisions.

Particle Collisions

Inside the LHC, two high-energy particle beams travel in opposite directions. When they collide, scientists study the resulting debris to understand the fundamental building blocks of matter.

The particles involved are so tiny that achieving collisions is akin to firing two needles 10 kilometers apart with incredible precision, ensuring they meet halfway.

Particle Detectors

The LHC has four main particle detectors positioned around the accelerator ring: ATLAS, CMS, ALICE, and LHCb.

These detectors capture and analyze the particles produced during collisions, providing valuable data for scientific research.

About Higgs Boson

- Through its interactions with other particles and the Brout-Englert-Higgs process, which is carried by the Higgs boson, that field produces mass.
- Greater masses are assigned to particles that interact or "couple" with the Higgs field more strongly.
- The Higgs field interacts with the Higgs boson itself to give it mass.
- The photon, which is the fundamental unit of light, is one particle that the Higgs field does not provide mass to.
- This is due to the fact that photons do not undergo spontaneous symmetry breaking like other force-carrying particles do.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements with reference to the Large Hadron Collider (LHC):

- It is the world's largest and most powerful particle accelerator built so far.
- It is designed to detect the gravitational waves predicted by Einstein's General Theory of Relativity.
- It is configured as a very large L-shaped detector with long arms accelerating structures to boost the energy of the particles along the way.

How many of the above statements are correct?

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

Answer: (a) [1 only]

Descriptive Question

Q. What is the Higgs Boson? How did Higgs's theory of the Higgs boson revolutionize our understanding of particle physics? [10Marks] [150 words]

PSLV ORBITAL EXPERIMENTAL MODULE-3 (POEM-3)

Why in News: By converting the last stage as the PSLV Orbital Experimental Module-3 (POEM-3), which successfully re-entered the atmosphere after the mission was completed instead of staying in orbit, ISRO's PSLV-C58/XPoSat mission achieved almost no debris in Earth's orbit.

About POEM

- The Vikram Sarabhai Space Centre (VSSC) has created POEM, a revolutionary space platform.
- It converts a PSLV rocket's fourth stage into a stable orbital station that may be used to carry out a variety of in-orbit scientific investigations.
- In June 2022, it was used for the first time on the PSLV-C53 mission.
 - After satellites are deployed, the PSLV's fourth stage usually ends up as space trash, however for the PSLV-C53 mission, it functioned as a stable platform for experimentation.
 - As per ISRO, POEM is equipped with a specialized Navigation Guidance and Control (NGC) system for attitude stabilization, meaning it can regulate the orientation of any aircraft within authorized boundaries.

POEM-3 Objective

- On January 1, 2024, it was launched as a component of the PSLV C-58 mission.
- The fourth stage was converted into POEM-3 and dropped to a 350-km orbit after the XpoSat satellite was deployed, greatly lowering the possibility of space debris creation.

Space Debris

- Spacecraft parts, rockets, defunct satellites, and debris from anti-satellite missile tests make up the space debris in Low Earth Orbit (LEO).
- LEO is a range of 100 to 2000 kilometers above Earth.
- Smaller amounts of debris are also present in Geosynchronous Orbit (GEO), which is 36,000 kilometers above Earth.
- Space assets are at risk from space debris, which may move at high to 27,000 km/h. In addition to causing unusable orbit areas, it can set off the "Kessler syndrome," which can result in cascading collisions.
- Over 60,000 space objects larger than 10 cm in low Earth orbit (LEO) are predicted by ISRO by 2030. The problem is made worse by the growth of private space agencies.
- According to ISRO's Space Situational Assessment Report 2022, 179 launches resulted in the placement of 2,533 items in orbit in 2022.
- Three significant on-orbit break-up occurrences took place in 2022: China's Yunhai-3 upper stage accidentally

exploded, Japan's H-2A upper stage broke up, and Russia's Cosmos 1048 upper stage was destroyed on purpose.

- Space laws: As of right now, LEO trash is not governed by any international rules. The majority of countries adhere to the Inter-Agency Space Debris Coordination Committee's (IADC) 2002 Space Debris Mitigation Guidelines, which were approved by the UN in 2007.

INITIATIVES OF VARIOUS NATIONS

INDIA

- The country is actively tackling the problem of space debris. In addition to POEM missions, ISRO built up a Space Situational Awareness Control Centre to prevent critical infrastructure from colliding.

- A further early warning system in orbit for debris and other threats to Indian satellites is called Project NETRA.



JAPAN



► In order to reduce the amount of trash in orbit and to develop tools for tracking and removing already-existing garbage, NASA launched the Orbital trash Program in 1979.

- The Space Force, the Sixth U.S. Armed Forces wing, monitors space debris and collisions in low Earth orbit.

EUROPE

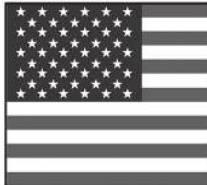
- To address space junk, Japan has a project dubbed the Commercial Removal of Debris Demonstration (CRD2).



USA

- A "Zero Debris charter," which outlines several strategies for reducing space debris, has been endorsed by the European Space Agency (ESA).

- By 2030, it has also demanded that there be no space junk.



Way Forward

- **Active Debris Removal (ADR):** ADR involves capturing and removing defunct satellites. Various techniques are being studied, including robotic arms, nets, harpoons, and even lasers to deorbit or reposition debris.

- **Spacecraft Design and End-of-Life Disposal:** This includes incorporating propulsion systems for deorbiting or deploying drag sails to accelerate re-entry.
- **Collision Avoidance and Maneuvering:** Implementing advanced collision avoidance systems on satellites and spacecraft. This includes utilizing onboard sensors, algorithms, and communication networks.
- **Laser Deorbiting and Deflection:** Laser-based systems can be used to either deorbit small debris objects by imparting momentum to them through photon pressure or to deflect larger debris objects away from collision courses with operational satellites.
- **Deployable Tethers and Drag Devices:** Deployable tethers and drag devices attached to defunct satellites or debris objects can increase atmospheric drag, accelerating their natural decay and re-entry into Earth's atmosphere.
- **Space Situational Awareness (SSA) and Space Traffic Management (STM):** Enhancing SSA capabilities through improved ground-based and space-based sensors.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements with reference to the POEM-3:

1. It is a unique space platform created using the spent PS4 stage of the PSLV vehicle.
2. It was originally developed to enable a missile to deliver multiple nuclear warheads to different targets.

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) (1 only)

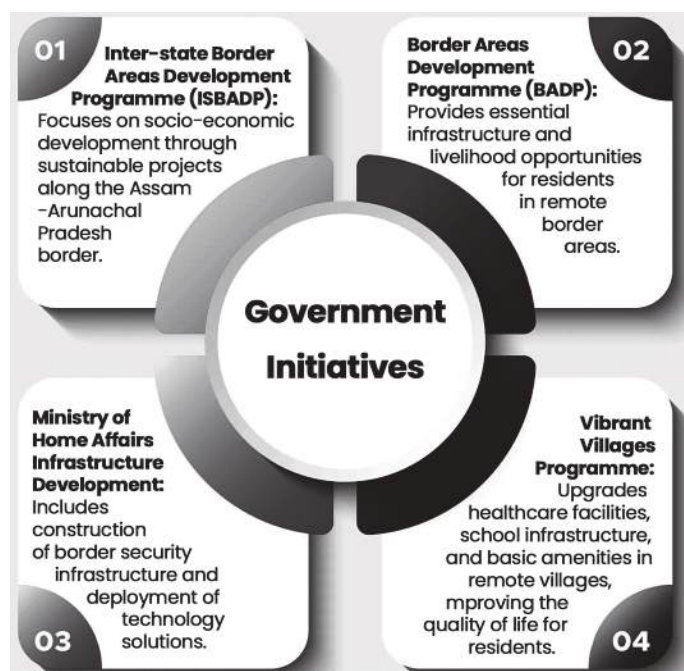
Descriptive Question

Q. How did the POEM-3 module contribute to reducing space debris generated by the space missions? What are the economic and operational benefits of minimizing space debris through initiatives like POEM-3? [15Marks] [250 words]

DEFENCE & INTERNAL SECURITY

INFRASTRUCTURE DEVELOPMENT IN ARUNACHAL PRADESH

Why in News: The recent focus on infrastructure development and improved connectivity along the **Line of Actual Control (LAC)** in Arunachal Pradesh signifies a multi-pronged approach by the Indian government.



Boosting Security and Strategic Significance

- **Enhanced Troop Movement:** Improved road networks like the Trans Arunachal Highway and tunnels like Nechiphu, significantly reduce travel times for troops and military equipment to strategic locations.
- **Improved Surveillance:** Upgraded communication and surveillance infrastructure facilitate real-time monitoring of the LAC, enabling early detection of any suspicious activity.
- **Border Infrastructure Development by MHA:** Construction of Border Outposts (BOPs) and deployment of technology further strengthen India's border management capabilities.

Associated Challenges

- **Geographical Obstacles:** The high-altitude terrain and harsh weather conditions pose significant challenges in construction and maintenance of infrastructure.

- **Financial Constraints:** The cost of infrastructure development in remote areas is high, requiring efficient resource allocation and management.
- **Educational Limitations:** Limited access to quality education in remote areas hinders skilled workforce development, crucial for long-term development.
- **Security Concerns:** Ensuring the safety of infrastructure projects and workers in the vicinity of the contested border necessitates robust security measures.
- **Last-Mile Connectivity:** While major highways are being constructed, providing connectivity to the remotest areas and forward posts remains a challenge.

Way Forward

- **Community Participation:** Actively involve local communities in infrastructure planning and development.
- **Skill Development Initiatives:** Invest in skill development programs to create a skilled workforce in border areas.
- **Environmentally Sustainable Practices:** Adopt eco-friendly construction methods minimizing environmental impact.
- **Public-Private Partnerships:** Leverage private sector expertise and resources for faster infrastructure development.
- **Focus on Renewable Energy:** Promote renewable energy sources like micro-hydropower and solar to reduce dependence on fossil fuels.

Conclusion

Infrastructure development and improved connectivity along the LAC in Arunachal Pradesh are strategically significant for national security and hold immense potential for socio-economic development.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

- Q. Vibrant Village programme is administered by?
- Ministry of Defence
 - Ministry of Home affairs
 - Ministry of Road Transport and Highways
 - Ministry of Rural Development

Answer: (b)

Descriptive Question

- Q. Explain the importance of Robust Border infrastructure in India's National security? Discuss the efforts taken by the government to bolster border Infrastructure. [10 Marks] [150 words]

BUILDING A SELF-RELIANT DEFENCE ECOSYSTEM

Why in News: India's defence sector is undergoing a significant transformation, driven by the goals of self-reliance (Atmanirbhar Bharat) and Make in India.

Recent Significant Transformation

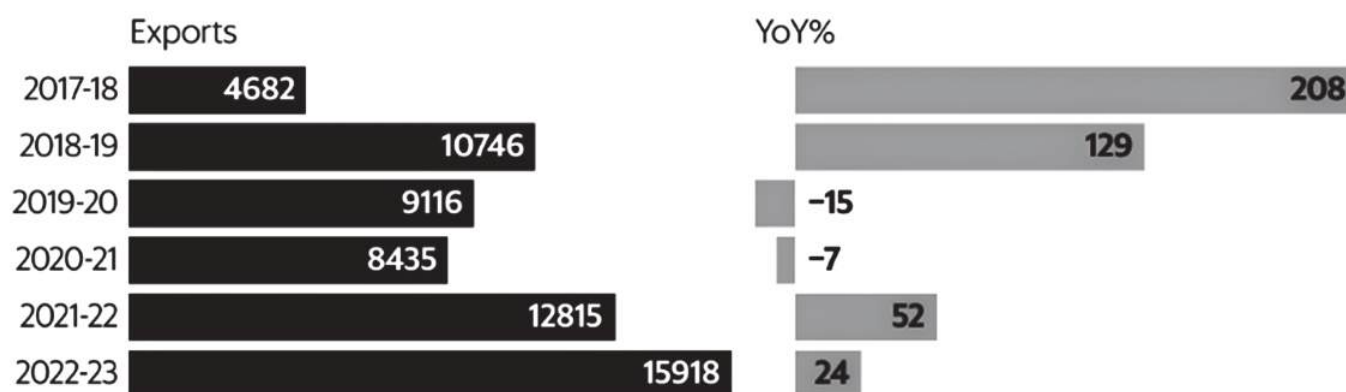
- India's defence exports have witnessed a remarkable

surge, reaching an all-time high of Rs. 21,083 crores in FY 2023-24.

- This signifies a growth of 32.5% over FY 2022-23 and a staggering 31 times increase compared to FY 2013-14.
- The value of India's defence production surpassed **Rs. 1,00,000 crores for the first time in 2022-23**.
- Public Sector Undertakings (PSUs) **account for 75% of this production**, with the private sector contributing Rs. 21,083 crore (20%).
 - The government aims to reach a production target of Rs. 1,75,000 crores by 2025.
- This positive development is a testament to India's growing prowess in defence manufacturing and its ambition to become a major exporter in the global arms market.

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

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



Key Policy Initiatives

- Defence Acquisition Procedure (DAP) 2020:** This policy mandates 50% indigenous content (IC) in procurement contracts.
 - It also introduces the "Buy (Global-Manufacture in India)" category, encouraging foreign Original Equipment Manufacturers (OEMs) to set up manufacturing facilities in India, leading to long-term technology transfer and ab initio (from the beginning) indigenization of spare parts.
- Positive Indigenization Lists:** The Ministry of Defence has released lists specifying items that must be procured domestically.
 - This promotes domestic production of nearly 5,000 items previously imported.
- Srijan Indigenization Portal:** This online platform lists over 34,000 items currently imported, with a focus on indigenization of a third of them.
- Defence Industrial Corridors:** Two corridors in **Tamil Nadu and Uttar Pradesh** are attracting investments and creating a domestic production ecosystem.
- Boost to Naval Power:** The INS Vikrant, India's largest domestically built aircraft carrier, exemplifies the country's growing naval prowess.
- Focus on Defence Research and Development (DRDO):** A committee has been constituted to review DRDO's functioning.
- Increased Allocation for Domestic Procurement:** The government has significantly increased the share of the defence budget rising from 40% in 2020-21 to 75% in 2023-24.
- Growth of Domestic Defence Production: Promoting Innovation:** Initiatives like iDEX (Innovations for Defence Excellence) and iDEX Prime support start-ups, MSMEs, and academia in developing defence solutions.

CHAHAL's PERSPECTIVE

Significance of the Robust Defence Ecosystem

1 • Enhanced Self-reliance

A robust defence export sector translates to a stronger domestic defence manufacturing base.

☆ This reduces dependence on foreign suppliers for critical equipment, fostering self-reliance in national security.

2 • Technological Advancement

This constant innovation not only improves the quality of exported products but also strengthens the overall technological capabilities of the Indian defence sector.

3 • Global Integration

Exporting defence equipment to major countries like Italy and Philippines signifies India's integration into the global defence value chain.

4 • Strategic Partnerships

Supplying military equipment strengthens strategic partnerships and encourages cooperation in areas like joint exercises and intelligence sharing.

Challenges

- **Resource Constraints:** While India boasts the fourth-largest military budget globally at ₹5.94 lakh crore for FY 2023-24, concerns remain. Experts advocate for an increase to 3% of GDP to ensure adequate military preparedness.
- **Infrastructure and Capacity:** The domestic defence industry, despite positive strides, grapples with insufficient infrastructure and production capacity.
- **Private Sector Participation:** While efforts are underway to integrate private players, a significant portion of defence production continues to be dominated by Defense Public Sector Undertakings (DPSUs).
- **Research and Development (R&D):** Long-term success hinges on sustained investments in R&D. Adequate funding is crucial for developing cutting-edge technologies and capabilities.
- **Economies of Scale:** Achieving economies of scale is essential for cost-effectiveness and global competitiveness. Enhancing productivity, maintaining high-quality standards, and concurrently reducing costs are key considerations.

Way Forward

- **Exporting High-Value Systems:** Focus on exporting high-value platforms like Aircraft Carriers, Arjun Mark 2 tanks, LCA-Tejas fighters, and Light Combat Helicopters.
- **Comprehensive Export Deals:** Move beyond simply selling weaponry. Offer comprehensive packages encompassing training and efficient maintenance services.
- **Defense Lines of Credit:** Leverage Lines of Credit (LoC) extended to FFCs to facilitate defence purchases and bolster exports.
- **Enhanced Private Sector Role:** Increase the private sector's contribution to at least 50% of total defence production.
- **Dedicated Export Promotion Body:** Establishing a dedicated export promotion body will streamline and spearhead export-related initiatives.
- **Defence Modernization Fund:** The proposed establishment of a non-lapsable Defence Modernization Fund would be a significant step forward.

Conclusion

By addressing existing challenges and implementing these strategic measures, India can **solidify its position as a key player in the global defence export market**. This will not only bolster its economic growth but also contribute to its strategic autonomy and global influence.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q1 Srijan portal aims for indigenization of?

- Vaccine production
- Defence production
- Oil production
- Semi-conductor production

(b) :Answer

Q2. Consider the following Indian states

- | | |
|---------------|------------------|
| 1. Tamil Nadu | 2. Uttar Pradesh |
| 3. Rajasthan | 4. Haryana |

In how many of the above States Defence Industrial Corridors are established by the Government of India?

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

Answer: (b) 1 and 2

Descriptive Question

Q. Being self-reliant in Defence equipment manufacturing is a strategic necessity for India. Critically evaluate the statement in the light of recent steps taken to make India self-reliant in Defence technology. [15 Marks] [250 words]

AGNI-PRIME MISSILE

Why in News: DRDO Successfully conducted a flight test of Agni Missile.

About the DRDO

- DRDO and India's SFC conducted successful flight test of Agni-Prime missile. The Defence Research and Development Organisation (DRDO) and India's Strategic Forces Command (SFC) have successfully conducted a flight test of the new generation ballistic missile called 'Agni-Prime'.
- The test took place at Dr APJ Abdul Kalam Island, off Odisha's coast, with data captured by range sensors positioned at various locations, including two downrange ships at the terminal point.
- The launch was observed by the Chief of Defence Staff, Chief of Strategic Forces Command, and other senior officials from DRDO and the Indian Army.

About Agni-Prime

- Agni-P, also known as Agni-Prime, is a **medium-range ballistic missile (MRBM)** developed by DRDO, equipped with nuclear capabilities. It is viewed as the successor to Agni-I and Agni-II missiles in the SFC's operational service, featuring a strike range of 1,000 to 2,000 km and incorporating technological advancements from Agni-IV and Agni-V.
- The missile has undergone significant upgrades, including a composite motor casing, **maneuverable re-entry vehicle (MaRV)**, improved fuels, and advanced navigation and guidance systems. Constructed entirely using composite material, Agni-Prime offers benefits like lightweight construction and enhanced strength and flexibility.
- Agni-Prime is a two-stage, solid-fuelled, surface-to-surface missile, road-mobile and transportable by truck. Launched via a canister, similar to the country's first intercontinental ballistic missile (ICBM), Agni-V, Agni-Prime features dual navigation and guidance systems.

Features of Agni-Prime

- Agni-Prime resembles Agni-III but with half the weight, intended to replace older generation missiles like Prithvi-II, Agni-II, Agni-III, and Agni-IV ballistic missiles.
- Upgrades include new propulsion systems, composite rocket motor casings, and advanced navigation. Agni-P aims for maximum maneuverability against missile defence systems and higher accuracy for precision strikes, complicating enemy defenses.
- Agni-P, along with Agni-V, enhances India's deterrence against China and Pakistan, with Agni-V targeting China and Agni-Prime focusing on Pakistan.

