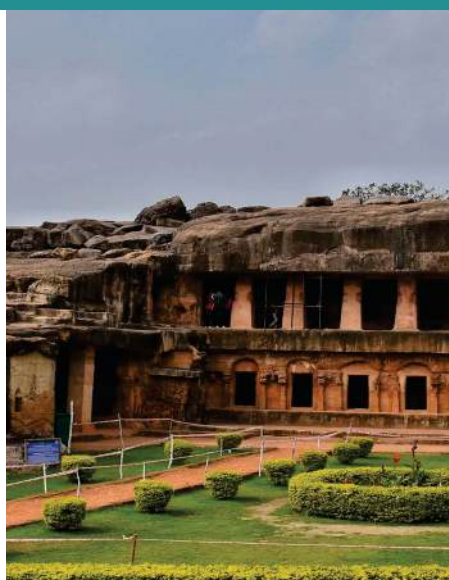


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NEW CRIMINAL LAWS

Why in News: The three new criminal laws — **Bharatiya Nyaya Sanhita (BNS)**, **Bharatiya Nagarik Suraksha Sanhita (BNSS)**, and **Bharatiya Sakshya Act (BSA)** came into effect on 1 July 2024.

About Bharatiya Nyaya Sanhita (BNS) Act 2023

The Bharatiya Nyaya Sanhita (BNS) replaced the Indian Penal Code, 1860 (IPC). The BNS has 358 sections, compared to the 511 in the IPC. Twenty new crimes have been defined, and among other changes, the extent of punishment has been enhanced in 33 crimes.

Key Highlights of the New BNS Act 2023

- The BNS has a **new chapter V** dealing with “Crimes against Women and Children”.
 - Offences against women and children, murder and offences against the State have been given precedence.
 - Rape incidents — earlier under Section 375 of the IPC — are now booked under Section 63.
 - Section 69 penalises sexual intercourse through the employment of “deceitful means”.
 - The BNS provides that sexual intercourse or sexual acts by a man with his own wife, the wife not being under 18 years of age, is not rape. Under Section 375 of the IPC, the age limit was 15 years.
 - Victims of crime against women are entitled to regular updates on the progress of their case within 90 days.
 - The act of hiring, employing, or engaging a child to commit an offence, is made a punishable offence under Section 95 of BNS.
 - Section 96 of BNS deals with offence of procurement of any child below the age of eighteen years (irrespective of gender).
 - The Word ‘child’ is substituted for ‘person’ in Section 99 of the BNS.
- Under Section 112 of BNS, a **new offence - Petty organised crime**, such as unauthorised selling of tickets, unauthorised betting or gambling, selling of public examination question papers etc, has been added.
- Snatching, defined in Section 304(1), is also a ‘**new**’ crime, distinct from theft. Both theft and snatching prescribe a punishment of upto three-years in jail.
- Under the BNS, the Courts are allowed to choose ‘**community service**’ as sentence over incarceration or fines for minor offences such as petty thefts (property valued under Rs 5,000), public nuisance, and false defamation complaints.
- **Sedition is no longer an offence. Sedition has been replaced with treason under Section 152 in the BNS and video recording of all search and seizures made mandatory.** It penalises activities that excite ‘subversive activities’ or encourage ‘feelings of separatist activities’ or endanger the ‘sovereignty or unity and integrity of India.’
- The BNS had defined ‘act of terrorism’ very elaborately to cover an act that intends to threaten the unity, integrity, security or economic security of the country, or strike terror in the people.
- ‘**Organised crime**’ has been added as a **new offence** under Section 111(1).
 - It includes any continuing unlawful activities such as kidnapping; robbery; vehicle theft; extortion; land grabbing; contract killing; economic offence; cyber-crimes having serious consequences; trafficking in persons, drugs, weapons or illicit goods or services; and human trafficking for prostitution or ransom.
 - **New definition of economic offence** has also been added.
- Mere possession of fake currency notes is no more punishable under the BNS.
- **New provision**, Section 103(2) provides that, **when a group of five or more persons acting in concert commits murder** on grounds of **race, caste or community, sex, place of birth, language, personal belief** or any other ground **each member of such a group** shall be punished with death or with imprisonment for life, and shall also be liable to fine.
- **Abetment by a person outside India has been made an offence** under Section 48 to allow prosecution of person located in foreign country.
- **New provision** under Section 104 of the BNS provides for either death punishment or imprisonment for life, which shall mean the remainder of that person’s natural life.

Key Issues and Analysis of BNS

- **No Clear Guidelines:** Law enforcement agencies and administrative bodies lack clear guidelines on monitoring and enforcing **community service sentences**. Moreover, the term “community service” is not defined in the BNS.