The Agni Missile Series

- The Agni series, named after one of the five elements of nature, encompasses medium to intercontinental range ballistic missiles. Agni-P is the sixth missile in the series, developed under the Integrated Guided Missile Development Programme (IGMDP) spearheaded by former president Dr. A.P.J. Abdul Kalam in the 1980s.

AGNI MISSILE FAMILY

- **Agni-I Medium range Ballistic Missile.**
Range - 700 km. Year - 1989.
- **Agni-II Intermediate range Ballistic Missile.**
Range - 2,500 km. Year - 1998.
- **Agni-III Intermediate range Ballistic Missile.**
Range - 3,500 km. Year - 2006.
- **Agni-IV Intermediate range Ballistic Missile.**
Range - 4,000 km. Year - 2010.
- **Agni-V Intercontinental Ballistic Missile.**
Range - 5,000 km. Year - 2012.
- **Agni-VI Intercontinental Ballistic Missile.**
Range - 10,000 km. (under development)
- **Agni-P/Agni-Prime Ballistic Missile.**
Range - 1,000 - 2,000 km.

Conclusion

The successful test of the Agni-Prime missile marks a significant milestone in India's efforts to enhance its strategic deterrence capabilities and bolster its position in the regional security landscape.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q1. Consider the following Indian missiles

1. Agni 2. Trishul
3. Nag 4. Akash

How many of the above missiles are part of Integrated Guided Missile Development Programme?

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

Answer: (d)

Descriptive Question

Q. What is the Agni Missile system and Indian integrated missile program? Explain its significance considering India's national security challenges. [15 Marks] [250 words]

SAGAR KAVACH

Why in News: 'Sagar Kavach' coastal security exercise is poised to commence its strategic maneuvers along the coasts of Kerala and Mahe.

Objective

Spanning the entirety of the Kerala and Mahe coastline (590 km), this exercise strengthens coastal security protocols.

About Sagar Kavach 2024

01

The exercise, held twice a year, involves active participation from diverse central and state agencies, demonstrating a unified strategy to strengthen India's coastal defences.

02

Under the coordination of the Indian Coast Guard, 'Sagar Kavach' unites various forces such as the Indian Navy, Coastal Police/State Police, Intelligence Bureau, Customs, CISF, Department of Port, Department of Fisheries, Directorate General of Lighthouse and Lightships (DGLL), and Kadalora Jagiratha Samithi.

03

The exercise is crafted to tackle the distinctive challenges of coastal terrain, ensuring the resilience and adaptability of security measures across different scenarios.

04

Division of naval assets into attacking and defending forces

- The exercise strategically divides participating units into two teams: Attack (Red) and Defense (Blue) forces.
- The Red Forces simulate infiltration attempts from seaward, testing coastal defenses. Meanwhile, the Blue Forces respond by setting up Coastal Security Surveillance to intercept and neutralize these threats.
- Recognizing fishermen's crucial role, the exercise stresses their active participation.
- Fishermen are encouraged to report any unknown vessels near the coast promptly to the Indian Coast Guard.
- This collaborative approach aims to bolster surveillance along the coast, leveraging the local fishing community as a valuable security asset.

Enhanced Collaboration

- The consistent execution of such maneuvers over time has demonstrably improved coordination amongst

stakeholders, fostering a robust framework for coastal security.

The Indian Coast Guard (ICG) A Vital Role

Established by the Coast Guard Act of 1978, the ICG is an indispensable maritime law enforcement and search-and-rescue agency.

Operating under the Ministry of Defence, its jurisdiction encompasses India's territorial waters, contiguous zone, and exclusive economic zone.

By collaborating effectively with diverse agencies such as the Indian Navy, Department of Fisheries, Department of Revenue (Customs), Central Armed Police Forces, and State Police Services, the Coast Guard plays a pivotal role in securing maritime safety and security.

Conclusion

"Sagar Kavach" exemplifies the importance of collaborative endeavors and comprehensive exercises in solidifying coastal security mechanisms. Through these drills, which involve a multitude of stakeholders, the Indian Coast Guard guarantees preparedness and fosters coordination, ultimately safeguarding India's coastal regions.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements

1. It is a biannual exercise
2. It aims to secure maritime security among South Asian countries
3. It is coordinated by Indian Coast Guard

How many of the above statements are correct for Sagar Kavach exercise?

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

Answer: (a) (3 Only)

Descriptive Question

Q. What is significance of bilateral military engagements like Sagar Kavach exercise? Discuss the importance of blue water navy ensuring India's Maritime security and its importance as soft power in international relations. [15 Marks] [250 words]

NATO'S 75TH ANNIVERSARY

Why in News: Article analyses NATO's 75th anniversary, role in Western dominance.

NATO: A Western security alliance established on April 4, 1949, had **12 founding members** who signed the **Washington Treaty**. This treaty was rooted in Article 51 of the United Nations Charter, which reaffirms the inherent right of

independent states to self-defence, either individually or collectively.

Background of NATO

NATO emerged during the Cold War to deter Soviet expansionism and counter the potential spread of Soviet influence beyond Eastern Europe.

Membership of NATO

- **Original Founding Members:** NATO was initially formed with 12 founding nations - Belgium, Canada, Denmark, France, Iceland, Italy, Luxembourg, the Netherlands, Norway, Portugal, the United Kingdom, and the United States.
- **Expanded Member States:** NATO has undergone several expansions since its inception, with new countries joining in multiple rounds. Presently, the alliance comprises 32 member nations. The expanded membership includes Greece and Turkey (1952), West Germany (1955, later Germany), Spain (1982), the Czech Republic, Hungary, and Poland (1999), Bulgaria, Estonia, Latvia, Lithuania, Romania, Slovakia, and Slovenia (2004), Albania and Croatia (2009), Montenegro (2017), North Macedonia (2020), Finland (2023), and Sweden (2024).



Objective of NATO

- **Collective Defence:** NATO's primary goal is collective defence, as articulated in **Article 5 of the Washington Treaty (North Atlantic Treaty)**. This principle dictates that an attack on any member is deemed an attack on all, necessitating unified action.
- **Political Cooperation:** NATO aims to foster democratic values and facilitate member consultation and

cooperation on defense and security matters to address challenges, foster trust, and prevent conflicts.

- **Military Assistance:** NATO is tasked with providing military assistance and conducting crisis management operations if diplomatic efforts fail to resolve disputes.

Challenges Faced by NATO

- **Funding Challenges:** Meeting the defense spending

target of 2% of GDP has been a struggle for many members since its pledge following Russia's annexation of Crimea in 2014. Presently, the disproportionate burden on the US, accounting for over two-thirds of the alliance's defense spending, is criticized by some US Republicans.

- **Intra-block tensions:** Disagreements among member countries have sparked intra-block tensions within NATO. For instance, Turkey's objections to Sweden and Finland's NATO membership due to criticism over Turkey's human rights record, and French President's critique of NATO's lack of strategic coordination among European allies and the US, and Turkey.
- **Deterioration of ties with Russia:** Relations between NATO and Russia have deteriorated to the point of direct confrontation, particularly over NATO's overt support for Ukraine in the Russia-Ukraine War.

Achievements of NATO in The Last 75 Years

Collective Security against Superpowers

NATO has provided a platform for European countries to safeguard against various threats during the Cold War, notably from the USSR. In the contemporary era, it aids European nations in competing ideologically, economically, and strategically with emerging superpowers like China.

Controlling Militarized Conflicts

NATO has played a pivotal role in containing and managing militarized conflicts in Central and Eastern Europe, fostering stability within the former Soviet bloc.

Stabilization of Western Europe

NATO has contributed to the stabilization of Western Europe, fostering reconciliation among states with historical rivalries, such as France and Germany.

Conclusion

As NATO celebrates its 75th anniversary in 2024, it stands at a critical juncture in its history. While effectively fulfilling its mandate of protecting the freedom and security of its member states, the alliance grapples with a swiftly changing global security environment characterized by intense great power competition, transnational challenges, and emerging complexities.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements about North Atlantic Treaty Organisation (NATO)

1. NATO consists of 32 member states
2. Sweden is latest country to become member state of NATO
3. NATO has 12 original founding members

How many of the above statements are correct?

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

(c) :Answer

Descriptive Question

Q. What is the composition of NATO and explain its relevance in ensuring the security of contemporary Europe? Do you think Supra-National military alliances are danger to sovereignty of remaining adjacent nations? [15 Marks] [250 words]

SOCIAL ISSUES

CPWD'S MOVE TOWARDS INCLUSIVE PUBLIC BUILDINGS FOR PERSONS WITH DISABILITIES

Why in News: The Central Public Works Department (CPWD) recently issued a directive to its regional offices to ensure accessibility in all public buildings for Persons with Disabilities (PwDs).

Understanding Persons with Disabilities

- As per the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD), PwDs are individuals with long-term physical, mental, intellectual or sensory impairments which in interaction with various

barriers may hinder their full and effective participation in society on an equal basis with others.

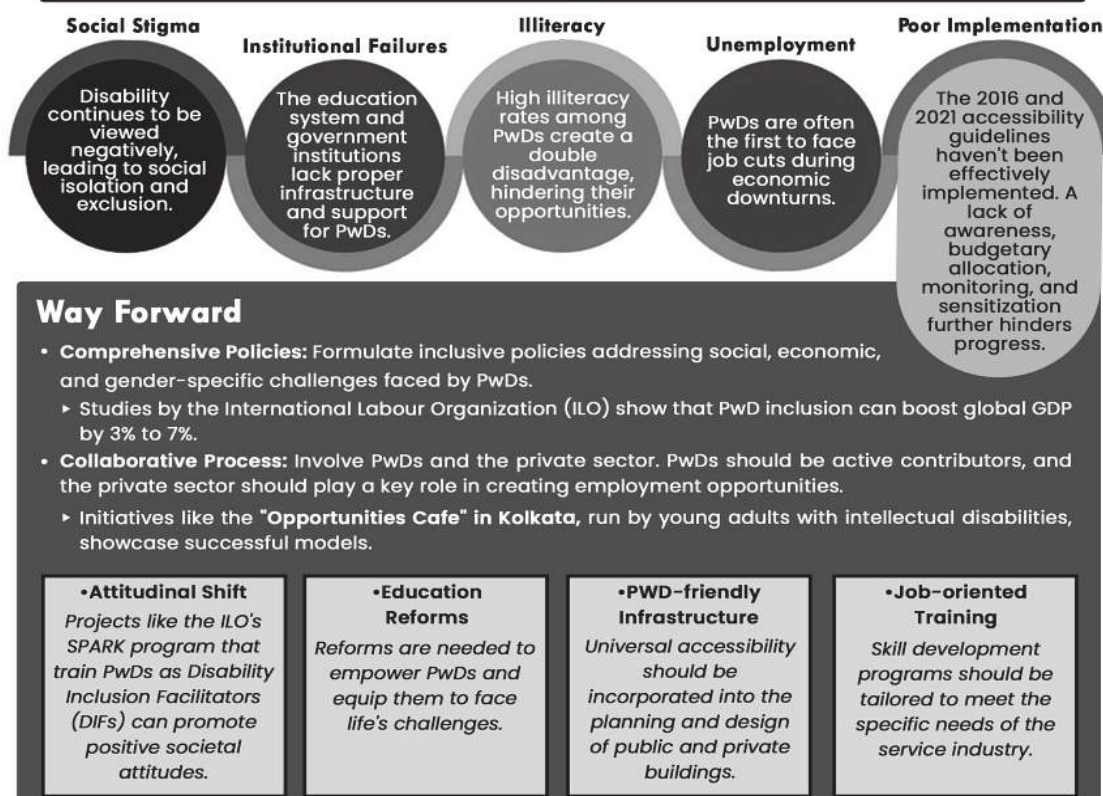
- As per the 2011 census, the most common disabilities include movement (20%), seeing (19%), and hearing (19%).

The Rights of Persons with Disabilities Act, 2016

- The RPWD Act mandates equal rights, dignity, and respect for PwDs. It replaced the 1995 Act, fulfilling India's obligations under the UNCRPD.
- The Act defines disability broadly, covering 21 types with the provision to add more. It includes penalties for offenses against PwDs and violations of the Act's provisions.
- Special courts in each district handle cases concerning PwD rights.

CHAHAL'S PERSPECTIVE

Public Buildings for PwDs



Government Initiatives

- Harmonised Guidelines (2021):** These guidelines aim to create a universally accessible India.

- **Department of Empowerment of Persons with Disabilities:** This department focuses on understanding and addressing the unique needs of PwDs.
- **Terminology Shift "Divyang":** The government introduced this term to promote a more positive perception of PwDs.
- **Accessible India Campaign (2015):** This campaign aims to create barrier-free environments in public spaces.
- **Sugamya Bharat App:** This app allows users to report accessibility issues.
- **Unique Disability Identity Project (UDID):** This project simplifies disability certification while preventing fraud.
- **Divya Kala Shakti and ADIP Scheme:** These schemes encourage cultural participation and provide financial assistance for assistive devices.

Conclusion

PwDs are a valuable resource with immense potential. Proper sensitization, infrastructure development, and a shift in societal attitudes are crucial for their inclusion and participation in all spheres of life. By effectively implementing the RPWD Act and associated initiatives, India can move towards a truly inclusive society.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements:

1. A parliamentary legislation declared that every child with a benchmark disability between the ages of 6 to 18 years shall have the right to free education in a neighborhood school.
2. The Constitution of India does not provide the persons with disabilities a right to reservation in promotion.

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

Descriptive Question

Q. What are the potential benefits of ensuring accessibility in public buildings for PwDs? How can public awareness and education campaigns contribute to fostering a more inclusive attitude towards PwDs in society? [15 Marks] [250 words]

GLOBAL HEPATITIS REPORT 2024

Why in News: The World Health Organization (WHO) recently released its **2024 Global Hepatitis Report**, painting a concerning picture of rising death rates from viral hepatitis B and C despite advancements in prevention.

Key Details

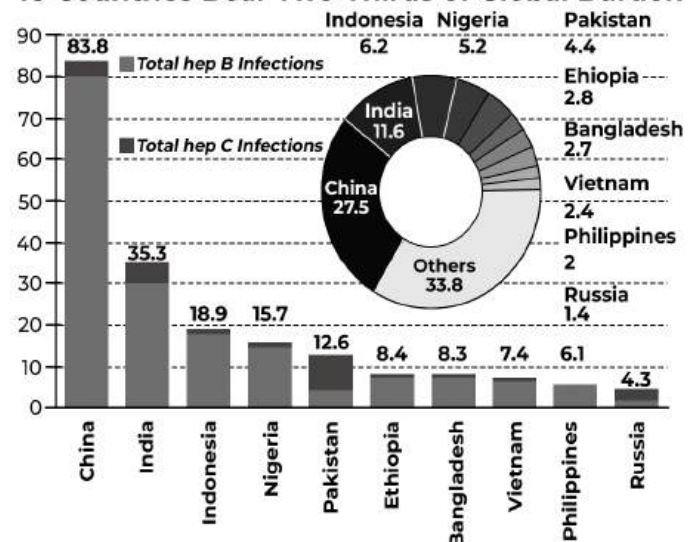
- This comprehensive report, the first of its kind from the WHO, combines data on viral hepatitis epidemiology, service coverage, and access to essential health products across 187 countries.

What constitutes viral hepatitis?

- Viral hepatitis encompasses **five viruses** that induce liver disease in humans.
- **Hepatitis A and E are spread through contaminated food and water**, resulting in symptoms lasting for weeks, such as fever, abdominal pain, jaundice (yellowing of the skin), dark urine, and pale stools.
- The WHO report **primarily addresses the bloodborne hepatitis B (hep B) and hepatitis C (hep C) viruses**.
- While some infections of these viruses may be short-term and self-resolving, others can progress to chronic, lifelong conditions, leading to cirrhosis (permanent liver scarring, reducing its efficiency) and increasing the risk of liver cancer.
- **Vaccination can prevent hep B**, whereas **medication can cure hep C**.
- The report excludes **hepatitis D**, which can only infect those already infected with hep B and can be prevented by vaccinating against hep B.

- The report updates progress made since 2019 in improving access to hepatitis B and C treatments in low- and middle-income countries, encompassing data from **38 nations that account for nearly 80% of the global burden of the disease**.

10 Countries Bear Two-Thirds of Global Burden



Key Findings of the Report

- An estimated **254 million people** globally were living with hepatitis B and 50 million with hepatitis C in 2022.
- Deaths attributed to viral hepatitis **rose from 1.1 million in 2019 to a staggering 1.3 million in 2022**.

- Of these deaths, 83% were caused by hepatitis B and 17% by hepatitis C.
- Every day, a staggering 3500 people lose their lives globally due to these infections.
- India, with an estimated 3.5 crore cases in 2022, stands second only to China in terms of hepatitis B and C infections. This translates to a concerning 11.6% of the total global disease burden.

GLOBAL HEPATITIS REPORT

CHALLENGES

Limited Diagnosis and Treatment



Despite advancements in prevention, a significant gap exists between diagnosed and treated cases. This translates to rising death rates.

Hepatitis as a leading Infectious Cause of Death



The report reveals that viral hepatitis now stands as the second leading infectious cause of death globally, on par with tuberculosis, claiming 1.3 million lives annually.

Pricing Disparities



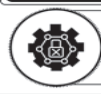
Unequal pricing across and within regions persists. Many countries pay above global benchmarks, even for generic drugs or those included in licensing agreements.

Limited Service Access



Delivery of services remains centralized and fragmented, with many affected populations facing out-of-pocket expenses.

Funding Inadequacy



Funding allocated for tackling viral hepatitis, both globally and within national health budgets, falls short of the required amount.

WAY FORWARD

Expanding access to testing and diagnostics



Early detection is vital for timely treatment and improved outcomes.

Shifting from policy formulation to policy implementation



Ensuring equitable access to treatment across all populations requires a shift from policy formulation to robust implementation strategies.

Strengthening Primary Care Prevention Efforts



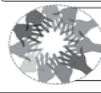
Integration of preventive measures like vaccination into primary care can significantly reduce new infections.

Utilizing Improved Data for Action



Effective data collection and analysis are crucial to guide targeted interventions and track progress.

Engaging Affected Communities and Civil Society



Meaningful participation from these groups is essential for designing and implementing impactful solutions.

Conclusion

By addressing these challenges and implementing the recommended actions, the world can collectively work towards achieving the goal of eliminating viral hepatitis B and C as a public health threat by 2030.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements with reference to the Hepatitis:

1. Vaccination is available for all types of hepatitis viruses.
2. Hepatitis A can be transmitted through exposure to contaminated food.
3. Hepatitis C is only transmitted through infected blood or from mother to newborn during childbirth.

How many of the above statements are correct?

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

Answer: b (2 and 3 only)

Descriptive Question

Q. What factors contribute to the escalating death rates from viral hepatitis B and C despite advancements in prevention methods? What strategies should be implemented to reverse the trend of rising death rates from viral hepatitis B and C? [15 Marks] [250 words]

UNIFORM CODE FOR PHARMACEUTICALS MARKETING PRACTICES (UCPMP) 2024

Why in News: Recently, the Indian government has taken a significant step towards promoting ethical practices within the pharmaceutical sector with the introduction of the Uniform Code for Pharmaceuticals Marketing Practices (UCPMP) 2024.