- **Lack of Definite Definition and Clarity:**

- Vague descriptions of “**cyber-crimes having severe consequences**” as organised crime need to be addressed appropriately.
- The phrase ‘**any other similar criminal acts**’ mentioned in the Section 112 of the BNS is more indefinite and open-ended.
- The offence of theft, under proviso to Sub-section (2) of Section 303 of the BNS, needs to be revisited as it makes theft of any moveable property of less than ₹5,000 a non-cognisable offence.
- The provision in the BNS defining a ‘terrorist act’ is notably vague, using ambiguous terms like ‘likely to threaten’ or ‘overawes by means of criminal force’.
- The provision in the BNS relating to a ‘terrorist act’ is broad and devoid of requisite sanction from the state or central government before court proceedings, threatening potential abuse in the application of the law.

- **Apprehension of Power Overreach:** Inclusion of the term ‘destruction of public property in India’ as a terrorist act, the provision dangerously conflates ordinary criminal acts with terrorism. This may grant excessive discretion to the police in classifying various criminal offences as terrorist offences.

- **Concept of Equity is Missing:**

- **Age of criminal responsibility** is retained at **seven** years. It extends to 12 years depending upon the maturity of the accused. This may contravene recommendations of international conventions.
- It **defines a child** to mean a person **below the age of 18**. However, for several offences, the age threshold of the victim for offences against children is not 18. The threshold for minority of the victim of for rape and gangrape is different.
- Several offences **overlap with special laws**. In many cases, both carry different penalties or provide for different procedures. This may lead to multiple regulatory regimes, additional costs of compliance and possibility of levelling multiple charges.
- It retains the provisions of the IPC on rape and sexual harassment. It does not consider recommendations of the **Justice Verma Committee** (2013) such as making the offence of rape gender neutral and including marital rape as an offence.
- It omits Section 377 of the IPC which was read down by the Supreme Court. This removes rape of men and bestiality as offences.

About Bharatiya Nagarik Suraksha Sanhita (BNSS) Act 2023

The Bharatiya Nagarik Suraksha Sanhita (BNSS) replaced the Criminal Procedure Code-(CrPC),1973. It contains 531 Sections, instead of the 484 in the CrPC. It has two new chapters, bringing the total number of chapters to 39.

Timelines have been added to 35 Sections (to make the speedy delivery of justice possible) and audio-video provision has been added at 35 places. A total of 14 Sections have been repealed and removed in the Sanhita.

Key Highlights of New BNSS Act 2023

- A new provision, **Trials in Absentia** has been added—where a person accused of a crime can be tried and convicted in his absence, as if he was present in court and has waived his right to a fair trial for all offences. Making extradition of a guilty easier and possible.

Condition for trials in absentia- when a person declared as:

- a proclaimed offender;
- whether or not charged jointly;
- absconded to evade trial; and
- no immediate prospect of arresting him.
- **Arrest , List of Prisoners and Detention of Undertrials:** Unlike the CrPC, which provided for bail for an accused who has been detained for half the maximum imprisonment for the offence.
 - The BNSS removes the provision for statutory bail if an accused has more than one offence against his name or any offences punishable by life imprisonment.
 - The BNSS requires a police officer in every police station, not below the rank of Assistant Sub-Inspector, to be responsible for maintaining and prominently displaying information about the arrested persons.
 - Permission of an officer not below the rank of DySP is mandatory for arresting a person [**only those infirm or above 60 years of age**] in case of offence punishable is less than 3 years of imprisonment.
- **Medical examination:** The BNSS allows medical examination of the accused in certain cases, including rape cases to be done by a registered medical practitioner on the request of any police officer.
- **Forensic investigation:** It mandates forensic investigation for offenses punishable with seven years of imprisonment or more. Those States that do not have a forensics facility shall utilize such facilities in another State.
- **Use of Technology:** All trials, inquiries, and proceedings may be held in electronic mode. Production of electronic communication devices, likely to contain digital evidence, will be allowed for investigation, inquiry, or trial.
- **New FIR Provision:** The provision of Zero FIRs made, wherein police stations anywhere in the country can register an FIR irrespective of the location of the occurrence of crime.
 - This particular provision has diluted the issue of lack of jurisdiction or disputed jurisdiction.
 - Moreover, non-registration of FIRs may attract penal action under various sections.
 - Additionally, while information can be given orally or in writing as before, it may also be given by electronic

means which is to be taken on record by the officer in-charge if it is signed within three days by the person giving it.

- **Signatures and finger impressions:** Along with specimen signatures or handwriting, finger impressions and voice samples may be collected for investigation or proceedings. Samples may be taken from a person who has not been arrested.
- **Hierarchy of Courts:** Unlike Section 17 of the CrPC, the BNSS has omitted references to Chief Metropolitan Magistrate (CMM) and Metropolitan Magistrate (MM) Courts and only includes the Judicial Magistrate of First Class and Judicial Magistrate Second Class.