About UCPMP 2024

The UCPMP outlines a series of regulations governing interactions between pharmaceutical companies and healthcare professionals. Key provisions include:

- **Marketing authorization:** Drugs can only be promoted after obtaining marketing approval, ensuring adherence to safety and efficacy standards.
- **Responsible drug promotion:** Misleading claims are prohibited, including the unqualified use of terms like "safe" and "new." Information must be balanced, up-to-date, and verifiable.

- **Curbing free samples:** Free drug samples are restricted to qualified professionals, preventing misuse and potential over-prescription.
- **Gift restrictions:** Healthcare professionals are barred from accepting gifts or vacations from pharma companies, except for participation in approved CME/CPD programs.
- **Fair competition, educational materials, Self-regulation:** Pharmaceutical associations are mandated to establish "Ethics Committees" to address complaints and ensure adherence to the code.



Other existing measures include

- **MCI Guidelines:** The MCI guidelines emphasize maintaining professional independence and ethical conduct regarding interactions with pharmaceutical companies.
- **National Pharmaceutical Pricing Authority (NPPA):** The NPPA regulates drug prices, promoting fair market practices within the pharmaceutical industry.
- **Collaboration with Professional Bodies:** Collaboration with medical associations helps develop and implement ethical guidelines for doctor-pharma interactions.

Way Forward

Strong Enforcement

Effective implementation of the UCPMP with robust enforcement mechanisms is crucial.

Public Awareness

Educating patients about responsible drug use and potential industry influence can empower them to make informed decisions.

Continuous Monitoring

Regular monitoring and revision of the code are necessary to adapt to evolving practices.

Transparency and Disclosure

Transparency in drug pricing, clinical trial data, and industry funding for research can foster trust.

Promoting Generics

Encouraging the use of cost-effective generic drugs can bring down healthcare costs and reduce reliance on expensive branded medications.

By prioritizing ethical practices and patient well-being, India can create a robust and sustainable pharmaceutical ecosystem.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements with reference to the Uniform Code for Pharmaceuticals Marketing Practices (UCPMP), 2024:

1. It declared the formation of a committee called "Ethics Committee for Pharma Marketing Practices (ECPMP).
2. It does not cover third parties that work on behalf of pharmaceutical companies.
3. It prevents pharmaceutical companies from extending travel facilities to healthcare professionals inside or outside the country.

How many of the above statements are correct?

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

Answer: b (1 and 3 only)

Descriptive Question

Q. Explain the key provisions and objectives of the Uniform Code for Pharmaceuticals Marketing Practices (UCPMP) 2024? How does the UCPMP 2024 differ from previous regulations or codes governing pharmaceutical marketing practices in India? [15 Marks] [250 words]

STUDENT SUICIDES

Why in News: Recent student suicides at prestigious institutions such as the **Indian Institutes of Technology (IITs)** have highlighted a major and urgent issue inside our educational system, demonstrating the **multifarious pressure and distress** that students confront.

Key Details

- Suicides among students at central educational institutions, including IITs, **are on the rise**.
- According to a recent data, five suicides have been reported at various IITs in 2024.
- According to the **last five-year data**, there have been **98 suicides in core educational institutions**.
- **Marginalized Groups Affected:** Since 2018, nearly half of individuals who committed suicide at IITs were from the SC, ST, and OBC categories.

MAJOR REASONS FOR SUICIDES



Academic Stress

Academic stress is a **major source of distress** in these institutions due to severe **academic pressure and competition**. The desire to succeed in a very competitive setting can be overwhelming.



Lack of Emotional Attachment

Their coaching years, which encompass their early adolescence, keep them **cut off from social and moral dimensions** of cause and effect, the **give and take of human relationships**. This causes a lot of Emotional distress.



What will people say?

Competitive test hopefuls in India often face a lack of support due to the **'Log Kya Kahenge'** attitude ('What will people say?').



Financial challenges

Financial challenges, such as unaffordable tuition and living expenditures, can cause significant stress for students.



Expectations and Failure

Many students, particularly those who have put in years of hard study and have **high family expectations**, find **failure agonizing**.



Comparison Culture and Increasing Pressure

With an **ever-increasing competitive race and dismal placement prospects**, they confront their own set of challenges inside an imperfect system.



Other factors include online gaming, debt pressures, relationship conflicts, a low sex ratio in top institutions, drug usage, alcohol abuse and overconsumption, poor work-life balance, and more.

PRESSURE OF PERFECTION?



One student commits suicide every 55 minutes in India

► In academic year 2017-18, more than 150 students across AP and Telangana committed suicide

► In Hyderabad, more than 30 students committed suicide in academic year 2017-18



20% of city students in a single class are suffering from anxiety & depression

► Suicide incidence rate per 1,00,000 population for those below the age of 14 is 0.5



► Suicide incidence rate per 1,00,000 population for those in 14-17 age bracket is 9.52



WARNING SIGNS

► Isolation from family and friends

Self-harm



► Drastic changes in mood and behaviour (extreme fear, sadness, irritability)

► Changes in sleeping and eating habits

► Drug and alcohol use



► Engaging in risky behaviours

► Showing less interest in activities they previously enjoyed



Initiatives Taken by Indian Government

- **Tele-MANAS** intends to provide **free tele-mental health services** around the clock across the country, with a focus on persons living in distant or underserved areas.
 - The initiative includes a network of **38 tele-mental health centers of excellence located across 27 states and union territories** that provide mental health services **in over 20 languages, as well as over 1600 trained counsellors** who manage the front-line services.
- **Mental Healthcare Act (MHA) of 2017:** MHA 2017 strives to give mental healthcare services to people suffering from mental illnesses.
- **The National Suicide Prevention Strategy**, launched in 2023, aims to reduce suicide mortality by **10% by 2030** through action plans and multi-sectoral cooperation.
- **KIRAN:** The Ministry of Social Justice and Empowerment has inaugurated a **24-hour toll-free helpline called "KIRAN"** to help those suffering from anxiety, stress, depression, suicide thoughts, and other mental health issues.

Conclusion

It is a high time to learn from previous failures in dealing with the developing crisis and take immediate action involving all stakeholders - **children, parents, teachers, institutes, and policymakers** by properly implementing NEP 2020.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

- Q. Guidelines titled 'UMMEED' was released by the central government to
- facilitate the women led Self Help Groups with collateral free credit.
 - prevent Student suicides.
 - ensure quality antenatal care for pregnant women in India.
 - promote the use of renewable and environmentally friendly fuels such as Biodiesel.

Answer: b

Descriptive Question

- Q. Suicide should be viewed as a complicated public and mental health issue, critically analyse. [15 Marks] [250 words]

URBANIZATION, NO LIBERATING FORCE FOR DALITS

Why in News: In India, urbanization has long been seen as a means of achieving social progress and breaking free from the deeply ingrained caste system. The reality is far more nuanced, though, as caste-based prejudice and segregation are still reflected in and sustained by the urban environment.

Key Details

- India celebrates **Ambedkar Jayanti** on **April 14** of each year.
- The **social and physical organisation of communities** throughout India has long been influenced by caste, and this influence is visible in the **layout of Indian towns**, where caste frequently functions as the main spatial language.
- Despite these obstacles, **influential Indians like Jyotirao Phule and R. Ambedkar** saw urbanization as a chance for Dalit liberation.
- **Understanding Ambedkar's concept of urbanization**, the continuation of caste-based discrimination in urban areas, and the **ongoing struggles of Muslims and Dalits** to access public housing and services in cities are therefore crucial.

Challenges to Ambedkar's Vision

- Though he advocated for urbanization for marginalized populations, **Ambedkar was aware of the difficulties associated with urbanization.**
- His own experiences **convinced him that caste-based discrimination** may still exist in urban areas.
- Because of his caste, **he had trouble finding a place to live in Baroda** and was prevented from entering some areas of textile mills.
- Even so, he continued to be **enthusiastic about the liberating power of cities**, seeing them as places where people could live more freely and independently.

URBANISATION AND AMBEDKAR'S VISION



Possibility of Anonymity

- According to Ambedkar, **cities provide Dalits with a way to avoid the strict caste identities** that are upheld in rural areas, allowing a diverse community to remain anonymous.



Weakening of Caste Systems

- According to him, **Dalits had greater prospects for social mobility and economic independence in urban environments** since conventional caste systems were less rigid.



Possibility of Enhanced Social and Political Awareness

- Ambedkar also believed that **cities could foster a higher level of social and political consciousness.**
- Urban areas were more likely to have **civic engagement opportunities and educational institutions**, which might enable marginalized groups like Dalits to fight for their rights and take part in the political process.



Access to Resources

► Dalits may be able to raise their **standard of living and educational opportunities** by living in urban areas, which provide access to resources and services.

Enhanced Social and Economic Opportunities in Urban Areas

► **Ambedkar claimed that Dalits** will be able to advance socially and economically by finding new **economic opportunities and engaging** in a range of skilled labor positions in metropolitan areas.

► The opportunity to **escape the limitations of village life**, where caste frequently governed one's **employment and social connections**, was provided by cities.

Historical Context

► Ambedkar promoted urbanization as a calculated step away from the **caste-dominated village existence**, even in spite of the persistence of caste biases.

MEASURES TO ADDRESS URBAN CASTE DISCRIMINATION

Public efforts and the **inclusion of caste and prejudice studies** in school curricula could help with this.

Enhance Legal Frameworks

Current anti-discrimination laws must be enforced **more strictly**, and **urban specific legislation** addressing the particular difficulties Dalits confront in urban areas like housing and jobs should be introduced.

Programs for Raising Awareness and Education

Educating the **urban populace about the rights of Dalits** and the **value of inclusivity** will help **lessen discrimination**.

► Public efforts and the inclusion of caste and prejudice studies in school curricula could help with this.

Inclusive Urban Planning

Housing, facilities, and services should be **available** to everyone, regardless of caste, as part of a city's overall inclusive design. This involves creating **interconnected neighborhoods** and **allocating land in an equal manner**.

Tenant support services

Provide **tenant support services** to help those who are discriminated against because of their caste, obtain **accommodation** and **take legal action**.

Prospects for Employment

Increasing Dalits' access to education and training programs can help break the cycle of poverty and reliance on conventional caste-based jobs.

Conclusion

Indian cities have not lived up to **Ambedkar's ideal of urbanization as a means of achieving Dalit freedom**. Even while **moving to the city** may have made some caste oppressive systems weaker, caste has managed to survive in urban areas **thanks to changes in language, legislation, and state sanction**. The **necessity of addressing caste-based prejudice and advancing inclusion and equality in Indian cities** is highlighted by this continuous conflict.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following movements:

1. Mahad Satyagraha (1927)
2. Temple Entry Proclamation (1936) at Travancore
3. Guruvayur Satyagraha (1931-32)
4. Temple Entry Movement (1930) at Kalaram Temple in Nasik

How many of the above were the movements led by Dr. B.R. Ambedkar?

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

Answer: (d) 1 and 4 only

Descriptive Question

Q. To what extent has urbanization in India contributed to the dismantling of caste-based social hierarchies and the promotion of social progress? Enumerate the key socio-economic factors driving the migration of caste-based communities from rural to urban areas. [15 Marks] [250 words]

CHILDCARE LEAVE POLICY IN INDIA

Why in News: Recently, the Indian government's Childcare Leave (CCL) policy has been remained in debate due to several issues.

Understanding the Current Policy

- **Generous Leave Provisions:** Female central government employees are eligible for 730 days of paid CCL throughout their service period, applicable for up to two children under 18 years.
 - This significantly extends support beyond standard maternity leave.
- **Limited Eligibility:** Only single fathers qualify for CCL among men, potentially reinforcing traditional gender roles where childcare is primarily seen as a woman's responsibility.

Issues with the CCL Policy

- **Gender Bias:** The policy's focus on female employees, excluding most male employees, perpetuates the notion that childcare is primarily a woman's concern.
- **Limited Scope:** The policy is restricted to central government employees, excluding state government and private sector workers, creating an uneven playing field for working mothers across different sectors.
- **Implementation Challenges:** Applying CCL in smaller firms, particularly the vast majority of "micro" businesses with less than 10 employees, might be impractical due to resource constraints.
- **Potential Employer Bias:** Concerns exist that such policies might lead to unconscious bias against women in larger organizations.
 - Employers might perceive them as less reliable due to potential childcare-related leave, impacting hiring and career advancement opportunities.

Way Forward

1. **Uniform Application Across States:** The Supreme Court's recognition of CCL as a constitutional right necessitates its uniform application across all government sectors, not just the central government.
2. **Cultural Shift Towards Shared Parenting:** Redistribution of childcare responsibilities within families and communities is essential.
3. **Investing in the Care Economy:** Investing in childcare infrastructure, including crèches and daycare facilities, is crucial to create a supportive care ecosystem. **Promoting Gender-Neutral Policies:** Extending CCL benefits to single fathers and exploring similar policies for all parents.
4. **Addressing Implementation Challenges:** Tailored solutions are needed to make CCL feasible in smaller firms.

Conclusion

By addressing these critical aspects, India's CCL policy can evolve into a more inclusive and effective framework that empowers working parents while promoting gender equality in the workplace and society.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. The Directive Principles of State Policy "The State shall make provisions for securing just and humane conditions of work and for maternity relief." Comes under of the Indian Constitution.

(a) Article 39 (b) Article 42

(c) Article 45 (d) Article 47

Answer: b

Descriptive Question

Q. What are the key provisions of the Indian government's Childcare Leave (CCL) policy, and how does it aim to support working parents? [15 Marks] [250 words]

SURROGACY LAWS

Why in News: Restricted by surrogacy laws, Indians are going abroad to become parents.

About Surrogacy (Regulation) Act, 2021

- The act defines **surrogacy** as a practice where a **woman gives birth to a child** for an **intending couple** to hand over the child after the birth to the intending couple.
- Under the **Surrogacy (Regulation) Act, 2021**, a woman who is a widow or a divorcee between the age of 35 to 45 years or a couple, **defined as a legally married woman and man**, can avail of surrogacy if they have a medical condition necessitating this option.
 - The intended couple **shall be a legally married** Indian man and woman, the man shall be **between the ages of 26-55 years** and the woman shall be between the ages of 25-50 years, and shall **not have any previous biological, adopted, or surrogate child**.
- It also **bans commercial surrogacy**, which is punishable with a jail term of 10 years and a fine of up to Rs. 10 lakhs.
 - Commercial surrogacy includes surrogacy or its related procedures undertaken for a monetary benefit or reward (in cash or kind) exceeding the basic medical expenses and insurance coverage.
- The law **allows only altruistic surrogacy** where no money exchanges hands and where a surrogate mother is genetically related to those seeking a child.
- Rule 7 of the Surrogacy Act **bans use of donor eggs** for the procedure.
 - But The Supreme Court **stayed the operation of Rule 7** of the Surrogacy (Regulation) Act, 2021, to allow the woman suffering from the Mayer-Rokitansky-Küster-Hauser (MRKH) Syndrome a rare congenital disorder that affects the female reproductive system to **undergo surrogacy using a donor egg**.

SURROGACY IN INDIA WHO CAN ACCESS IT

- Married couples with medical conditions that makes conception impossible
- Widows or divorcees aged 35-45 years, but they need to use their own eggs

WHO CAN'T ACCESS IT

- Single persons
- Live-in couples
- LGBTQ couples



- In the exercise of powers conferred under the Surrogacy Regulation Act 2021, the Government has made the **Surrogacy Regulation Amendment Rules, 2024** to amend the Surrogacy Regulation Rules, 2022.
 - Couples (husband or wife), **certified** by the **District Medical Board** as suffering from **medical conditions**, do **not** require **both gametes** from the intending couple, provided that the child to be born through surrogacy must have at least one gamete from the intending couple.
 - Single women (widow or divorcee) undergoing surrogacy must use self-eggs and donor sperms to avail surrogacy procedure. (**Surrogacy (Regulation) Amendment Rules, 2024 will not be applicable for widowed or divorced women.**)

Concerns with the Surrogacy Law

- **Exploitation of the Surrogate and the Child:** The banning of commercial surrogacy moves from the **rights-based approach** to a **needs-based approach**, thus removing the women's autonomy to make their own reproductive decisions and right to parenthood.
- Altruistic surrogacy also **limits the option of the intending couple in choosing a surrogate mother** as very limited relatives will be ready to undergo the process.
- There is **exclusion of unmarried women, single men, live-in partners, and same-sex couples** from availing surrogacy services. This amounts to discrimination based on marital status, gender, and sexual orientation, and denies them the right to form a family of their choice

Conclusion

By focusing on inclusivity, ethics, and medical advancements, India can establish a robust legal framework for surrogacy that respects individuals' rights, ensures the well-being of all parties involved, and supports those seeking to start families through assisted reproductive technologies.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. With reference to the Surrogacy (Regulation) Act, 2021, consider the following statements:

1. It also banned the commercial surrogacy and declared it as punishable offense.
2. Surrogacy (Regulation) Amendment Rules, 2024 formulated under this Act says that a child to be born through surrogacy must have gamete from one of the parents.

Which of the statements given above is/are correct?

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

Answer: c

Descriptive Question

Q. Discuss the regulatory challenges and opportunities in addressing the complexities of cross-border surrogacy? What are the socioeconomic factors driving the trend of "reproductive tourism" among Indian individuals or couples? [15 Marks] [250 words]

PROTECTION OF WOMEN FROM DOMESTIC VIOLENCE ACT, 2005

Why in News: The **Delhi High Court** recently noted that the Protection of Women from Domestic Violence Act is a "means of social justice that **applies to every woman, regardless of her religious affiliation** or social background."

Key details of the Act

- It was enacted in 2006, the Act offers comprehensive protection to women from violence within their homes.
- It defines domestic **violence as physical, sexual, verbal, emotional, or economic** abuse inflicted by a husband, male partner, or their relatives.
- Notably, the Act extends protection to **mothers, sisters (including adopted)**, and female live-in partners.

Salient Features and Benefits

- **Right to Residence:** The Act ensures a woman's right to reside in the shared household irrespective of ownership.
- **Economic Relief:** It recognizes economic violence, empowering women to seek financial support.
- **Multifaceted Abuse Recognition:** Verbal and emotional abuse, often overlooked, are acknowledged as forms of domestic violence.
- **Speedy Justice:** The Act mandates judgements within **60 days of filing a case**.
- **Comprehensive Orders:** Courts can issue multiple orders in a single case, addressing various aspects of a victim's situation.

Protection Officers

- The Act mandates the **appointment of Protection Officers** to assist aggrieved women.
- These officers help file complaints, secure legal aid, and obtain court orders for protection.

PROTECTION OF WOMEN FROM DOMESTIC VIOLENCE ACT, 2005



Criticisms

Gender Bias

Some argue the Act overlooks violence against men. While this is a concern, the reality is that women disproportionately face domestic violence.

Misuse and False Accusations

The potential for misuse exists but safeguards are in place. Courts can penalize false complaints.

Family Disruption

While protection orders are crucial, promoting reconciliation services alongside legal remedies could be explored.

Legal Complexities and Delays

Streamlining procedures and providing legal aid are necessary to ensure faster resolution.

Need for a Holistic Approach

Combating domestic violence requires addressing societal issues like poverty, lack of education, and gender inequality.

Arguments for the Act

Comprehensive Legal Framework

The Act offers a specialized legal structure to tackle domestic violence against women.

Recognition of Diverse Abuses

It acknowledges various forms of abuse, ensuring broader protection.