Key Issues and Analysis of BNSS

- **Limited Role of State:** The introduction of 'trials in absentia' under normal criminal law (BNSS) allows the State to forgo its duty to properly locate the accused before the trial begins.
- **Procedure of Police Custody Altered:** The BNSS allows that the police custody of 15 days can be authorised in whole or in parts at any time during the initial 40 or 60 days out of the 60 or 90 days period. This could lead to denial of bail if the police argue that they need to take the person back in police custody.
- **No Necessary Safeguards on Attachment of Property:** The Prevention of Money Laundering Act (PMLA) lists scheduled offences under the IPC and the BNS has not yet been included in the BNSS. Thus, the power to attach property from proceeds of crime does not have safeguards as provided in the PMLA.
- **Infringe on the Accused's Personal Liberty:** The use of handcuffs is permitted in a range of cases including organised crime, contradicting the Supreme Court directions.
- **Overlaps with Existing Laws:** The BNSS retains provisions of the CrPC related to maintenance of public order. Since trial procedure and maintenance of public order are distinct functions, the question is whether they should be regulated under the same law or be dealt with separately.
- **No space for Rights of the Accused:** Recommendations of high level committees on changes to the CrPC such as reforms in sentencing guidelines and codifying rights of the accused have not been incorporated in the BNSS.

About Bharatiya Sakshya Act (BSA) 2023

The Bharatiya Sakshya Act (BSA) replaced the Indian Evidence Act, 1872 (IEA). Now it has 170 sections in place of the 167 sections in the Evidence Act. Twenty-four provisions have been amended. It was designed to address the emerging landscape of technology that the original 1872 law did not anticipate. This revised framework addresses the deficiencies in handling evidence as technology integrates deeply into legal processes.

Key Highlights of BSA

- **Admissible evidence:** BSA retains most provisions of the IEA including those on confessions, relevancy of facts, and burden of proof.
 - Like IEA, it retains documentary and oral distinction. Additionally, it has classified electronic records as documents and classified it as primary evidence, unlike the IEA.
 - It expands such records (electronic) to include information stored in semiconductor memory or any communication devices (smartphones, laptops).
 - The BSA expands secondary evidence to include:
 - ◆ Oral and written admissions. It has allowed oral evidence to be given electronically.
 - ◆ The testimony of a person who has examined the document and is skilled in the examination of documents.
- **Joint trials:** The BSA added that a trial of multiple persons, where an accused has absconded or has not responded to an arrest warrant, will be treated as a joint trial.

Key Issues and Analysis of BSA

- **Tampering of Electronic Records:** The Supreme Court has recognised that electronic records may be tampered with. While the BSA provides for the admissibility of such records, there are **no safeguards to prevent the tampering and contamination** of such records during the investigation process.
- **Ambiguity in Admissibility of Electronic Records:** Currently, electronic records must be authenticated by a certificate to be admissible as documents. The BSA retains these provisions for admissibility. The BSA also classifies electronic evidence as documents (which may not need certification). This creates a contradiction.
- **Facts Discovery Challenges in Police Custody:**
 - Under the IEA, a fact discovered due to information received from an accused in police custody may be provable. The BSA retains this provision. The Courts and Committees have noted that facts may be discovered in police custody by coercion, without adequate safeguards.
 - The IEA (and BSA) allows such information to be admissible if it was obtained when the accused was in police custody, but not if he was outside. The Law Commission recommended to remove this distinction.
 - The **Law Commission** has made several **recommendations**, which have not been incorporated. These include the presumption that the police officer caused the injuries if an accused was injured in police custody.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements regarding Bharatiya Sakshya Act, 2023:

1. It classifies electronic records as primary evidence.
2. Oral and written admissions are considered secondary evidence under the Act.

Which of the above statement(s) is/are **not** correct?

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

(d) : Answer

Descriptive Question

Q. Critically analyse the newly implemented criminal laws (codes) in India by analysing the issues with each of them separately. [15 Marks] [250 Words]

CONSTITUTIONAL MORALITY

Why in News: The Chief Justice of India recently, speaking at the East Zone II Regional Conference of the National Judicial Academy, has emphasised the necessity of 'Constitutional Morality' in Indian law.

Key Details

- Chief Justice of India emphasised on the notion of 'Constitutional Morality' as a restraining factor on the state that should derive from the Preambluar values of the Constitution.
- The CJI focused on the importance of technological advancements in the justice delivery system and the role of judges in preserving the diversity of India.
- He warned the judiciary of the pitfalls of personal values and belief systems of judges interfering with judgments that are opposed to values enshrined in the Constitution.