Empowering Victims

Legal remedies like protection orders empower victims to fight for their safety and well-being.

Access to Support Services

The Act mandates support services like shelters, counseling, and legal aid, crucial for escaping abusive situations.

Promoting Gender Equality

The Act addresses the power imbalances that contribute to violence against women.

Fulfilling International Obligations

India's commitment to international treaties like CEDAW necessitates combating domestic violence.

Conclusion

The Protection of Women from Domestic Violence Act serves as a **vital legal tool in the fight against domestic violence**. Recognizing its limitations while acknowledging its strengths, a multi-pronged approach that combines legal remedies with social interventions is essential for creating a society free from domestic abuse.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements with reference to the Protection of Women from Domestic Violence Act, 2005:

1. It facilitates appointment of the Protection Officers to help the aggrieved woman.
2. Harassment by way of unlawful dowry demands to the woman are also covered under this Act.

Which of the statements given above is/are correct?

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

Answer: c

Descriptive Question

Q. The Protection of Women from Domestic Violence Act serves as a vital legal tool in the fight against domestic violence. In this regard discuss reasons for violence against women. Analyse role of society in women empowerment. [15 Marks] [250 words]

IRDAI REMOVES THE AGE LIMIT FOR HEALTH INSURANCE

Why in News: IRDAI has lifted age restrictions on health insurance purchases, allowing individuals aged 65 and above to buy new plans.

Key Details

- IRDAI directive mandates health insurance products to cater to **diverse demographic groups, including senior citizens, students, children, and maternity**, promoting broad scope for insurance companies.
- The insurance regulatory body mandates insurance firms to introduce policies benefiting **senior citizens** and establish special channels for **efficient claim and grievance redressal**.
- IRDAI's new regulations aim to improve healthcare in India by increasing access to health insurance for individuals with severe medical conditions like **cancer, heart disease, renal failure, and AIDS**.
- With effect from April 1, the Insurance Regulatory and Development Authority of India (IRDAI) has eliminated the age restriction for acquiring health insurance coverage.

India's Insurance sector

- The Indian insurance industry is a prominent sector experiencing significant growth. It stands as the **world's fifth largest life insurance market** within the emerging economies, boasting an impressive annual growth rate of 32-34%.
- This thriving industry comprises 57 insurance companies, with 24 dedicated to life insurance and 34 specializing in non-life insurance.
- Life Insurance Corporation (LIC) holds the distinction of being the **sole public sector entity within the life insurance domain**.
- The non-life insurance segment, however, incorporates six public sector insurers.
- **Regulatory Framework**
 - IRDAI serves as the paramount **regulatory body** responsible for overseeing and governing the Indian insurance sector.
 - This critical body plays a vital role in ensuring that insurance companies adhere to established **regulations, prioritize the interests of policyholders, and contribute to the stability** of the overall insurance market.

Limitations Inhibiting Growth in the Indian Insurance Sector

1	Low Insurance Penetration and Awareness Despite growing financial literacy initiatives, insurance penetration in India remains at a modest 4%. A significant portion of the population lacks awareness regarding the significance of insurance and its associated benefits, resulting in a substantial underinsured population.	Underwriting Risks Accurately assessing and pricing risks is fundamental to the long-term sustainability of insurance companies. Deficiencies in data collection and analytical capabilities can lead to mispriced risks, negatively impacting profitability.	6
2	Distribution Challenges Reaching customers in rural and remote areas remains a hurdle due to inadequate infrastructure and limited distribution networks. This restricted access to insurance products and services hinders the expansion of the insurance market.	Evolving Competitive Landscape The entry of new domestic and foreign players has intensified competition within the insurance sector. Established players must differentiate their offerings and adapt to the shifting market dynamics to retain their market share.	7
3	Regulatory Landscape While regulations are paramount for safeguarding consumers and ensuring market stability, excessively stringent regulatory requirements can sometimes stifle innovation and hinder the growth trajectory of the insurance sector.	Healthcare Cost Inflation Rising healthcare costs and the escalating prevalence of lifestyle-related diseases pose challenges for health insurance providers. Managing claims and maintaining profitability become difficult in such an environment.	8
4	Fraud and Misselling The prevalence of fraudulent activities and misselling of insurance products is a persistent challenge. Unethical practices by certain agents and intermediaries can erode consumer trust and confidence in the insurance industry.	Macroeconomic Considerations Economic downturns, inflation, and interest rate fluctuations can adversely impact the investment returns and overall profitability of insurance companies, potentially hindering their ability to fulfil their obligations to policyholders.	9
5	Technological Integration Traditional insurance companies grapple with the challenge of embracing new technologies and digital platforms. These advancements are crucial for enhancing customer experience, streamlining operations, and offering innovative insurance products.	Product Innovation and Customization Continuously developing customized and innovative insurance products that cater to the diverse needs of consumers while remaining affordable and profitable is an ongoing challenge for insurers.	10

The Insurance Regulatory and Development Authority of India (IRDAI)

- The Insurance Regulatory and Development Authority of India (IRDAI) functions as an independent statutory body established by the Indian Parliament through the Insurance Regulatory and Development Authority Act of 1999.
- Comprised of **10 members**, the IRDAI is structured with a **chairman, 5 full-time members, and 4 part-time members**.
- The organization is **headquartered in Hyderabad, India**, and is entrusted with the oversight and regulation of the country's insurance and reinsurance industry.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements with reference to the Insurance Regulatory and Development Authority of India (IRDAI):

1. It is the nodal agency for the certification of the insurance companies.
2. It adjudicates the disputes between insurers and insurance intermediaries.
3. It is obligatory for the IRDAI to ensure that insurers are providing the insurance facility for mentally ill.

How many of the above statements are correct?

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

Answer: c

Descriptive Question

Q. What was the rationale behind IRDAI's decision to lift age restrictions on health insurance purchases for individuals aged 65 and above? What are the potential implications of allowing individuals aged 65 and above to purchase new health insurance plans? [15 Marks] [250 words]

INDIA'S FOOD SAFETY SYSTEM

Why in News: Recent reports have exposed serious shortcomings in India's food safety system, raising concerns about the health of consumers and the country's reputation in the global food market.

Several critical issues

- **Unhealthy Baby Food:** The FSSAI is investigating Nestle's baby food products for excessive sugar content, potentially impacting child health.
- **Carcinogenic Additives in Spices:** Popular Indian spice brands like MDH and Everest have been flagged by authorities in Singapore and Hong Kong for containing potentially cancer-causing substances.
- **Salmonella Contamination:** The US rejected 31% of spice shipments from MDH in the past six months due to salmonella contamination, indicating significant hygiene problems.

- **Inconsistent Global Standards:** Indian food products face scrutiny in international markets like the EU, raising concerns about the overall safety and quality of exported food.

Concerns with the Food Safety and Standards Authority of India (FSSAI)

Staff and Infrastructure Shortages

The FSSAI struggles with insufficient manpower and inadequate infrastructure, hindering its ability to effectively monitor and regulate food safety.

Paperwork Mentality

Many businesses view regulations as mere paperwork, neglecting the potential for regular inspections and expert guidance.

Procedural Shortcomings

The FSSAI's actions in cases like the Vital Neutraceuticals incident of 2015 were overturned due to procedural errors, highlighting flaws in enforcement and regulatory processes.

Inadequate Consumer and Business Education

Despite its mandate, the FSSAI has been ineffective in educating both businesses and consumers about food safety practices.



Consequences of Regulatory Shortcomings

International Rejection

The US rejection of MDH spices shipments due to contamination exemplifies the impact on international trade.

Damaged Reputation

Inconsistent safety standards have led to increased scrutiny by international markets, potentially harming India's global food export reputation.

Legal Challenges

Procedural errors like those in the Vital Neutraceuticals case can lead to legal setbacks for the FSSAI.

Public Health Concerns

High sugar content in baby food and carcinogenic additives in spices pose significant public health risks.

Conclusion

By taking these steps, India can work towards building a robust and effective food safety system, safeguarding public health and regaining trust in its food exports.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements,

1. The Food Safety and Standards Act, 2006 replaced the Prevention of Food Adulteration Act, 1954.
2. The Food Safety and Standards Authority of India (FSSAI) is under the charge of Director General of Health Services in the Union Ministry of Health and Family Welfare.

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

Descriptive Question

Q. State the factors which contribute to the persistence of shortcomings in India's food safety system? What reforms or measures can be implemented to improve India's food safety system and address the deficiencies? [15 Marks] [250 words]

INDIA'S 4P MODEL

Why in News: Four crucial strategies have been effectively employed by India's Swachh Bharat Mission to improve public health and sanitation: partnerships, public financing, political leadership, and public participation.

Key Details

- Global leaders recently convened at the **World Bank-IMF** spring meetings to discuss how to further the goals of the 2023 Paris Pact for People and the Planet (4P).
- This international agreement, echoing an earlier framework established at the 2018 Mahatma **Gandhi International Sanitation Conference (MGISC) in Delhi**, aims to combat poverty and promote environmental responsibility.
- **Co-hosted by Prime Minister of India and UN Secretary-General Guterres**, the **MGISC** established **India's 4Ps** political leadership, public funding, partnerships, and public participation as a cornerstone for successful development strategies.

India's Four Pillars for Development

Political Leadership

- ▶ Indian Prime Minister's leadership proved pivotal in transforming India's sanitation landscape, as exemplified by the Swachh Bharat Mission (SBM).
- ▶ His unwavering commitment led the nation to confront the issue of open defecation, significantly improving the lives of women and girls through restored dignity and safety.
- ▶ By setting ambitious goals and closely monitoring progress, PM galvanized national efforts towards a cleaner India.



Public Financing



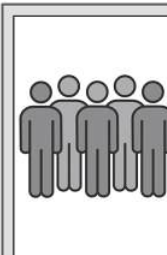
- ▶ The dedication of public funds to sanitation underscored its critical role in poverty reduction and improved living standards.
- ▶ The Indian government's significant investment of \$20 billion demonstrated its commitment to financing initiatives essential for sustainable development.
- ▶ This commitment resonated internationally, prompting other countries to prioritize sanitation as a cornerstone of development.

Private Partnerships

- ▶ Partnerships were instrumental in the SBM's success. Collaborative efforts involved international organizations, NGOs, local governments, and community groups.
- ▶ The SBM transcended a mere government program, evolving into a collective endeavour driven by diverse stakeholders with a shared vision.
- ▶ Prime Minister's active engagement as a key communicator further strengthened the effectiveness of these partnerships.



People's Participation



- ▶ The SBM prioritized community engagement, empowering them to take ownership of sanitation initiatives.
- ▶ Rural communities across India spearheaded mass movements to achieve open defecation-free status, with women and girls taking on leadership roles.
- ▶ This grassroots participation not only ensured the program's success but also laid a sustainable foundation for future development efforts.

Achievements of the Swachh Bharat Abhiyan in promoting cleanliness and sanitation

- **Sanitation Coverage:** Increased from 39% in 2014 to 100% in 2019 in rural India (Swachh Bharat Mission-Gramin). Aims to achieve Open Defecation Free Plus (ODF Plus) status by 2024-25.
- **Open Defecation Free (ODF) Status:** Approximately 85% of villages have achieved ODF Plus status.
- **Toilet Access:** 95% of India's rural population has access to toilets (National Annual Rural Sanitation Survey Round 3). 79% of rural households own their toilet facilities.

- **Public Toilets:** Over 6 lakh community and public toilets constructed across India.
- **Waste Management:** Improved door-to-door waste collection, waste segregation, and scientific processing in many cities and towns. Investment of over Rs 20,000 crores for solid and liquid waste management systems.
- **Behavioural Change and Awareness:** Extensive awareness campaigns have promoted behavioural change and a focus on cleaner practices. Sanitation and cleanliness have become a prominent topic in public discourse.
- **Competition for Cleanliness:** Initiatives like Swachhta leagues and clean city rankings have encouraged positive competition among towns and cities. Surveys indicate increasing public satisfaction with sanitation and cleanliness.

Conclusion

India's four-pronged approach to development, **emphasizing political leadership, public funding, collaboration, and public engagement**, offers a successful model for achieving goals like the SDGs. This strategy, exemplified by the Swachh Bharat Mission and championed by Prime Minister, is crucial for addressing global issues like climate change and pandemics.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. With reference to the 'Swachh Bharat Mission (Gramin),' consider the following statements:

1. It is only sanitation programme implemented by 'Department of Drinking Water and Sanitation.'
2. It involves the construction of 'Community Sanitary Complexes (CSCs).'
3. It provides subsidies to farmers for constructing Vermicompost production units to prevent the stubble burning.

How many of the above statements are correct?

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

Answer: (b) 2 only

Descriptive Question

Q. Discuss the challenges and barriers encountered in implementing the Swachh Bharat Mission, and identify strategies for overcoming them to ensure sustained progress towards universal sanitation coverage. [15 Marks] [250 words]

HISTORY & CULTURE

AHOBILAM TEMPLE

Why in News: The Forest Department and **Sri Lakshmi Narasimha Swamy Devasthanam** (mostly known as Yadadri) at **Ahobilam**, (Kurnool District of Andhra Pradesh) have imposed certain restrictions on visitors arriving at the shrine, which is composed of **nine different temples**, situated in the **Nallamala forest**.

Key Details

- The forest area covers the **Nagarjunasagar-Srisailem Tiger Reserve**, which was declared a tiger reserve in 1983.
- The **Ahobilam National Tiger Conservation Authority**, constituted as per the provisions of the Wildlife Protection Act, 1972, by the Ministry of Forests, Environment and Climate Change, oversees the rare flora and fauna species specific to the region.
- The forest area around the Pavana Narasimha temple is home to **red sanders, leopards, deer and tigers**.

About Ahobilam

- **Brahmanda Purana** states that it was the dwelling of the demon king **Hiranyakashipu** who was killed by Vishnu in the form of **Narasimha** in order to save his devotee **Prahlada**.
- It is also counted among the **108 Vaishnava Divyadesams**.
 - **Vaishnava Divyadesams** are **Vishnu and Lakshmi temples** that is mentioned in the works of the **Alvars**, the **poet-saints of the Sri Vaishnava tradition**.
- **Ahobilam Narasimha Temple:** This temple is the **primary and oldest** among the nine temples in Ahobilam.

Paruveta Festival

The festival, also known as the '**mock hunting festival**', is celebrated at the **Sri Narasimha Swamy temple** in the town of **Ahobilam, Andhra Pradesh**.

It is celebrated by **all sections of people**, irrespective of their caste.

During the festival, the deity from the temple's inner sanctum is taken to **the 32 Chenchu tribal villages** surrounding Ahobilam town for a duration of 40 days.

About Nagarjunasagar-Srisailem Tiger Reserve



About

It is the largest tiger reserve in India.

Declared

Tiger reserve in 1983, it covers 3,727.82 sq km, encompassing core and buffer areas.

Vegetation

Tropical dry deciduous forests having an undergrowth of bamboo and grass.

The river Krishna traverses through this reserve for a linear distance of around 270 kilometers.

Overnight stays are prohibited to mitigate man-animal conflict, especially with nocturnal animal movements.

Restrictions

They are imposed due to the intense heatwave to ensure the safety of wild animals, including a ban on plastic usage, with designated deposition points at the Cheethal base camp.

Prohibition

One of the prominent tribes in the tiger reserve is the Chenchu tribe. The Chenchus are an indigenous tribal group known for their traditional hunting and gathering practices.

Conclusion

Centuries of conflict and accommodation among forest, hill, and field dwellers in the Eastern Ghats have shaped their history and culture. These interactions have resulted in unique legends, traditions, and rituals that continue to influence the lives of the people in the region.

Expected Questions For UPSC CSE

Prelims MCQ

Q. With reference to the Nagarjunasagar Srisailem Tiger Reserve (NSTR), consider the following statements:

1. It is located in the Ananthagiri hill ranges.
2. It spreads across Prakasam, Nandyal and Palnadu Districts of Andhra Pradesh.
3. Rajiv Gandhi Wildlife Sanctuary and Gundla Brahmeswaram Wildlife Sanctuary (GBM) constitute this Tiger Reserve.

How many of the above statements are correct?

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

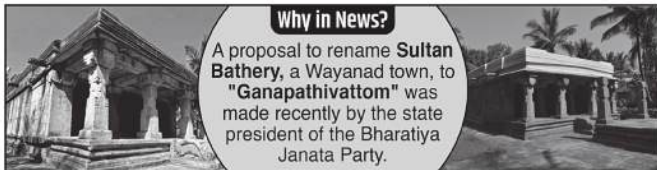
Answer: (b) 2 and 3 only

Descriptive Question

Q. Discuss the significance of Project Tiger and also discuss the importance of Tiger Reserves in the conservation efforts of the big cat. [15 Marks] [250 words]

SULTHAN BATHERY

Sulthan Bathery



Key Details

- **Sulthan Bathery**, which was formerly known as **Ganapathyvattam**, is one of the three municipal towns in Wayanad, along with **Mananthavady** and **Kalpetta**.
- **Sulthan Bathery** name came into being during **Tipu Sultan's** invasion.
- Ganapathyvattam was utilized as an **ammo battery** by the troops of the **Mysuru monarch**, and the town was dubbed "**Sultan's Battery**" in British documents.

Location

- **Ganapathyvattam**, a Jain stone temple, is located at **Sulthan Bathery**.
- It is located in the **Ambukuthi Hills** to the southwest. **Neolithic** carvings are preserved on the walls of **Edakkal Caves**.

Construction

- Constructed in the **Vijayanagara architectural style**, **Wayanad** was built by **Jains** who arrived in the **13th century** from regions that are now part of **Tamil Nadu** and **Karnataka**.
- During the **second half of the 18th century**, **Tipu Sultan**, the ruler of **Mysore**, invaded the temple, partially destroying it.
- The temple is a part of the **Kerala's Jain circuit**.

Currently, it is a **monument of national significance** under the **Archaeological Survey of India**.

Expected Questions For UPSC CSE

Prelims MCQ

Q. Consider the following statements with reference to the Ganapathyvattam temple:

1. It is a Jain Temple.
2. It was constructed in the Vijayanagara architectural style.
3. It is located in the Ambukuthi Hills in Kerala.

How many of the above statements are correct?

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

Answer: (c)

Descriptive Question

Q. What is the Vijayanagara style of Temple Architecture? Enumerate the difference of Vijayanagara style from Nagara style? [10 Marks] [150 words]

VAIKOM SATYAGRAHA

Why in News: The year 2024 marked the **centenary of the Vaikom Satyagraha**, a non-violent protest that stands as a landmark in India's fight against caste-based discrimination.