Constitutional morality

- It entails the adherence to constitutional norms within a democratic system. It goes beyond the literal interpretation to encompass a commitment to values such as sovereignty, social justice, and equality in constitutional adjudication.
- The term was introduced by British historian George Grote in his work "A History of Greece." He analysed the Athenian Constitution and the reforms of Cleisthenes, emphasizing the importance of instilling civic responsibility and preventing power abuse.
- In essence, constitutional morality embodies the balance between freedom and restraint. That is, citizens submit to

constitutional authorities and, at the same time, have the freedom to criticise those in power.

- Constitutional morality is now commonly used to refer to the substance of a constitution itself. According to this perspective, being subject to constitutional morality means being subject to the substantial moral implications inherent in a constitution. For instance, the principle of non-discrimination is often viewed as a key component of contemporary constitutional morality.
- Note: Constitutional morality has nowhere been mentioned in the Indian Constitution.

Key Components of Constitutional Morality in the Indian Constitution

- **Preamble:** Encapsulates the core values of the Constitution like sovereignty, justice, liberty, equality, and fraternity. These values form the bedrock of constitutional morality.
- **Fundamental Rights:** Guarantees essential individual's freedoms and rights against the arbitrary use of state power such as the right to life, liberty, equality, and freedom of expression etc.
- **Directive Principles of State Policy:** Outlines the state's goals and objectives, providing a moral compass for governance. They aim to achieve social justice, economic well-being, and equality.
- **Fundamental Duties:** Alongside their rights, citizens also have responsibilities to the nation.
- **Checks and Balances:** The separation of powers between the legislature, executive, and judiciary ensures a system of checks and balances, preventing the concentration of power and upholding constitutional values.
- **Discretionary Powers:** Constitutionalism means government and government officials are bound to follow the restriction on power and procedure attached with the power which is already prescribed by the Constitution itself. Constitutional morality requires these powers to be exercised by the various organs of the state in accordance with the spirit of the Constitution and not arbitrarily.
- **Non-discrimination:** The principle of equality enshrined in the Constitution prohibits discrimination on grounds of religion, race, caste, sex, or place of birth. This is a core aspect of constitutional morality.

Differing Perspectives on Constitutional Morality

Dr. B.R. Ambedkar's Perspective

- On November 4, 1948, Dr. BR Ambedkar used the term "constitutional morality" in the Constituent Assembly.
- Envisioned it as a set of norms and procedures guiding decision-making within the constitutional framework.
- Dr B R Ambedkar had a wider perspective on constitutional morality. For him, it was something 'Indians' lacked.
- He was of the opinion that in India, democracy is "top dressing

on Indian soil, which is essentially undemocratic." He critically remarked in the Constituent Assembly that Indians are yet to learn constitutional morality.

- He, while expressing remorse over including administrative details in the Constitution, explained that inclusion of such details is necessary for a population that is yet to learn constitutional morality as it is possible to run the administration against the "spirit of the Constitution" without changing the form of the Constitution in a society that lacks diffusion of constitutional morality.

Contemporary Understanding

- Constitutional morality is now associated with the substantive values enshrined in the constitution.
- Goes beyond procedural aspects to encompass the moral underpinnings of the constitution.
- More than penal provisions are needed to cultivate constitutional morality. The effect of constitutional morality on citizens is often outside the domain of the State.
- Constitutional morality in citizens is reflected in their interactions with members outside their community, in renting houses to members of a different religion, and in tolerating the dietary and clothing preferences of others.
- These aspects of a citizen's personal life are outside the scope of statutory laws. Thus, a top-down approach might fail to cultivate constitutional morality in society.

The Supreme Court's Viewpoint on Constitutional Morality

- Constitutional Morality as a Check on Arbitrary Power:
 - **SP Gupta Case (First Judges Case) 1982:** The Supreme Court mentioned that the violation of Constitutional convention will be considered as the violation of Constitutional Morality.
 - **Krishnamoorthy case (2015):** Emphasized constitutional morality is essential for good governance.
 - **Union of India vs. NCT of Delhi:** Highlighted the duty of high-ranking officials to adhere to constitutional morality to prevent arbitrary exercise of power.
 - **The Government of NCT of Delhi case (2018):** Described constitutional morality as a "second basic structure doctrine" safeguarding against arbitrary authority.

Constitutional Morality as Upholder of Fundamental Rights

- Constitutional Morality as a Check on Arbitrary Power:
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- Constitutional Morality as Upholder of Fundamental Rights:
 - **Justice K.S. Puttaswamy case (2018):** Upheld the right to privacy as a fundamental right, demonstrating the court's commitment to constitutional morality.
 - **Navtej Singh Johar case (2018):** Decriminalized consensual same-sex sexual relations in private, protecting the rights to privacy, equality and individual dignity.
- Constitutional Morality as a Tool for Judicial Review:

Justice K.S. Puttaswamy case (2017): The Supreme Court asserted its role in safeguarding constitutional morality by striking down laws or executive actions that violate constitutional principles.

Challenges in Upholding Constitutional Morality

- **Societal Values:** Rapidly changing societal values and beliefs can often clash with the principles enshrined in the constitution.
- **Religious Fundamentalism:** The rise of religious fundamentalism can challenge secular values and principles of equality.
- **Populist Politics:** Politicians may prioritize short-term gains over long-term constitutional principles to garner popular support.
- **Erosion of Institutional Autonomy:** Political interference in institutions like the judiciary, anti-corruption bodies, and election commissions can undermine constitutional morality.
- **Misuse of State Machinery:** The use of state machinery for political gains can erode the rule of law and fair play.

Strategies to Uphold Constitutional Morality

- **Independent Judiciary:** Ensuring the judiciary's independence and impartiality is crucial for upholding constitutional morality.
- **Constitutional Literacy:** Promoting awareness of constitutional values and principles among citizens.
- **Media Literacy:** Fostering media literacy to counter misinformation and propaganda.
- **Active Interpretation:** The judiciary should play a proactive role in interpreting the constitution in line with evolving societal needs while upholding its core principles.
- **Judicial Review:** Effective use of judicial review to protect constitutional values and check government overreach.
- **Political Accountability:** Ensuring transparency and accountability in government functioning.
- **Rule of Law:** Upholding the supremacy of law and avoiding arbitrary exercise of power.

Conclusion

The Constitution of India, unlike the US Constitution, does not merely create the organs of the State and its powers. It instead lays down the philosophy of governance and the guiding principles for the polity and its members. Constitutional

morality ensures governance aligns with constitutional principles, fostering democratic integrity and protecting fundamental rights as Gandhiji said, "Constitutional morality is the guide which must never be lost sight of." Similarly, Dr Ambedkar had the opinion that "constitutional morality has to be cultivated".

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Which of the following statements best describes Constitutional Morality?

- (a) Ensuring that modern constitutional norms do not over ride the traditional beliefs and practices.
- (b) Balancing constitutional norms and traditional norms in a society.
- (c) Prioritising collective economic and social goals over individual rights and liberties
- (d) Adherence to constitutional norms within a democratic system beyond the literal interpretation.

(d) :Answer

Descriptive Question

Q. What is constitutional morality? How it is inherent in the Indian Constitution and what is the Supreme Court's viewpoint on it? Explain with relevant judicial decisions. [15 Marks] [250 Words]

DIGITAL INDIA INITIATIVE (DII)

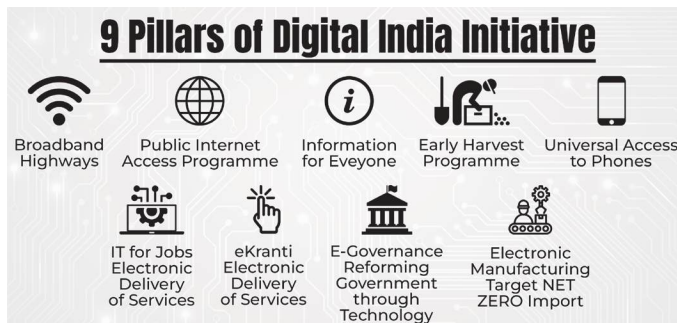
Why in News: Recently, the Prime Minister of India has praised the successful completion of nine years of the Digital India initiative. He remarked that digital India symbolizes an empowered India that boosts ease of living and transparency.

Digital India Initiative

- **Launched:** 2015
- **Ministry:** Ministry of Electronics and Information Technology (MeitY)
- **Objective:** To transform India into a digitally empowered society and knowledge economy.
- **Key Components**
 - **Digital Infrastructure:** Broadband highways, public Wi-Fi hotspots, digital lockers.
 - **E-governance:** Online delivery of government services.
 - **Digital Literacy:** Promoting digital literacy and skill development.

Structure

- **MeitY:** The nodal ministry responsible for overall implementation.
- **State-level nodal agencies:** Coordinate implementation at the state level.
- **Public-private partnerships:** Collaborations for infrastructure development and service delivery.