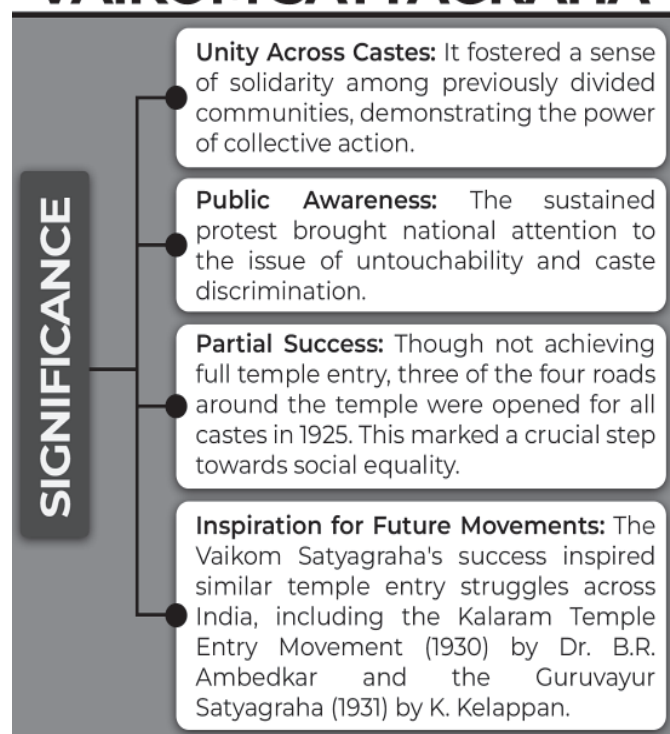
Vaikom Satyagraha

- This movement, which unfolded in the erstwhile **princely state of Travancore (present-day Kerala)**, challenged the exclusion of lower-caste Hindus from accessing the **Vaikom Mahadeva Temple** and its surrounding public roads.
- The seeds of the Vaikom Satyagraha were sown in 1917 when **T.K. Madhavan**, a prominent **Ezhava** leader, highlighted the issue of exclusion in an editorial published in his newspaper, **Deshabhimani**.
- This ignited a fire, culminating in a **resolution** passed at the **1923 Indian National Congress session in Kakinada** prioritizing the fight against untouchability.
- The Vaikom Satyagraha, **launched in 1924**, embraced the Gandhian philosophy of non-violent resistance.
- The movement involved groups of three Satyagrahis, representing different **communities like Nairs, Ezhavas, and Pulayas**, peacefully approaching the restricted areas. Notably, the **first group was led by K.P. Kesava Menon**.
- The leadership of the Satyagraha boasted stalwarts like **T.K. Madhavan**, **K. Kelappan** (known as **Kerala Gandhi**), **K.P. Kesava Menon**, and **George Joseph**.
- The movement received a significant boost with visits and expressions of **solidarity from Mahatma Gandhi, C. Rajagopalachari, and E.V. Ramasamy (Periyar)**.

A Testament to Resilience

- The Vaikom Satyagraha stretched **for an extraordinary 603 days**, fostering a spirit of unity across caste lines.
- This unwavering commitment ultimately yielded results.
- In 1925, three of the four roads surrounding the temple were opened to all castes, marking a partial victory for the movement.
- However, the fight for complete equality continued. Finally, **in 1936, the Maharaja of Travancore issued a Temple Entry Proclamation**, granting access to marginalized communities.

VAIKOM SATYAGRAHA



Limitations of the Satyagraha

- **Incomplete Victory:** The Satyagraha did not achieve its initial goal of granting full access to the temple. The eastern road and the temple itself remained closed to lower castes until the Temple Entry Proclamation in 1936.
- **Limited Scope:** The movement primarily focused on caste-based discrimination within Hinduism, not addressing the broader inequalities faced by marginalized communities.

Conclusion

The Vaikom Satyagraha, though falling short of complete victory, stands as a landmark in India's struggle for social reform. It fostered unity, raised awareness, and inspired further movements.

Expected Questions For UPSC CSE

Prelims MCQ

- Q. Vaikom Satyagraha was launched in 1924 to
- fight against untouchability.
 - oust the French from the Northern Circars.
 - raise the salt duty from 50 paise to one rupee.
 - resist against the administrative reorganization.

(a) :Answer

Descriptive Question

- Q. Analyse the Significance of the Vaikom Satyagraha in the struggle against caste-based discriminations in Modern Indian History? [10 Marks] [150 words]

50TH YEAR OF CHIPKO MOVEMENT

Why in News: Recently, 50 years have been completed for the Chipko Movement, the landmark environmental movement that was started in Uttarakhand in 1973.

Chipko Movement

- The Chipko movement, meaning **"to embrace"** in Hindi, holds immense significance in India's environmental history.
- It was a **non-violent movement that arose in 1973** in the **Chamoli district of Uttarakhand (then Uttar Pradesh)** to protect trees from being felled.
- It was led by environmental activists like **Sundarlal Bahuguna and Gaura Devi**, the movement gained recognition for its unique strategy – villagers, primarily women, hugging trees to prevent their cutting.
- The Chipko movement serves as a constant reminder of the crucial role communities play in environmental conservation.

About Chipko Movement

Origin and Inspiration: While the 1973 movement in Uttarakhand is widely recognized, the **Chipko spirit has roots in the 18th century.**

► **Rajasthan's Bishnoi community**, known for their deep reverence for nature, had a long history of protecting trees, inspiring the Chipko movement's philosophy.

The Chipko movement stands out for its **remarkable mobilization of women in environmental activism.**

It embodied the **principles of eco-feminism**, a philosophy that recognizes the inherent link between the exploitation of women and the degradation of the natural world.

Understanding Eco-Feminism

Eco-feminism challenges the dominance of a capitalist, patriarchal system that prioritizes profit over environmental well-being. It argues that:

- **Intertwined Exploitation:** There are inherent parallels between the subjugation of women and the unsustainable exploitation of nature within patriarchal societies.
- **Significance of Traditional Knowledge:** Women often hold and transmit vital traditional ecological knowledge, crucial for promoting sustainable practices.
- **Women's Lived Experiences:** Women often have a closer, more dependent relationship with the natural environment due to their responsibilities in collecting water, firewood, etc.

Contemporary Relevance of Eco-Feminism

In today's world, eco-feminism remains critically relevant due to its emphasis on:

- **Critique of Capitalist Exploitation:** Challenging the unsustainable resource extraction driven by profit motives.
- **Valuing Traditional Knowledge:** Recognizing the importance of indigenous communities' ecological wisdom.
- **Environmental Justice:** Advocating for equitable access to environmental resources and addressing the disproportionate impact of environmental degradation on marginalized communities.

Other Movements

- Additional significant eco-feminist movements include the **Narmada Bachao Andolan (1985)**, spearheaded by environmental advocate Medha Patkar to oppose the construction of a massive dam on the Narmada River.
- The **Appiko Movement (1980s) in Karnataka's Western Ghats**, influenced by the Chipko movement, saw women embracing trees to halt deforestation.
- The **Silent Valley Movement (1973)** aimed to preserve a rainforest in Kerala from inundation due to a hydroelectric project. Women also played pivotal roles in addressing human and environmental injustices during the notorious Bhopal Gas tragedy.

Way Forward

The Chipko movement's legacy serves as a guiding light for future environmental action:

- **Community Participation:** Active involvement of local communities is essential for effective environmental conservation efforts.
- **Empowering Women:** Recognizing women's leadership and traditional knowledge is crucial for sustainable resource management.

- **Prioritizing Ecological Well-being:** Environmental protection must be placed at the forefront of development policies.
- **Challenging Unsustainable Practices:** Critically examining and addressing the root causes of environmental degradation, such as excessive resource extraction.
- **Promoting Environmental Justice:** Ensuring equitable access to environmental resources and addressing the unequal impact of environmental issues on marginalized communities.

By learning from the Chipko movement and embracing eco-feminist principles, we can create a more just and sustainable future for all.

Expected Questions For UPSC CSE

Prelims MCQ

Q. Which of the following statements is/are correct with reference to the Chipko movement?

1. It was a non-violent movement that arose in 1973 in the Chamoli district of Uttarakhand (then Uttar Pradesh) to protect trees from being felled.
2. The Chipko movement stands out for its remarkable mobilization of women in environmental activism.

- (a) Only 1 (b) Only 2
(c) None (d) Both

Answer: (d)

Descriptive Question

Q. Chipko movement has completed 50 years, now is time for Chipko 2.0; Discuss. Also evaluate the importance of it on the environment conservation movement in the India. [15 Marks] [250 words]

THE OLYMPICS OF THE ART WORLD

Why in News: During a period of global unrest, the initiative referred to as the "Olympics of the art world," which endeavors to include all participants irrespective of their political affiliation, signifies a positive development.

Key Details

- The 60th edition of the Venice Biennale, often dubbed the Olympics of the art world, has recently been inaugurated.
- This year's exhibition will feature various artists under the central theme "**Stranieri Ovunque**" or "**Foreigners Everywhere**."

Origin of the Venice Biennale

- The term “Biennale” is Italian for ‘every other year,’ but it has come to signify a major international exhibition held biennially.
- Unlike regular exhibitions, biennales are organized on a large scale and span multiple venues.
- These exhibitions showcase contemporary art from various countries, typically linked by a common theme, allowing for the exploration of contemporary social, economic, and political ideas in an international context.
- In 1893, Venice’s city government proposed establishing a national biennial art exhibition to commemorate the silver anniversary of King Umberto I of Italy and Margherita of Savoy.
- Although planned to open in 1894, the Biennale was delayed and eventually inaugurated on April 30, 1895.
- Initially, the Biennale displayed selected works of artists

without overarching themes or concepts, a practice that evolved in subsequent years.

Format of the Venice Biennale

- The Biennale spans seven months and includes three main components: the central pavilion, national pavilions, and collateral events.
- The central pavilion serves as the focal point, featuring the main exhibition curated by the selected curator.
- National pavilions are managed by individual countries’ ministries of culture, often with private funding. These pavilions highlight each nation’s unique artistic contributions.
- Belgium was the first foreign nation to construct a pavilion in 1907, followed by Germany, Britain, and Hungary within the same decade.
- While India does not have a permanent national pavilion, it has officially organized exhibitions at the Biennale in 1954, 2011, and 2019.

Venice Biennale

Key Details

- The 60th edition of the Venice Biennale, often dubbed the Olympics of the art world, has recently been inaugurated.
- This year’s exhibition will feature various artists under the central theme “Stranieri Ovunque” or “Foreigners Everywhere.”

Participation of India

- India’s participation in the Venice Biennale began in 1954 with the nation’s first official display, which was arranged by the Indian Embassy in Rome.
- Indian artists have contributed to the Biennale’s rich artistic tapestry over the years by showcasing their works there, including M.F. Husain, S.H. Raza, Jamini Roy, and Amrita Sher-Gil.
- Even with its sporadic participation, the Ministry of Culture, Lalit Kala Akademi, and private establishments such as Kiran Nadar Museum of Art (KNMA) have arranged exhibitions that have established India’s presence.

India’s Participation 2024

- With pieces by renowned modernists and contemporary artists on display in the main exhibition, Indian artists will once again be represented in the upcoming 2024 Venice Biennale.
- Prominent Indian painters such as B Prabha, S.H. Raza, Ram Kumar, and Amrita Sher-Gil will have their pieces on show with the Aravani Art Project, a group of public artists that promotes diversity and representation.

Expected Questions For UPSC CSE

Prelims MCQ

Q. The term “Venice Biennale” signifies?

- (a) An art exhibition held in Venice, Italy.
- (b) A Poverty Alleviation Programme launched by the United Nations.

(c) A space mission launched by Italy.

(d) None of the above.

Answer: (a)

Descriptive Question

Q. Explain the relevance of “Venice Biennale”, often dubbed the Olympics of the art world, in uniting the world in times of global uncertainties? [10 Marks] [150 words]

GOVERNMENT SCHEMES

CDP-SURAKSHA

Why in News: The Indian government has introduced a novel platform called CDP-SURAKSHA, designed to facilitate the distribution of subsidies to horticulture farmers participating in the Cluster Development Programme (CDP).

CDP-SURAKSHA

01

*It's abbreviated as **System for Unified Resource Allocation, Knowledge, and Secure Horticulture Assistance (CDP-SURAKSHA)**.*

02

*This digital platform enables the immediate transfer of subsidies to farmers' bank accounts using e-RUPI vouchers from the **National Payments Corporation of India (NPCI)**.*

The Cluster Development Program (CDP)

- **Overview:** This initiative forms part of the central sector scheme managed by the National Horticulture Board (NHB).
- **Initiative:** Launched by the Ministry of Agriculture and Farmers Welfare (MoA&FW) in 2021.
- **Purpose:** Aimed at leveraging the geographical concentration of horticultural clusters, the program seeks to promote comprehensive and market-driven progress in pre-production, production, post-harvest management, logistics, branding and marketing activities.

Purpose and Significance

- The CDP-SURAKSHA aims to boost India's horticulture sector, which contributes nearly one-third to the agricultural gross value addition (GVA) and plays a substantial role in the Indian economy.
- Over the years, horticulture crop production has surged significantly, from 240.53 million tonnes in 2010-11 to 334.60 million tonnes in 2020-21.

How CDP-SURAKSHA Works?

- **Digital Platform:** CDP-SURAKSHA operates as a digital platform.
- **Instant Subsidy Disbursal:** It enables the immediate transfer of subsidies to farmers' bank accounts.
- **e-RUPI Voucher:** Farmers receive subsidies through the e-RUPI voucher, facilitated by the National Payments Corporation of India (NPCI).

Features of CDP

01

Database Integration : Links with PM-KISAN (Pradhan Mantri Kisan Samman Nidhi) database.

02

Cloud-Based Server Space: Utilizes server space from the National Informatics Centre (NIC).

03

UIDAI Validation: Validates farmers' identity through the Unique Identification Authority of India (UIDAI).

04

Local Government Directory (LGD): Incorporates local government information in the database for effective implementation.

05

Content Management System: Manages relevant content related to scheme.

06

Geotagging and Geo-fencing: Ensures location-based accuracy. Geotagging assigns geographic coordinates to data, while geo-fencing sets virtual boundaries, enabling location-based services and ensuring compliance within defined areas.

Farmer Interaction

- **Access:** The platform is accessible to farmers, vendors, implementing agencies (IA), cluster development agencies (CDAs), and officials of the National Horticulture Board (NHB).
- **Order Placement:** Farmers can log in using their mobile numbers and place orders for planting material (seeds, seedlings, and plants) based on their requirements.
- **Cost Sharing:** After raising a demand, farmers contribute their share of the planting material cost.
- **Subsidy Display:** The system automatically displays the government's subsidy amount.
- **e-RUPI Voucher Generation:** Upon the farmer's contribution, an e-RUPI voucher is generated.
- **Material Delivery:** Vendors receive the voucher and provide the required planting material to the farmer.

- **Verification:** Farmers verify material delivery through geo-tagged photos and videos of their fields.

Horticulture Sector in India

- India ranks second globally in fruit and vegetable production, comprising nearly 90% of total horticulture output.
- This sector contributes 33% to the agriculture Gross Value Added (GVA), significantly boosting the economy.
- Despite cultivating on a smaller land area (25.66 million hectares for horticulture versus 127.6 million hectares for food grains), India produces 320.48 million tons of horticulture produce, surpassing food grain production.
- Horticulture crops exhibit superior productivity, averaging 12.49 tons per hectare compared to 2.23 tons per hectare for food grains.
- The FAO recognizes India's leadership in producing certain vegetables (ginger and okra) and fruits (banana, mangoes, and papaya).
- However, India holds only a 1% share in the global horticultural market, ranking 14th in vegetable exports and 23rd in fruit exports.
- Major export destinations include Bangladesh, UAE, Nepal, Netherlands, Malaysia, Sri Lanka, UK, Oman, and Qatar.
- Alarming, 15-20% of India's fruits and vegetables are wasted along the supply chain, contributing to greenhouse gas emissions.

Challenges Faced by the Horticulture Sector

- **Infrastructure Bottlenecks:** Limited cold storage facilities, inadequate transportation networks, and poor packing infrastructure lead to substantial post-harvest losses (estimated at 20-30%).
- **Water Scarcity and Management:** Horticulture crops are water intensive. Unequal water distribution, inefficient irrigation practices and climate change pose challenges to sustainable water management.
- **Pest and Disease Management:** Crop damage due to pests and diseases significantly reduces yields. Inappropriate pesticide use can harm the environment and human health.
- **Market Linkages and Price Fluctuations:** Limited access to organized markets and fluctuating prices due to seasonality and perishability discourage farmers and lead to income instability.
- **Quality Standards and Compliance:** Meeting stringent quality standards and certifications for domestic and international markets can be difficult for small-scale producers, limiting their market reach.

Government Initiatives for Promotion of horticulture

- **National Horticulture Mission (NHM):** Provides

financial assistance for infrastructure development, technical expertise and market linkages.

- **National Horticulture Board (NHB):** Offers financial aid, technical guidance and market intelligence to stakeholders across the horticulture value chain.
- **Cluster Development Programme (CDP):** Promotes integrated development of pre-production, production and post-harvest activities within geographically specialized clusters.
- **Mission for Integrated Development of Horticulture (MIDH):** Integrates various horticulture development schemes for holistic support from pre-production to marketing.
- **Rashtriya Krishi Vikas Yojana (RKVY):** Provides financial assistance to states for infrastructure development, capacity building, and other interventions.
- **Sub-Mission on Agriculture Mechanization (SMAM):** Promotes mechanization in horticulture activities to improve efficiency and reduce labour dependency.

Conclusion

In conclusion, CDP-SURAKSHA revolutionizes subsidy disbursal in horticulture by employing a digital platform for instant transfer to farmers' bank accounts. With robust features like database integration, UIDAI validation, and geotagging, it ensures transparency, efficiency, and equitable access to subsidies, driving holistic growth in the agricultural sector.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

- Q. The 'CDP-SURAKSHA,' was recently launched by the government of India to
- Establish the new national architecture for civil services capacity building at individual, institutional and process levels.
 - Sanction loans up to rupees 10 Lakhs to those who have a business plan to generate income from a non-farm activity.
 - Support the 'Make in India' campaign for encouraging the manufacturing sector.
 - Facilitate the distribution of subsidies to horticulture farmers participating in the Cluster Development Programme (CDP).

(d) :Answer

Descriptive Question

- Q. The CDP-SURAKSHA aims to boost India's horticulture sector, substantiate statement with appropriate examples? [10 Marks] [150 words]

ELECTRIC MOBILITY PROMOTION SCHEME

Why in News: The Indian government recently launched the Electric Mobility Promotion Scheme (EMPS) 2024, marking a significant step towards promoting electric vehicles (EVs) in the country.

Key Details

This scheme follows the successful implementation of FAME I and FAME II, which played a vital role in driving EV adoption.

Electric Vehicle Sector in India

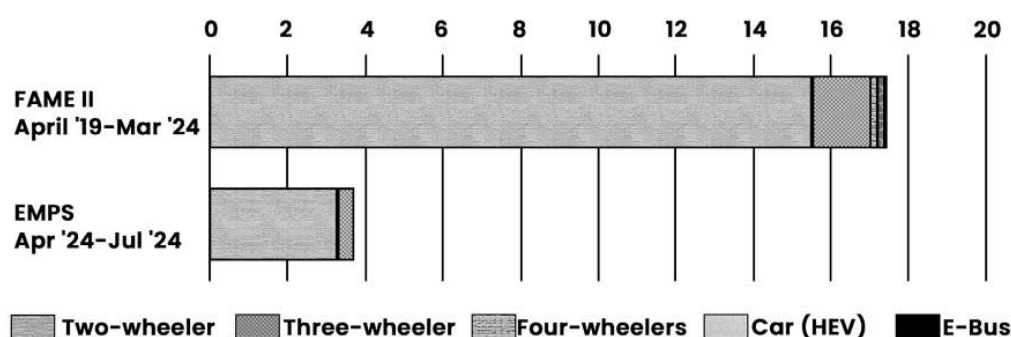
- A report by Fortune Business Insights projects the Indian EV market to surge from \$3.21 billion in 2022

to a staggering \$113.99 billion by 2029, reflecting a compounded annual growth rate (CAGR) of 66.52%.