Flagship Initiatives under Digital India

- Aadhaar
- Unified Payments Interface (UPI)
- DigiLocker
- Unified Mobile Application for New-age Governance (UMANG)
- Government e-Marketplace (GeM): One Nation, One Ration Card
- Digital India Learning Management System (DLM)
- Digital Infrastructure for Knowledge Sharing (DIKSHA)
- Open Network for Digital Commerce (ONDC)
- Pradhan Mantri Gramin Saksharta Abhiyan (PMGDISHA) the World's largest Digital Literacy Programme.
- Meri Pehchaan, a National Single Sign-On (NSSO) platform.
- India Stack Global.

Latest Development

- The Ministry of Electronics and Information Technology (MeitY), recently, hosted the first-ever **Digital Future Skills Summit** in Guwahati to deliberate on strategies for catalyzing future-ready talent for India & the World.
- Recently, the GOI has launched the "Digital India Future LABs", to create a collaborative ecosystem for the development of IPs, standards, and the next-generation Electronics System Design in India.
- Recently, the final report of the G20 Task Force on Digital Public Infrastructure has been released.

Key Achievements of Digital India Initiative

Political Transformation:

- **Empowering Citizens:** Initiatives like DigiLocker, a secure platform for storing digital documents, and e-Sign, a digital signature service.

- **Transparency and Accountability:** Platforms like UMANG (Unified Mobile Application for New-age Governance) offer a single access point for various government services.
- **Enhanced Engagement:** Platforms like MyGov encourage public participation in policy formulation and decision-making.

Economic Growth Engine:

- **Startup Ecosystem on Steroids:** Startup India, fuels innovation and entrepreneurship in the digital space. Initiatives like Atal Innovation Mission further support the creation of a vibrant startup ecosystem, contributing to economic growth and job creation.
- **Financial Inclusion for All:** The rise of digital payment platforms like BHIM (Bharat Interface for Money) and UPI (Unified Payments Interface) has revolutionized financial inclusion.
- **Boosting Business Efficiency:** Initiatives like e-procurement and online tax filing streamline business processes.

Technological Advancement:

- **Connecting the Nation:** Investments in BharatNet, significantly improved internet penetration across the country and wider adoption of e-governance services.
- **Upskilling the Workforce:** Pradhan Mantri Gramin Digital Saksharta Abhiyan (PMGDISHA) focuses on citizens with basic digital literacy skills.
- **Digital Literacy for All:** Initiatives like National Institute of Electronics and Information Technology (NIELIT) offer skill development programs.

Social:

- **Healthcare Access:** Ayushman Bharat Digital Mission, CoWIN App, Aarogya Setu, e-Sanjeevani, Services e-Health Assistance and Teleconsultation (SeHAT) and e-Hospital have made health care facilities and services reach every corner of India.

Challenges in India's Digital Transformation

- **Rural-Urban Gap:** Internet penetration in rural areas is significantly lower at around 42.5% compared to urban areas with 75%.
- **Socioeconomic Disparities:** Lower-income households and marginalised communities face greater challenges in accessing and using technology.
- **Target NET ZERO Imports** in electronics is far from reality.
- **Data Breaches:** Increasing number of data breaches and cyberattacks targeting individuals and organisations.
- **Digital Skill Gap:** Shortage of skilled professionals in areas like data science, cybersecurity, and digital marketing.

- **Financial Exclusion:** Lack of digital financial services and payment infrastructure in rural areas. Only 53% of rural households have bank accounts, compared to 72% in urban areas (Financial Inclusion Index, RBI).
- **Public Awareness:** Nasscom found that only 36% of Indians are aware of basic cybersecurity practices.
- **Trust and Digital Literacy:** A survey by IAMAI found that only 46% of internet users in India trust online transactions.

Steps to Improve the outcomes of Digital India Initiative

- **National Digital Communications Policy (NDCP) 2018:** Emphasises universal broadband access, digital literacy, and cybersecurity.
 - Recommends public-private partnerships for infrastructure development.
- **Telecom Regulatory Authority of India (TRAI):** Advocates for net neutrality, affordable data plans, and infrastructure sharing.
- The need for **robust fibre optic networks**, especially in rural areas.
- Focuses on **digital literacy programs** and providing digital devices to marginalised communities.
- **National Education Policy (NEP) 2020:** Emphasises integration of digital literacy into school curriculum.

Conclusion

The nine-year journey of Digital India has revolutionised access, governance, and connectivity, laying a robust foundation for India's digital transformation and inclusive growth.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following:

1. Unified Payment Interface
2. Digi Locker
3. Pradhan Mantri Gramin Saksharta Abhiyan

How many of the above are the flagship initiatives under Digital India?

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

Answer: (c)

Descriptive Question

Q. Discuss the pillars and achievements of Digital India Initiative. How can the stakeholders overcome the challenges to improve the outcomes and reach of Digital India Initiative. [15 Marks] [250 Words]

CABINET COMMITTEES

Why in News: Recently, the Government of India has re-constituted 8 Cabinet Committees with the Prime Minister heading six of them.

About Parliament Cabinet Committees

- These are extra-constitutional high-level committees generally composed of the Cabinet Ministers.
- They are constituted under Transaction of Business Rules, 1961. These Rules emerge out of Article 77(3) of the Constitution, which gives the President the authority to make rules for the efficient transaction of government business and the allocation of that business among ministers.
- The Prime Minister sets up these committees with selected members of the Cabinet and assigns specific functions to these committees. The Prime Minister may change the numbers of committees, and modify the functions assigned to them.
- Their number, nomenclature and composition vary from time to time according to the requirements.
- Usually, only the Cabinet Ministers are members of these committees. However, it is not unheard of for non-Cabinet Ministers to be members or special invitees to committees.
- If the Prime Minister himself is a member of any such committee, he acts as the head of that committee.

Cabinet Committees (as on 03.07.2024)

	Committee	Function	Composition	
			Headed by	Members
1.	Appointments Committee of the Cabinet	• Makes appointments in top bureaucratic, strategic and security posts in the country. [Refer Table 1 for details] • Decides on all important empanelments and shifts of officers serving on Central deputation.	Prime Minister	• Minister of Home Affairs, and minister of Cooperation.
2.	Cabinet Committee on Accommodation	• Determines the guidelines or rules with regard to the allotment of government accommodation. • Takes decisions related to accommodation of Union ministers, bureaucrats, senior functionaries of the government, non-eligible persons and organisations.	Minister of Home Affairs and minister of Cooperation	• Minister of Road Transport & Highways • Minister of Finance and minister of Corporate Affairs. • Minister of Housing and Urban Affairs and minister of Power. • Minister of Commerce & Industry
3.	Cabinet Committee on Economic Affairs	• Reviews economic trends, problems and prospects “for evolving a consistent and integrated economic policy”, coordinate all activities requiring policy decisions at the highest level, deal with fixation of prices of agricultural produce and prices of essential commodities. • Considers proposals for investment of more than ₹1,000 crore. • Deals with industrial licensing policies and reviews rural development and the Public Distribution System.	Prime Minister	• Minister of Defence • Minister of Home Affairs and minister of Cooperation. • Minister of Road Transport & Highways • Minister of Agriculture & Farmers Welfare and minister of Rural Development. • Minister of Finance and minister of Corporate Affairs. • Minister of External Affairs • Minister of Heavy Industries • Minister of Commerce & Industry • Minister of Education • Minister of Panchayati Raj; and minister of Fisheries, Animal Husbandry and Dairying.

4.	Cabinet Committee on Parliamentary Affairs	• Draws the schedule for Parliament sessions and monitors the progress of government business in Parliament. • It scrutinises non-government business and decides which official Bills and resolutions are to be presented.	Minister of Defence	• Minister of Home Affairs and minister of Cooperation. • Minister of Health & Family Welfare and minister of Chemicals and Fertilizers. • Minister of Finance and minister of Corporate Affairs. • Minister of Panchayati Raj and minister of Fisheries, Animal Husbandry and Dairying. • Minister of Social Justice & Empowerment • Minister of Civil Aviation • Minister of Tribal Affairs • Minister of Parliamentary Affairs and minister of Minority Affairs. • Minister of Jal Shakti
5.	Cabinet Committee on Political Affairs	• Addresses problems related to Centre-state relations. • Also examines economic and political issues that require a wider perspective but have no internal or external security implications.	Prime Minister	• Minister of Defence • Minister of Home Affairs and minister of Cooperation. • Minister of Road Transport & Highways • Minister of Health & Family Welfare and minister of Chemicals and Fertilizers. • Minister of Finance and minister of Corporate Affairs. • Minister of Commerce & Industry • Minister of Micro, Small & Medium Enterprises • Minister of Ports, Shipping & Waterways • Minister of Civil Aviation • Minister of Environment , Forest & Climate Change • Minister of Women & Child Development • Minister of Parliamentary Affairs and minister of Minority Affairs. • Minister of Coal and minister of Mines.
6.	Cabinet Committee on Security	• Deals with issues relating to law and order, internal security and policy matters concerning foreign affairs with internal or external security implications. • It also goes into economic and political issues related to national security. • It considers all cases involving capital defence expenditure more than ₹1,000 crore.	Prime Minister	• Minister of Defence • Minister of Home Affairs and minister of Cooperation • Minister of Finance and minister of Corporate Affairs. • Minister of External Affairs