- This exponential growth signifies the industry's potential to revolutionize India's transportation sector.

Building on FAME's Legacy

- FAME I (2015-2019):** Introduced to promote electric and hybrid vehicles with an initial outlay of Rs. 895 crores.
- FAME II (2019-2024):** Expanded the scheme with a larger outlay of Rs. 11,500 crores, emphasizing advanced battery technologies.
- EMPS 2024:** Aims to further incentivize green mobility and domestic EV manufacturing with a targeted approach.



Key Features of EMPS 2024

01

Focus on Two and Three-Wheelers

Recognizes the segment's crucial role in India's EV revolution due to affordability, running costs, and ease of use.

02

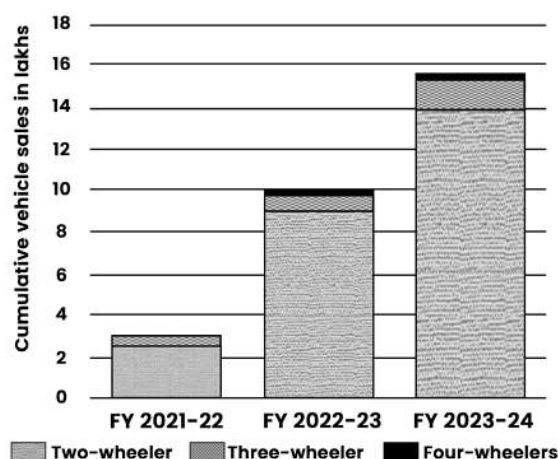
Limited-Term Scheme

Offers financial support for four months (April-July 2024) with a total outlay of Rs. 500 crores.

03

Demand Incentives

Provides subsidies for electric two-wheelers and three-wheelers (e-rickshaws, e-carts, e-autos).



Analysis

- Reduced Financial Support:** EMPS 2024's budget is significantly lower compared to FAME II's Rs. 11,500 crore allocation.
- Multiple Caps and Lower Benefits:** The new scheme offers an incentive of Rs. 5,000 per kWh battery capacity, capped at 15% of the ex-factory cost or a maximum limit (Rs. 10,000 for two-wheelers, Rs. 25,000 for e-rickshaws/e-carts, Rs. 50,000 for e-autos).
 - This translates to a substantial reduction in monetary support, potentially impacting vehicle affordability.
- Re-registration Roadblock:** EMPS mandates online re-registration for manufacturers, dealers and vehicles to be eligible for subsidies. This could create initial hurdles for both manufacturers and consumers.

Way Forward

- Balancing Incentives and Sustainability:** The government needs to find a balance between reducing financial support and ensuring continued EV affordability to maintain healthy adoption rates.
- Focus on Charging Infrastructure:** Developing a robust and widespread charging infrastructure across India is crucial to address range anxiety and encourage EV usage.
- EV Manufacturing Ecosystem:** Continued support for domestic EV component manufacturing is essential to achieve self-reliance (Atmanirbhar Bharat) in the EV sector.

- **Innovation and Technology:** Promoting research and development in battery technology is key to improve range, performance, and affordability of EVs.
- **Consumer Awareness:** Initiatives to educate consumers about the benefits of EVs and dispel range anxiety are necessary to drive wider acceptance.

Conclusion

The Electric Mobility Promotion Scheme 2024 marks a crucial step in India's journey towards a sustainable future. While the reduction in financial support compared to FAME II is a concern, the scheme's focus on key areas like EV manufacturing and green mobility holds promise.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements with regard to The Electric Mobility Promotion Scheme (EMPS) 2024:

1. The scheme is under the purview of the Ministry of Heavy Industries.
2. It focuses on Two and Three wheelers because of their affordability and ease of use.
3. It aims to incentivize green mobility and domestic EV manufacturing with a targeted approach.
4. It mandates online re-registration for manufacturers, dealers, and vehicles to be eligible for subsidies.

Which of the above statements is/are correct?

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

Answer: (c) (1, 2, 3, and 4)

Descriptive Question

Q. Electric vehicles represent futuristic mode of transportation. Discuss with reference to the statement the challenges involved and ways to increase the adoption of the electronic vehicles in India? [15 Marks] [250 words]

FINANCING AGROCHEMICAL REDUCTION AND MANAGEMENT (FARM) PROGRAMME

Why in News: The Global Environment Facility (GEF) recently launched a new initiative called the Financing Agrochemical Reduction and Management (FARM) Programme.

About the FARM Programme

- **A Global Effort:** FARM is a first-of-its-kind global program with a total budget of \$379 million. It aims to

tackle the widespread use of harmful pesticides and agricultural plastics in food production.

- **Focus Areas:** The program will focus on two key areas:

- **Discouraging harmful practices:** FARM will work to incentivize farmers to move away from using pesticides containing persistent organic pollutants (POPs) and mismanaged agricultural plastics.
- **Promoting Sustainable Alternatives:** The program will actively encourage the adoption of safer, low-chemical, and non-chemical alternatives for pest control and agricultural practices.

- **Implementation Framework**

- **Policy and Regulation:** FARM will support the development and implementation of stricter government regulations to phase out POPs-containing agrochemicals and agricultural plastics.
- **Financial Incentives:** This includes strengthening banking, insurance, and investment criteria to make financing for effective pest control alternatives, sustainable production methods, and trade in eco-friendly produce more readily available.

- **Participating Countries:** The initial phase of FARM will be rolled out in seven countries: India, Ecuador, Kenya, Lao PDR, the Philippines, Uruguay, and Vietnam.

- **Implementing Partners:** The program is spearheaded by the United Nations Environment Programme (UNEP) with support from several key international organizations:

- Asian Development Bank (ADB)
- United Nations Development Programme (UNDP)
- United Nations Industrial Development Organization (UNIDO)
- In-country execution will be carried out by the Food and Agriculture Organization (FAO).

- **Project Timeline:** FARM is a five-year program designed to create a lasting impact on agricultural practices.

Global Environment Facility (GEF)

- GEF was established in 1992 at the historic Rio Earth Summit, GEF is a unique partnership of 18 agencies, including UN institutions, multilateral development banks, and non-governmental organizations.
- GEF serves as the financial mechanism for five crucial international environmental conventions:
 - Minamata Convention on Mercury
 - Stockholm Convention on POPs
 - UN Convention on Biological Diversity (UNCBD)
 - UN Convention to Combat Desertification (UNCCD)
 - UN Framework Convention on Climate Change (UNFCCC)

- With over 180 member countries, including India, GEF plays a pivotal role in mobilizing resources and fostering international cooperation to address global environmental concerns.

Challenges

- **Cost Factor:** Sustainable alternatives might be initially costlier than conventional methods. Bridging this gap requires financial support for farmers transitioning to sustainable practices.
- **Technological Availability:** Widespread adoption of eco-friendly alternatives necessitates readily available and effective technologies across diverse agricultural landscapes.
- **Capacity Building:** Equipping farmers with the knowledge and skills necessary to implement sustainable practices is crucial. Training programs and extension services are essential to ensure successful adoption.
- **Market Access:** Creating robust market channels for sustainably produced agricultural products is key. This incentivizes farmers and ensures profitability.

Way Forward

FARM offers a promising path forward for a more sustainable agricultural future. Here are five key steps to ensure its success:

1. **Public-Private Partnerships**
Collaboration between governments, financial institutions, and agricultural technology companies is essential to develop and promote cost-effective sustainable solutions.
2. **Consumer Awareness**
Educating consumers about the importance of sustainable agriculture will create a market demand for produce grown using eco-friendly methods.
3. **Capacity Building**
Providing training and extension services to farmers on sustainable practices is crucial for widespread adoption.
4. **Data-Driven Approach**
Collecting data on the environmental and health impacts of agrochemical use, as well as the economic benefits of sustainable practices, will strengthen future initiatives.
5. **Scaling Up**
FARM's success in pilot countries can lead to its expansion to other regions, creating a global shift towards a healthier and more sustainable food system.

Conclusion

By addressing these challenges and implementing the suggested steps, FARM has the potential to revolutionize agriculture, safeguard human health and the environment for generations to come.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Which of the following recently launched the Financing Agrochemical Reduction and Management (FARM) Programme?

- (a) Green Climate Fund
- (b) Global Environment Facility
- (c) World Bank
- (d) The Adaptation Fund

(b) Answer

Descriptive Question

Q. What are the primary objectives of the Financing Agrochemical Reduction and Management (FARM) Programme? How does the FARM Programme aim to address the challenges associated with agrochemical usage in agriculture? [15 Marks] [250 words]

RASHTRIYA AROGYA NIDHI (RAN) SCHEME

Why in News: Recently, the Delhi High Court has determined that the new income threshold to qualify for benefits under the Rashtriya Arogya Nidhi (RAN) scheme.

Key Details

- It is, prima facie under the revised umbrella scheme of RAN, the monthly income threshold for eligibility is Rs.1,571 for rural areas and Rs.1,605 for urban areas.
- The court has expressed a preliminary opinion that these limits are significantly low.

About Rashtriya Arogya Nidhi (RAN) scheme

- Offered by the Ministry of Health and Family Welfare.
- This program provides one-time financial assistance to impoverish patients who fall below the state or union territory's designated poverty line. It supports those suffering from life-threatening diseases such as heart, kidney, liver, and cancer, enabling them to receive treatment at any of the Super Specialty Government hospitals or institutes.

Element of Rashtriya Arogya Nidhi (RAN) scheme

01

Rashtriya Arogya Nidhi (RAN): Provides financial aid up to ₹15 lakhs for the treatment of critical illnesses such as heart, kidney, and liver diseases at government hospitals or institutions offering super specialty services.

Health Minister's Cancer Patient Fund (HMCPPF): Offers financial assistance up to ₹15 lakhs for cancer treatment at Regional Cancer Centres (RCCs), Tertiary Care Cancer Centres (TCCCs), and State Cancer Institutes (SCIs).

02

03

Financial Assistance for Patients with Rare Diseases: Allocates up to ₹20 lakhs for the treatment of specified rare diseases at government hospitals or institutes with super specialty facilities.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Which of the following statements is/are correct about the Rashtriya Arogya Nidhi Scheme?

- It is launched by the Ministry of Health & Family Welfare.
- It aims to provide financial assistance to the patients who are living below the poverty line and who are suffering from non life threatening diseases.

Which of the above statements is/are correct?

- Only I
- Only II
- Both
- None

Answer: (a) (Only I)

Descriptive Question

Q. What are the primary objectives of the Rashtriya Arogya Nidhi Scheme? How can it help to improve India's Healthcare sector? [15 Marks] [250 words]

NATIONAL CLEAN AIR PROGRAMME (NCAP)

National Clean Air Programme (NCAP)

Why in News: The National Clean Air Programme failed to meet its goal of reducing pollution by 2024.

01

The National Clean Air Programme (NCAP), launched in 2019 with ambitious targets to curb air pollution, has fallen short of its 2024 target of reducing particulate matter (PM) concentration by 20-30%.

02

The NCAP is a collaborative initiative by the Ministry of Environment, Forest and Climate Change (MoEFCC) and various states to improve air quality across 131 Indian cities.

04

The program envisaged a 20-30% reduction in PM10 levels by 2024, with a revised target of achieving a 40% reduction or meeting national standards (60 µg/m³) by 2025-26.

03

It mandates the preparation and implementation of Clean Air Action Plans (CAAPs) by these cities to address their specific pollution challenges.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. The National Clean Air Programme (NCAP) launched in 2019 with ambitious targets to curb air pollution, is an initiative of ?

- NITI Aayog
- Ministry of Human Resource Development

- Ministry of Environment, Forest and Climate Change (MoEFCC) and various States
- Ministry of Housing and Urban Affairs

Answer: (c)

Descriptive Question

Q. Discuss the key features of the National Clean Air Programme (NCAP) initiated by the Government of India? What steps can be taken to make it more effective? [15 Marks] [250 words]

MISCELLANEOUS

FOOD WASTE INDEX (FWI) REPORT 2024

Why in News: Recently, the United Nations Environment Programme (UNEP), in collaboration with the Waste and Resources Action Programme (WRAP), released the Food Waste Index (FWI) Report 2024.

Tracking Food Waste

The FWI report serves as a crucial tool for monitoring progress towards achieving **Sustainable Development Goal (SDG):** “Halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses, by 2030.” **The report focuses on two key indicators within SDG:**

- **Food Loss Index (FLI)** - This indicator, overseen by the Food and Agriculture Organization (FAO), tracks food losses along production and supply chains.
- **Food Waste Index (FWI)** - This indicator, under UNEP’s custodianship, monitors per capita food waste at retail and consumer levels.

Key Findings

- **Wastage in Abundance:** Households across the globe wasted a staggering **over 1 billion meals a day** in 2022.
 - This figure stands in stark contrast to the **783 million people** facing hunger globally and the **one-third of humanity** experiencing food insecurity.
- **Environmental Impact:** Food waste is a significant contributor to climate change, generating an estimated **8-10% of global greenhouse gas emissions**.

Challenges and Issues Highlighted in Report

- **Temperature Dependence:** Hotter countries, often lacking robust cold chain infrastructure, experience higher levels of household food waste due to faster spoilage of perishable items.
- **Data Gaps:** Reliable data on food waste generation in the retail and food service sectors, particularly in low and middle-income countries, remains scarce.
 - This lack of comprehensive data hinders effective policy formulation.
- **Fragmented Food Systems:** The current food system, characterized by a lack of coordination between various

stakeholders, contributes to inefficiencies and increased waste generation.

Way Forward

- **Improved Data Collection:** Strengthening data collection methods across all sectors, particularly retail and food service, is crucial to identify hotspots and tailor solutions.
- **Collaboration Throughout the Food System:** Fostering collaboration between farmers, retailers, food service providers, and consumers can optimize resource utilization and minimize food waste throughout the supply chain.

Conclusion

Food waste is a complex challenge with multifaceted consequences. By **implementing the strategies outlined in the FWI Report 2024 and fostering collaborative action through PPPs**, we can create a more sustainable and equitable food system.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

- Q. The Food Waste Index (FWI) Report, was launched by the United Nations Environment Programme (UNEP) in collaboration with
- Food and Agriculture Organization (FAO)
 - Waste and Resources Action Programme (WRAP)
 - UN World Food Programme
 - World Bank

(b) Answer

Descriptive Question

- Q. Food waste is a complex challenge with multifaceted consequences, critically evaluate. [10 Marks] [150 words]

THE ECONOMICS OF FORCED LABOUR

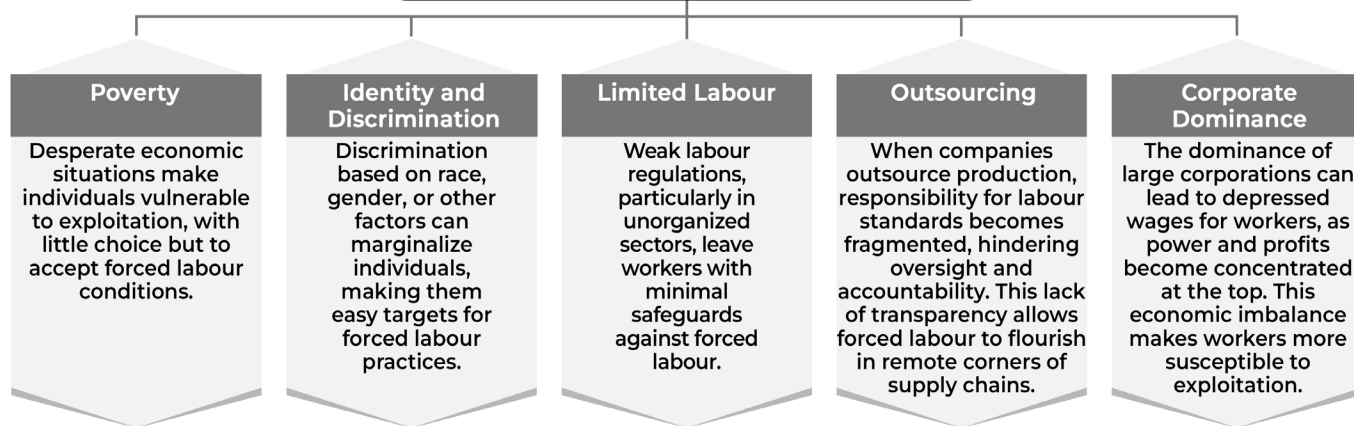
Why in news: Recently, International Labour Organization (ILO) released the report “Profits and Poverty: The Economics of forced labour”.

Key Findings of Report

- The report estimates that **27.6 million people** were subjected to forced labour in 2021. This number represents a vast human cost hidden behind economic activity.

- The report further reveals a concerning trend - the total amount of **illegal profits generated from forced labour has risen by 37% since 2014**.
- This highlights the perverse incentive for exploitation in certain sectors.

Root Causes of Forced Labour



Combating Forced Labour: The global community has taken steps to address forced labour, including:

- **ILO Protocol of 2014:** This protocol strengthens the Forced Labour Convention of 1930 by outlining specific actions governments and social partners should take to eradicate forced labour.
- **Forced Labour (Supplementary Measures) Recommendation, 2014:** This recommendation provides guidance on implementing measures to prevent forced labour, protect victims, and ensure effective remedies.

India has its own legal framework to combat forced labour, including

- **Article 23:** Prohibits trafficking in human beings and forced labour (Indian Constitution).
- **Article 24:** Prohibits child labour in factories and other specified establishments (Indian Constitution).
- **Bonded Labour System (Abolition) Act, 1976:** Outlaws bonded labour practices.

Conclusion

By implementing these solutions, we can create a world where work is based on fair treatment and decent working conditions, leaving no room for the exploitation of forced labour.

Expected Questions For UPSC CSE

Prelims MCQ

Q. Consider the following statements with reference to the Bonded Labour System (Abolition) Act, 1976:

1. It abolished the bonded labour system throughout the country.
2. It extinguished the liability of the labour to repay bonded debt.

3. It established Vigilance committees at district and sub-divisional levels.

How many of the above statements are correct?

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

(c) : Answer

Descriptive Question

Q. What are the primary drivers and root causes identified by the report 'Profits and Poverty: The Economics of forced labour' that perpetuate forced labor within global supply chains? Throw light on India's legal framework to combat forced labour. [15 Marks] [250 words]

MONKEYPOX VIRUS

Why in News: New research identifies specific genomic changes associated with the transmissibility of the monkeypox virus

Key Details

- Mount Sinai scientists and ISCIH researchers have identified alterations in the (mpox) virus genome, possibly linked to the 2022 outbreak's transmissibility changes.
- The majority of mpox infections exhibit mild symptoms and demonstrate a natural course towards resolution. However, mpox can cause significant pain and potentially result in permanent scarring.
- The causative agent, designated MPXV, was first identified in 1958 within crab-eating macaque monkeys imported to Belgium.

- Since the 1970s, MPXV has been responsible for sporadic outbreaks of human disease in Central and Western Africa.

Mpox: A Zoonotic Orthopoxvirus Infection

What is Mpox?	Mpox, previously known as monkeypox, is a viral illness categorized as a zoonotic disease. This signifies that it can be transmitted between animals and humans. It primarily occurs within the Central and West African regions, particularly in tropical rainforests, but instances of exportation to other areas have been documented.
Etiology	Mpox is caused by the monkeypox virus, a member of the Orthopoxvirus genus within the Poxviridae family. The virus was first identified in 1958 during outbreaks affecting colonies of research monkeys, hence the designation "monkeypox."
Carriers	Studies have shown the presence of the mpox virus in various wildlife species, including squirrels, dormice, Gambian poached rats, and specific monkey species.
Clinical Presentation	The typical presentation of mpox infection encompasses fever, lymphadenopathy (swollen lymph nodes), and a characteristic rash. This symptom complex differentiates mpox from smallpox, which does not cause swollen lymph nodes.
Transmission	The primary mode of transmission for mpox is from animals to humans, with rodents and primates being the most common animal reservoirs. However, human-to-human transmission can also occur. The first documented human case dates back to 1970 in the Democratic Republic of the Congo. The virus spreads through contact with infectious lesions, bodily fluids, respiratory droplets, and contaminated materials like bedding.
Incubation Period	The incubation period, which refers to the time between infection and the onset of symptoms, typically ranges from 7 to 14 days for mpox.
Mortality	Mpox can have a fatality rate of up to 10%, with a higher mortality risk observed in younger age groups.
Treatment and Prevention	The clinical presentation of mpox shares similarities with smallpox. Vaccinia, the vaccine used to eradicate smallpox globally in 1980, has also demonstrated efficacy in protecting against mpox. A new, third-generation vaccinia vaccine has been approved for preventing both smallpox and mpox. The development of antiviral medications for mpox treatment is also ongoing.

Conclusion

Sustained clinical presentations of viral agents reveal unique features, necessitating the development of effective **prevention and treatment strategies** to combat these infections.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements with reference to the Monkeypox disease:

- It can be transmitted from animals to humans as well as from humans to humans.
- It has been eradicated from Central and West Africa.

How many of the above statements are correct?

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

(a) Answer

Descriptive Question

- Q. Explain specific genomic changes have been identified in the mpox virus? How do these genomic changes affect the virus's ability to spread between hosts? [15 Marks] [250 words]

MISLEADING ADVERTISEMENT

Why in News: The Indian Medical Association (IMA) was suing Patanjali in this issue, and the court was considering a contempt prosecution against the company for allegedly disobeying its directives.

Key Details

- Supreme Court directs Patanjali Ayurveda to record its apology in newspapers.
- Court hears contempt case against Patanjali for allegedly flouting orders.
- Court wants to compare the **size of the apology** published in newspapers to **misleading advertisements**.

Allegations Against Patanjali

- The Issue:** The Indian Medical Association (IMA) filed a complaint in August 2022 against Patanjali. This arose from an advertisement that criticized allopathic medicine.
- The Advertisement:** The advertisement's title was "Misconceptions Spread by Allopathy: Save Yourself and the Country." The IMA argued this title promoted negative views of allopathic medicine.

Legal Arguments Against Patanjali

- The Indian Medical Association (IMA) accused Patanjali of making illegal claims in their ads. These claims go against two laws: **The Drugs & Other Magical Remedies Act (DOMA)** and the **Consumer Protection Act (CPA)**.
- The DOMA law says it's **illegal to publish false drug ads**. This includes making claims that aren't true, misleading people about the medicine, or overstating its benefits. If someone breaks this law, they could be **fined or even jailed**.
- The CPA law is even stricter on false advertising, especially when it hurts consumers.
- There were also agreements in place to prevent misleading ads for Ayurvedic products. Patanjali ignored these agreements, **breaking the rules** set by the government's **Ministry of AYUSH** and the **Advertising Standards Council of India**.

Response of the Supreme Court in Patanjali Case

- The Court **banned Patanjali from advertising cures** for certain diseases and told them to avoid criticizing established medicine.
- Court observed that **Fast-Moving Consumer Goods (FMCG) firms** should also misleading advertisements for baby foods so that there is no mistrust among the public.

Fast-Moving Consumer Goods (FMCG)



Quick and Affordable

FMCG, also known as CPG, refers to everyday products sold quickly at a low price.



High Demand, High Turnover

This industry involves selling large quantities of goods that are constantly being replaced due to consumer needs.



Essential Items

Examples include food, drinks, toiletries, cleaning supplies, and other household necessities.



Short Shelf Life

FMCGs either spoil quickly (like dairy products) or are in high demand and sell out fast (like soft drinks).

FMCG Industry in India

Major Player

The FMCG sector is one of India's largest industries.



Urban vs. Rural Sales

In 2022, most FMCG sales (65%) came from cities, with the remaining 35% from rural areas.



Product Breakdown

Half of FMCG sales are from household and personal care products, followed by healthcare (31-32%), and food & beverages (18-19%).



Job Creation

The FMCG industry employs roughly 3 million people, which is about 5% of India's factory jobs.



EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following acts,

1. Consumer Protection Act
2. The Drugs & Other Magical Remedies Act
3. The Food Safety and Standards Act

How many of the above acts can be used against fake advertisements?

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

Answer: (c)

Descriptive Question

Q. Enumerate specific directives which the court issued to Patanjali? How might this case impact the regulation of traditional or alternative medicine in India? [15 Marks] [250 words]

ASIA DEVELOPMENT OUTLOOK REPORT 2024

Why in News: Recently, Asian Development Bank has released the Asia Development Outlook Report 2024.

Key Findings from the Report

- The GDP growth prediction for India for **FY 2024** and **FY 2025** has been updated by the Asian Development Bank (ADB) to **7.2% and 7%**, respectively, due to strong services sector development and significant public and private investment.
- It is anticipated that retail inflation will decrease to **4.6% in the current fiscal year** and then to **4.5% in 2025–2026**.
- Normal monsoon weather is **predicted to improve rural consumption**, which was negatively impacted by **inconsistent rainfall** in the previous year.
- A possible renaissance in rural economies is indicated by the expected increase in demand for employment under programs such as the **Mahatma Gandhi National Rural Employment Guarantee Act**.

Reasons behind India's increased GDP projection

- India's manufacturing sector grew well in 2023; the **S&P Global India Manufacturing PMI increased from 55.5 in October 2023**, an eight-month low, to 56.0 in November 2023.
- India's economic growth in **FY2024 and FY2025** is anticipated to be driven by both consumption demand and investment.
- For 2023–2024, the RBI has maintained the **repo rate at 6.5%**, concentrating on removing accommodation to guarantee that inflation gradually approaches the objective while fostering growth.
- Improving industrial competitiveness and spurring future growth are anticipated outcomes of government initiatives to support infrastructure development and create a supportive business climate.
- ADB admits the members of the **UN Economic and Social Commission for Asia and the Pacific** (UNESCAP, formerly the Economic Commission for Asia and the Far East or ECAFE), and non-regional developed countries. It have been blessing for Indian development projects.

Asian Development Bank

Headquarters : Manilla, Philippines



About Asian Development Bank

- ▶ It was founded as a multilateral development bank on December 19, 1966.
- ▶ "Fostering economic growth and cooperation" among nations in the Asia-Pacific region is its main goal.



Administration

The Asia-Pacific Development Bank (APDB) is governed by a board of governors that is composed of representatives from its member nations.

The ADB was modeled after the World Bank & shares a weighted voting structure in which votes are allocated based on members' capital contributions.

Shareholders

As of 2022, the **People's Republic of China (6.4%), India (6.3%), Australia (5.8%), Japan and the United States (15.6% of total shares)** are ADB's five largest owners.

Funding Source: The organization is financed by member donations, retained earnings from loans, and loan repayments.

FUNCTIONS

To support social and economic development, ADB offers **grants, loans, equity investments, technical help, and assistance** to its members and partners.

It also finances **public-private partnerships and some private sector initiatives.**

Regular policy discussions are facilitated and advisory services are rendered by the ADB.

In addition, they employ co-financing operations that offer support by **utilizing official, commercial, and export credit sources.**

Members: Since its founding in 1966, ADB has expanded to include **68 members, 49 of whom are based in Asia and the Pacific and 19 of whom are not.** India is the **fourth-largest shareholder and top borrower** of the Asian Development Bank (ADB), having joined as a founding member in 1966.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements about Asian Development Bank,

1. It releases Asian Development Outlook report every year
2. It is headquartered in Manilla, Phillipines
3. Japan and USA is the largest shareholder of the bank

How many of the above statements are correct?

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

(c) :Answer

Descriptive Question

Q. What are the key economic projections and forecasts outlined in the Asia Development Outlook Report 2024? Discuss the economic prospects which vary across different countries and subregions in Asia? [15 Marks] [250 words]

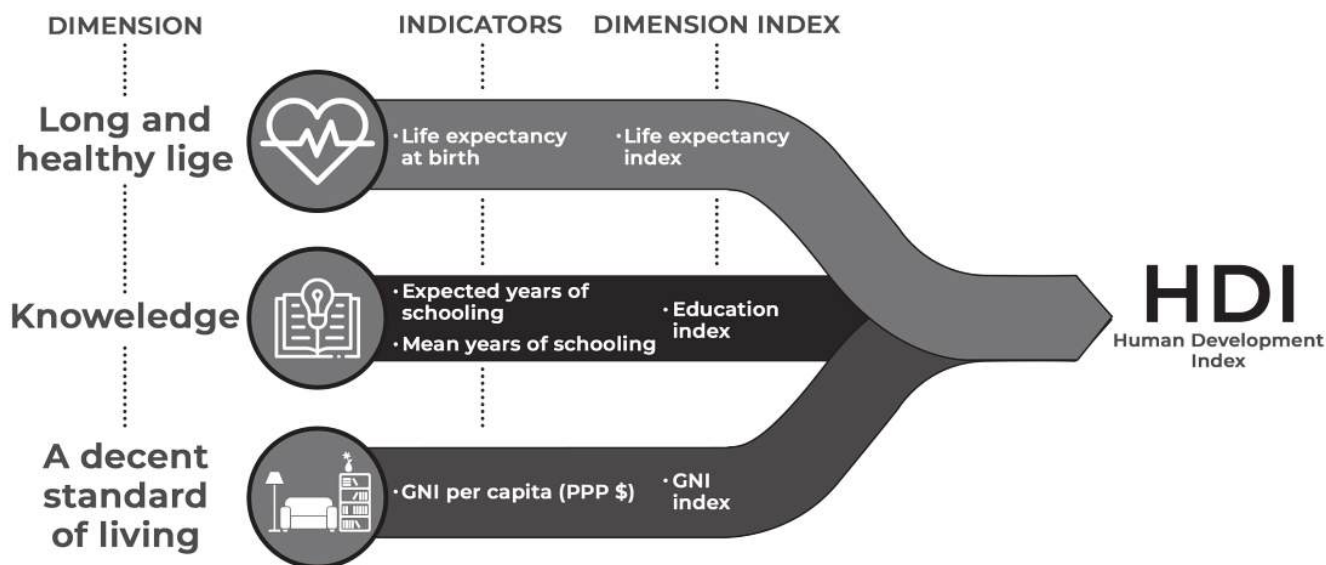
UNDP'S HUMAN DEVELOPMENT REPORT 2023-24

Why in News: The United Nations Development Programme's (UNDP) Human Development Report (HDR) 2023-24 paints a concerning picture of rising global inequalities and a world off track from achieving its Sustainable Development Goals (SDGs).

The Human Development Index (HDI)

- HDI is a crucial metric for measuring a country's development.
- It considers three key aspects: Life expectancy, education levels, and Gross National Income (GNI) per capita.
- These annual reports were devised and launched by Pakistani economist Mahbub ul-Haq in 1990, and had the explicit purpose "to shift the focus of development economics from national income accounting to people-centered policies

HDI Dimension and Indicators



A World Divided

The report reveals a disturbing trend after two decades of convergence, the gap between developed and developing nations is widening. This means:

- **Richer Nations Soar:** Developed countries are experiencing unprecedented levels of human development.
- **Poorest Countries Struggle:** However, nearly half of the world's poorest nations haven't recovered from the COVID-19 pandemic's setbacks, hindering their HDI progress.

The SDG Challenge

- Before the pandemic, the world was on track to achieve an average "very high" HDI by 2030, aligning with the SDG deadline.
- However, this goal is now out of reach, with all regions falling short of pre-pandemic projections.

India's Performance: Progress Amidst Disparity

India's ranking has improved slightly to 134th out of 193 countries, placing it in the "medium human development" category. While this indicates progress, India still faces significant challenges:

- **Positive Signs:** India saw improvements in all HDI indicators: life expectancy, education, and GNI per capita. The report also acknowledges progress in reducing gender inequality, with India's Gender Inequality Index (GII) value exceeding global and South Asian averages.
- **Persistent Challenges:** Despite strides in education, India grapples with a massive gender gap in labor force participation a staggering 47.8% difference between women and men.

India's Remarkable Journey (Since 1990)

- **Life expectancy:** Increased by 9.1 years.
- **Education:** Expected years of schooling rose by 4.6 years, and mean years of schooling grew by 3.8 years.
- **Economic Growth:** GNI per capita has risen by approximately 287%.

India in the Neighbourhood

- **South Asian Comparison:** Compared to India, Sri Lanka (78) and China (75) rank higher in the "high human development" category. Bhutan (125) and Bangladesh (129) are positioned nearby.
- **Regional Standing:** Nepal (146) and Pakistan (164) trail India in the rankings.

Global Leaders and Laggards

- **Top Performers:** Switzerland reigns supreme, followed by Norway and Iceland.
- **Bottom of the Ladder:** Central African Republic, South Sudan, and Somalia occupy the unenviable positions at the bottom of the index.

Conclusion

The UNDP's HDR presents a stark reality check. While some nations prosper, many are falling behind. Concerted global efforts are crucial to address rising inequalities, achieve the SDGs, and ensure a future where all nations and individuals can thrive.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Human Development Index Report is published by which of the following?

- World Bank
- World Health Organization

- (c) United Nations Development Programme
- (d) None of the above

Answer: (c)

Descriptive Question

- Q. What are the root causes of rising global inequalities? Elaborate the potential consequences of unchecked inequalities for human development, social cohesion, and global stability? [15 Marks] [250 words]

MANUFACTURING PURCHASING MANAGERS' INDEX

Why in news: India's Manufacturing Purchasing Managers' Index (PMI) hit a 16-year high of 59.1 in March 2024, according to a study conducted by Hong Kong and Shanghai Banking Corporation Limited (HSBC).

Purchasing Managers Index

- This survey-based metric inquired about how **respondents' perceptions** of important business variables have changed from the previous month.
- The PMI's **main goal is to inform investors, analysts, and decision-makers** within the company about the state of the business both now and in the future.
- In addition to being computed independently for the **industrial and services sectors**, a **composite index** is also created.
- The **PMI ranges from 0 to 100 as a number**.
 - A score of less than 50 indicates contraction, whilst a print above 50 indicates expansion.
 - A reading of 50 denotes no variation.
- The **economy is said to be declining** if the PMI for the prior month is greater than the PMI for the current month.
- It is **typically made available at the beginning of each month**. As a result, it is regarded as a reliable leading indicator of economic activity.
- IHS Markit compiles PMI for more than **40 economies** globally.
 - IHS Markit is leading the way in **information, analytics, and solutions** for the main markets and industries that propel economies around the world.
 - A division of S&P Global is **IHS Markit**.

Significance of Purchasing Managers' Index

- Since the manufacturing and services sectors are major contributors to economic growth, the **PMI is frequently** used as a gauge of the state of the economy.
- A **high PMI rating is generally regarded as good news for the economy** since it shows that the manufacturing and services sectors are doing well and driving economic growth.

- A **low PMI number** is considered **unfavourable** since it suggests that the **manufacturing and services sectors are having difficulties** and can be lowering the state of the economy as a whole.

Conclusion

The Purchasing Managers Index (PMI) serves as a **vital economic indicator, offering valuable insights into business sentiment and activity**. However, its reliance on **subjective survey responses, potential sample size limitations, timing delays, sectoral biases, and interpretation challenges** underscore the need for caution in its use.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

- Q. Consider the following statements about Purchasing Managers Index (PMI)

1. The PMI ranges from 0 to 1000 as numbers
2. A score of less than 500 indicates contraction in economic activity
3. A score of more than 500 indicates expansion in economic activity

How many of the above statements are correct?

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

Answer: (d)

Descriptive Question

- Q. Explain factors contributing to the significant increase in India's Manufacturing PMI to a 16-year high of 59.1 in March 2024? Examine sector-specific trends or challenges reflected in the PMI data? [15 Marks] [250 words]

INFRASTRUCTURE INVESTMENT TRUST (INVIT)

Why in News: In order to raise \$700–800 million, IndoSpace, an Indian company that develops industrial and logistics parks, plans to establish an infrastructure investment trust (InvIT).

Key Details

- In the industrial and logistics sector in India, this will be the largest InvIT.
- **52 industrial logistics parks spread over 11 Indian cities are owned by IndoSpace.**

Infrastructure Investment Trusts (InvIT)

- **Similar to mutual funds**, InvITs are **financial products**. Their purpose is to combine modest funds from several investors to purchase assets that generate steady income over time. An investor dividend would be paid out of some of this cash flow.

- High net worth individuals, institutional investors, and non-institutional investors can all participate in InvITs because the minimum investment amount required for an IPO is Rs 10 lakh.
- Through IPOs, invITs are listed on markets in the same manner as stocks.
- The Indian InvIT sector is still in its infancy.
- India Grid Trust and IRB InvIT Fund are the InvITs that are listed on the stock exchange.
- The Infrastructure Investment Trusts (InvITs) Regulations, 2014 of the Securities and Exchange Board of India (SEBI) govern InvITs.

CHAHAL's PERSPECTIVE On

INFRASTRUCTURE INVESTMENT TRUSTS (INVIT)

 Positives of InvIT	Concerns with respect to InvIT 
 Diversification InvITs allow investors to diversify their portfolio by investing in a range of infrastructure assets across sectors such as roads, power, and telecommunications.	Regulatory Risks Changes in regulations or government policies could impact the performance of InvITs, potentially affecting investor returns. 
 Regular Income They offer stable and predictable cash flows, typically distributing a significant portion of their earnings as dividends to unit holders, thus providing a regular income stream.	Market Risks Like any other investment, InvITs are subject to market risks, including fluctuations in interest rates, economic conditions, and industry-specific risks. 
 Liquidity Listed InvITs provide liquidity to investors through trading on stock exchanges, allowing them to buy or sell units easily.	Asset Quality The performance of an InvIT depends on the quality and performance of its underlying assets. Investors should conduct thorough due diligence to assess the quality of assets held by the InvIT. 
 Tax Efficiency InvITs enjoy tax benefits, such as exemption from dividend distribution tax (DDT) and a pass-through status for tax purposes, making them an attractive investment option.	Governance Corporate governance practices followed by the InvIT's sponsor and manager are crucial. Investors should evaluate the track record and reputation of the sponsor and manager before investing. 
 Professional Management InvITs are managed by experienced professionals, reducing the burden of management and operational responsibilities on investors.	

Structure of InvIT

- Trustees, sponsors, investment managers, and project managers are all there just like in mutual funds.
- It is the duty of a trustee to review an InvIT's performance.
- The company that established the InvIT is promoted by the sponsor(s).
- The responsibility of overseeing the InvIT's assets and investments falls on the investment manager.
- The project manager is in charge of seeing that the project is carried out.

Investor Protection Measures

- In order to protect investors, InvIT issuers are required to abide by a number of regulations. Three-year lock-in requirement requires the sponsor to own at least 15% of the InvIT units.

- Investors must get 90% of the net cash flows generated by InvITs.
- A minimum of 80% of the InvIT's investment must go toward revenue-generating infrastructure.

Conclusion

InvITs offer **diversification, regular income, liquidity, and tax benefits**, managed by professionals. However, regulatory changes and market fluctuations pose risks.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

- Q. Investments in InvIT's provide benefits such as,
- (1) Diversification of investments

- (2) Liquidity for investors
- (3) Regular income via dividends

Choose the correct option

- (a) Only 2
- (b) Only 1 & 3
- (c) Only 3
- (d) All of the above

(d) :Answer

Descriptive Question

Q. Explain concerns with respect to Infrastructure Investment Trusts? What are the key objectives and motivations behind IndoSpace's decision to establish an InvIT for raising funds? [15 Marks] [250 words]

ISLAMIC STATE-KHORASAN (IS-K)

Why in news: The March 22 terror incident at the Crocus City Hall outside of Moscow, which resulted in the deaths of at least 137 people, highlights the worries that the Islamic State (IS), which lost its **physical caliphate in Syria and Iraq six years ago**, may be headed toward a revival.

Origin and Ideology

- The group was founded in the **Nangarhar province of Afghanistan in 2015**. The majority of the fighters in the IS-K are from Central Asia.
- IS-K emerged in 2015 when former **Tehrik-i-Taliban Pakistan (TTP)** commanders pledged allegiance to ISIS.
- Its name "Khorasan" refers to a **historical region that includes parts of modern-day Afghanistan, Pakistan, Iran, and Central Asia**.
- The group consists a **radical Salafi jihadist ideology**, seeking to establish a strict Islamic caliphate governed by Sharia law.
- Following the Taliban's coming to power in Afghanistan in August 2021, this branch increased activities.
- Since then, the IS-K has targeted the **Shia minority in Afghanistan** and attempted to create a network of cells with young, radicalized people from Central Asia and the Tajik and Uzbek minorities in Afghanistan who were upset with the Pashtun government of the Taliban.

Islamic State

- The Islamic State (IS) is a violent Salafi-Jihadist group that is also known by the **names Islamic State of Iraq and Syria (ISIS)** and Islamic State in Iraq and the Levant (ISIL).
- It is a **transnational Sunni rebel group** that mostly operates in eastern and western Syria and Iraq with the goal of establishing an Islamic caliphate and a worldwide Salafi-Jihadist movement.
- IS asserted the creation of the **"Wilayah of Hind,"** a "province" in India.
- India has recognized ISIS as an illegal organization**

in accordance with the 1967 Unlawful Activities (Prevention) Act. ISIS has been added by the Central Government to the Act's First Schedule.

Terrorist organizations in Jammu & Kashmir

Lashkar-e-Taiba

+ LeT is a Pakistan-based militant group that has been active in Jammu and Kashmir since the **1990s**. It aims to establish an Islamic state in Jammu and Kashmir and has carried out numerous attacks against Indian security forces and civilians.

Jaish-e-Mohammed (JeM)

+ JeM is another Pakistan-based militant organization operating in Jammu and Kashmir.
+ It has been responsible for several high-profile attacks, including the 2001 Indian Parliament attack and **the 2019 Pulwama attack**, which escalated tensions between India and Pakistan.

Hizbul Mujahideen

+ It has been **active** in the region **since the late 1980s** and has carried out attacks against Indian security forces and civilians.

Al-Badr

+ Al-Badr is a Pakistan-based militant outfit that operates primarily in Jammu and Kashmir. It has been involved in various terrorist activities, including attacks on security forces and civilians.

Harkat-ul-Mujahideen (HuM)

+ HuM is a Pakistan-based militant group that has been active in Jammu and Kashmir.

Harkat-ul-Jihad al-Islami (HUJI)

+ HUJI is an Islamist militant group with a presence in Pakistan and Bangladesh.

Conclusion

Efforts to counter ISIS-K require international cooperation, robust intelligence sharing, and a comprehensive approach addressing the root causes of extremism.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

- Q. Which are the terrorist organizations are active in Jammu & Kashmir,
- Lashkar-e-Taiba
 - Harkat-ul-Mujahideen
 - Islamic State-Khorasan

Choose the correct option

- (a) Only 2
- (b) Only 1 & 2
- (c) Only 3
- (d) All of the above

(b) :Answer

Descriptive Question

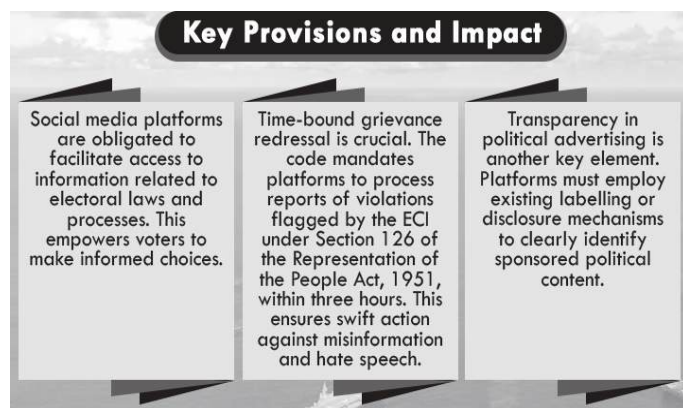
- Q. Assess the implications of Islamic State-Khorasan (IS-K) for peace and reconciliation efforts in Afghanistan, including the intra-Afghan dialogue and efforts to achieve a political settlement? [15 Marks] [250 words]

VOLUNTARY CODE OF ETHICS FOR ELECTIONS BY SOCIAL MEDIA PLATFORMS

Why in News: A recent agreement by a social media platform to follow the 'Voluntary Code of Ethics' for elections has reignited discussions on the role of social media in ensuring a free and fair electoral process.

About the Voluntary Code of Ethics

- Recognizing the growing influence of social media in political campaigning, the **Election Commission of India (ECI)** collaborated with the **Internet and Mobile Association of India (IAMAI)** to develop the Voluntary Code of Ethics in 2019.
- This code aims to ensure the ethical use of social media platforms during elections to safeguard the integrity of the process.



Challenges

- Voluntary Nature:** The code's effectiveness hinges on voluntary participation by social media platforms.
- Defining "Harmful Content":** Striking a balance between free speech and removing content that could influence elections is crucial.
- Fake News and Misinformation:** The code needs to be adapted to address the growing problem of fake news during elections.

Conclusion

The Voluntary Code of Ethics represents a **significant step towards a healthier online environment during elections**. By addressing the challenges and implementing the suggested measures, India can ensure a more robust and democratic electoral process in the digital age.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

- Q. Code of Ethics for elections by Social Media Platforms was introduced by:
- Executive order
 - Legislation by centre
 - Legislation by states
 - Election Commission of India and the Internet and Mobile Association of India (IAMAI) collaboration.

(d) : answer

Descriptive Question

- Q. How has social media influenced the outcomes of recent elections and what measures can be implemented to ensure fair and unbiased information dissemination in the context of democratic processes? [15 Marks] [250 words]

IRDAI CELEBRATES 25 YEARS OF ITS ESTABLISHMENT

Why in News: The Insurance Regulatory and Development Authority of India (IRDAI) commemorated its Silver Jubilee on April 19, 2024.

Key Details

- It was established in **1999** on **recommendations of the Malhotra Committee** report and **formally constituted in 2000 under the IRDA Act 1999**.
- Prior to 1999, the Indian insurance sector was dominated by state-owned entities. Consequently, IRDAI was setup as an **autonomous entity under the Ministry of Finance**.

IRDAI's Core Functions and Achievements

Empowered by the Insurance Act (1938), IRDAI wields significant authority. It frames regulations covering various aspects, from registering insurance companies to safeguarding policy holder interests. IRDAI has played a crucial role in:

- Promoting Competition and Protecting Consumers:** IRDAI prioritizes policyholder protection. It has framed regulations on grievance redressal, product standardization, and disclosure norms, ensuring transparency and fair treatment for consumers.
- Enhancing Efficiency:** IRDAI's initiatives like Bima Sugam, a single platform connecting stakeholders, and mandatory e-insurance policies have streamlined processes and improved accessibility for policyholders and insurers alike.



India's Insurance Sector

The Indian insurance sector presents a picture of contrasting realities. On the one hand, it exhibits robust growth potential, **ranking 10th globally and projected to be 6th by 2032**. **Economic Survey 2022-23** indicates a rise in insurance penetration from 3.76% (2019-20) to 4.20% (2020-21) and life insurance density reaching USD 91 (2021-22). However, these figures remain well below global averages, highlighting significant challenges that need to be addressed.

Growth Indicators and Positive Trends

- **Rising Insurance Density and Penetration:** Life insurance density has grown from USD 11.1 (2001) to USD 91 (2021), reflecting a wider insurance net. Similarly, insurance penetration has witnessed an upward trajectory.
- **Emerging Market Leader:** India boasts the fastest-growing insurance market globally, poised for significant expansion in the coming decade.

Way Forward

- **Deepening Insurance Penetration and Product Innovation:** Encouraging insurers to develop innovative and customized products that cater to diverse needs is crucial. This could involve micro-insurance plans, disease-specific covers, and personalized risk-based premiums.
- **Cybersecurity and Data Privacy:** As the industry embraces digitalization, robust cybersecurity measures and stringent data privacy regulations are essential to safeguard policyholder information.
- **Dispute Resolution Mechanisms and Technological Integration:** Further integration of Artificial Intelligence and Big Data can enhance risk assessment, personalize customer service, and facilitate faster claim settlements.

Conclusion

By addressing these areas, IRDAI can continue to be a **catalyst for a robust and inclusive insurance sector in India**, ensuring greater financial protection and security for all citizens.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements,

1. Recently India observed increase in insurance penetration among its population
2. Recently India observed increase in insurance density among its population
3. India's insurance density is well above global average

How many of the above statements are correct?

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

Answer: (b) (1 and 2)

Descriptive Question

Q. What are the IRDAI's core functions and Achievements? Explain the challenges faced by it in achieving universal insurance coverage in India. [15 Marks] [250 words]

ARTICLE FROM YOJANA (APRIL 2024)

Soil Ecosystem

INTRODUCTION

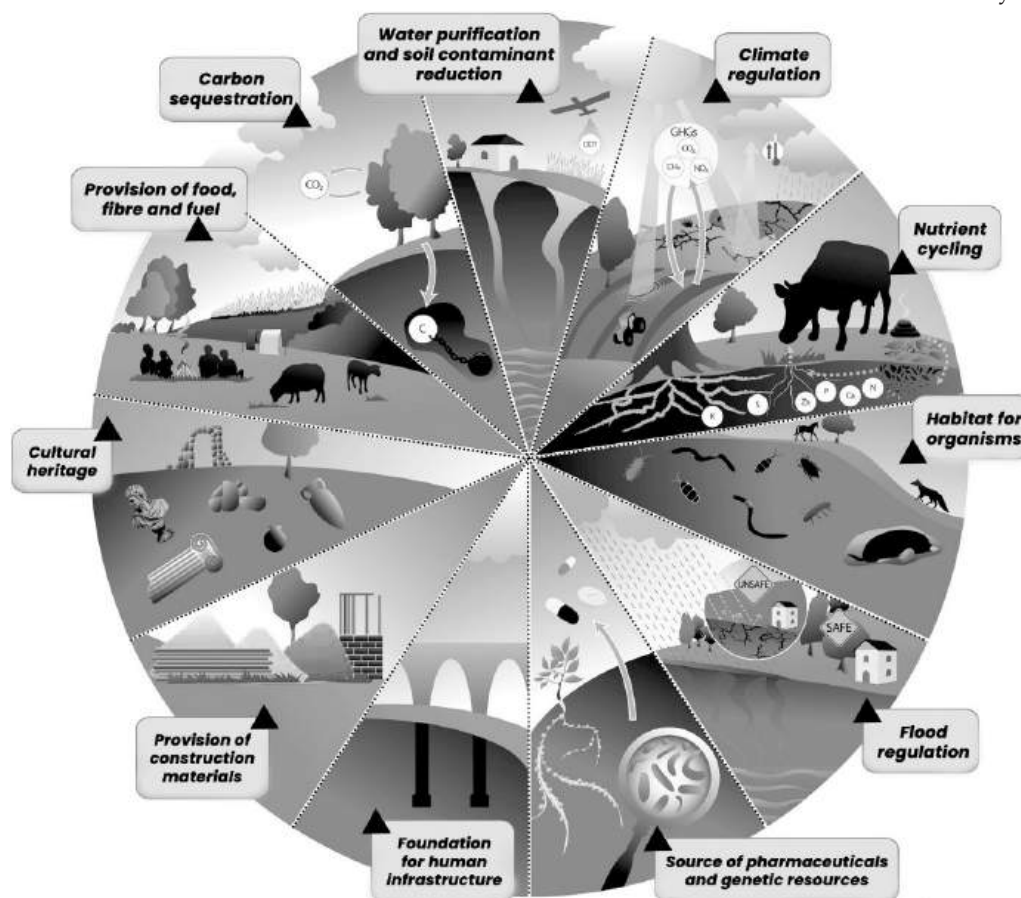
The soil ecosystem is an intricate and fascinating web of life and non-living elements that interact dynamically beneath the surface. Ranging from tiny bacteria to burrowing mammals, soils host a wide variety of organisms, all crucial for the health of terrestrial ecosystems and human society. This article delves into the components and functions of the soil ecosystem, emphasizing its importance and interconnected nature.

Components of Soil Ecosystem

- **Physical Environment:** This encompasses soil texture, structure, and moisture levels, shaping the habitat and activities of organisms within the soil.
- **Organic Matter:** Comprising deceased plant and animal matter, along with living organisms like microbes, fungi, and earthworms, organic matter serves as a vital source

of nutrients and energy, crucial for soil fertility and structure.

- **Microorganisms:** Microorganisms like bacteria, fungi, protozoa, and others are plentiful in soil, playing critical roles in nutrient cycling, decomposition, and maintaining soil health. They decompose organic matter, fix nitrogen, and aid in soil aggregation.
- **Macro organisms:** Macro organisms, such as earthworms, insects, nematodes, and small mammals, dwell in soil, contributing diverse functions in nutrient cycling, soil aeration, and shaping soil structure. Their actions significantly impact soil fertility and the functioning of ecosystems.
- **Plants Roots:** Plant roots extend into the soil, securing plants in place and extracting water and nutrients. Through root exudates, plants provide energy sources for microbial life, fostering soil organic matter and influencing microbial communities and nutrient cycling dynamics.



Soil Functions

Functions of the Soil Ecosystem

- **Nutrient Cycling:** Soil organisms decompose organic matter, liberating essential nutrients like nitrogen, phosphorus, and potassium into the soil. Plants utilize these nutrients for growth and productivity, ensuring a continuous cycle of nutrient replenishment.
- **Decomposition:** Microorganisms and detritivores play a crucial role in breaking down organic matter, recycling nutrients, and reintroducing them into the soil. This decomposition process enhances soil fertility and contributes to the accumulation of organic matter, vital for sustaining soil health and productivity.
- **Soil Formation:** Soil undergoes continuous development through weathering and the activities of soil organisms, such as earthworms and microorganisms. Their actions mix and transform soil materials, contributing to the formation process over time.
- **Water Management:** Soil serves as a crucial reservoir for water, regulating its storage and release. The composition and structure of soil influence how water is absorbed, retained, and drained, impacting plant growth, groundwater replenishment, and the prevention of floods.
- **Biodiversity Support:** Soil offers a rich habitat for a diverse range of organisms, from tiny bacteria to larger

mammals. The quality of soil structure and its organic content directly influences the health and diversity of ecosystems by providing homes and sustenance for various species.

Interconnections within the Soil Ecosystem

- The soil ecosystem operates through intricate networks of relationships and feedback mechanisms. For instance, plant roots release sugars and other compounds, nourishing soil microbes, which in turn aid in nutrient absorption by plants and contribute to soil structure formation.
- Additionally, earthworms play a crucial role by ingesting organic matter and minerals, enriching and aerating the soil as they burrow through it. Figure 1 provides a schematic representation of these soil functions, illustrating the interconnectedness of its components.

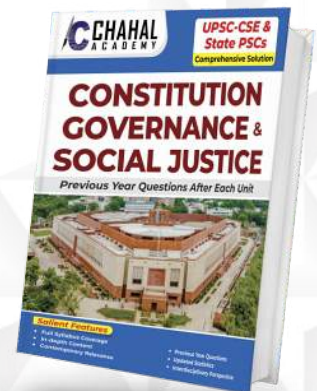
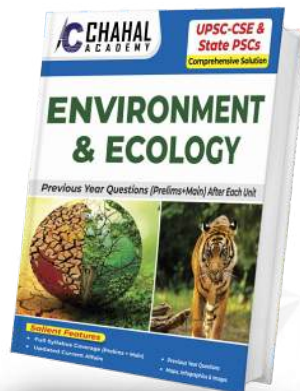
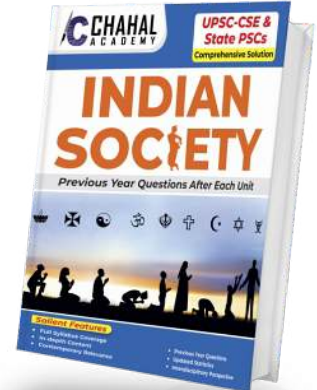
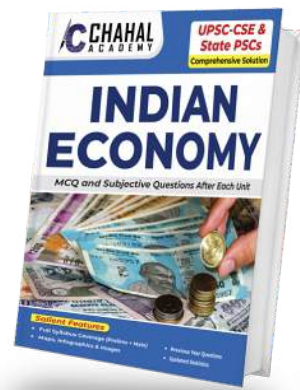
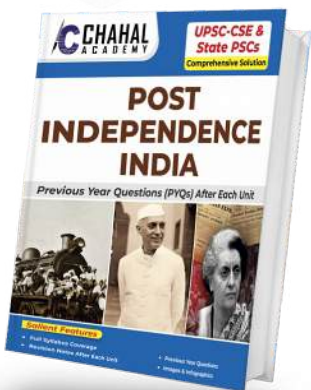
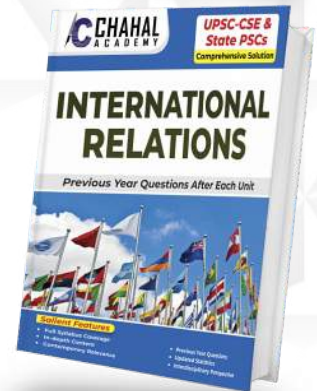
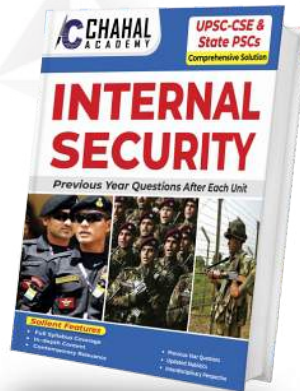
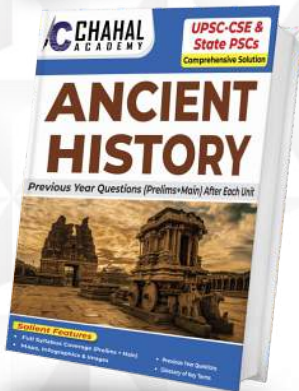
Conclusion

The soil ecosystem represents a dynamic and diverse community of **living organisms and non-living factors that sustain life on Earth**. From nutrient cycling to providing habitat, soil plays a critical role in terrestrial ecosystems and human welfare. Recognizing the complexity of the soil ecosystem is vital for implementing sustainable land management practices and conserving ecosystems, ensuring the ongoing vitality and productivity of soils for future generations.

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