7.	Cabinet Committee on Investment and Growth	- Identifies key projects required to be implemented on a time-bound basis", involving investments of ₹1,000 crore or more, or any other critical projects, as may be specified by it, with regard to infrastructure and manufacturing. - It also monitors the progress of such projects.	Prime Minister	- Minister of Defence - Minister of Home Affairs and minister of Cooperation. - Minister of Road Transport & Highways - Minister of Finance and minister of Corporate Affairs. - Minister of Commerce & Industry - Minister of Consumer Affairs, Food and Public Distribution and minister of New and Renewable Energy. - Minister of Textiles - Minister of Railways; minister of Information and Broadcasting; and minister of Electronics and Information Technology. - Minister of Communications and Minister of Development of North Eastern Region. - Minister of Petroleum and Natural Gas - Minister of Food Processing Industries
8.	Cabinet Committee on Skill, Employment and Livelihood	Provides direction to all policies, programmes, schemes and initiatives for skill development aimed at increasing the employability of the workforce for effectively meeting the emerging requirements of the rapidly growing economy and mapping the benefits of demographic dividend.	Prime Minister	- Minister of Defence - Minister of Home Affairs and minister of Cooperation. - Minister of Road Transport & Highways - Minister of Finance and minister of Corporate Affairs. - Minister of Commerce & Industry - Minister of Education - Minister of Railways, minister of Information and Broadcasting; and minister of Electronics and Information Technology. - Minister of Environment, Forest and Climate Change - Minister of Culture and minister of Tourism. - Minister of Petroleum and Natural Gas - Minister of Labour and Employment; and minister of Youth Affairs and Sports.

TABLE 1

- The Cabinet Committee on Appointments : Makes appointments to posts of the three service chiefs, Director General of Military Operations, chiefs of all Air and Army Commands, Director General of Defence Intelligence Agency, Scientific Advisor to the Defence Minister, Director General of Armed Forces Medical Services, Director General of Ordnance Factories, Director General of Defence Estates, Controller General of Defence Accounts, Director of Institute for Defence Studies and Analyses, Solicitor-General, Governor of the Reserve Bank of India, Chairman and Members of the Railway Board, Chief Vigilance Officers in Public Sector Undertakings and Secretariat posts of and above the rank of Joint Secretary in the Central Government.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following:

1. Minister of Home Affairs and minister of Cooperation.
2. Minister of Defence
3. Minister of Finance and minister of Corporate Affairs.
4. Minister of External Affairs

Which of the above cabinet minister(s) is/are part of the Appointments Committee of the Cabinet?

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

(a) :Answer

Descriptive Question

Q. What are cabinet committees? Highlight their roles and challenges in carrying out effective policy formulation and implementation. [15 Marks] [250 Words]

THE BROADCASTING SERVICES (REGULATION) DRAFT BILL, 2024

Why in News: The draft of the Broadcasting Services (Regulation) Bill, 2024 seeks to regulate broadcast of news and current affairs programmes (excluding print news).

Key Details

- Union Government has come out with the second draft of the Broadcasting Services (Regulation) Bill, 2024, which is meant to replace the cable television networks act of 1995.
- When the Bill was first released for public consultation in November 2023, it set out to combine all regulation for broadcasters under one law.
- All news and news adjacent content online - videos and commentary on social media, websites, newsletters, podcasts is covered by this bill.
- YouTubers and Instagrammers who get paid a share of advertising revenue, or enable paid subscriptions, or even monetize their social media presence through affiliate activities, will be regulated as Digital News Broadcasters, if they broadcast news and current affairs.
- **The recent draft defines:**
 - **Professional** - a person engaged in an occupation or vocation

- **Systematic Activity** - any structured or organised activity that involves an element of planning, method, continuity or persistence
- **News and Current affairs** programmes to include "texts" apart from the existing "audio, visual or audio-visual content, sign, signals, writing, images" which are "transmitted directly or using a broadcasting network".
- The definitions of '**programme**' and '**broadcasting**' have also been revised to include "texts" and "textual programmes", respectively.
- **OTT broadcasting services** are no longer a part of the definition of 'internet broadcasting services'. The definition of OTT broadcasting service has also been revised due to which not only Netflix and Amazon Prime Video, but also content creators who regularly upload their content to social media can arguably be OTT broadcasting services.
- **Online content creators** that do not cover news and current affairs, but provide programming and curated programs beyond a certain threshold, will be treated as OTT broadcasters, if they provide content licensed or live through a website or a social media platform.

Intermediaries

- The new definition of an '**intermediary**', given in the context of any programme, includes social media intermediaries, advertisement intermediaries, internet service providers, online search engines and online marketplaces.
- If the intermediary does not comply with the government's directions, it stands to lose its safe harbour (exemption from liability for third party content) and can attract penal provisions under the Bharatiya Nyaya Sanhita, 2023.
- The bill clarifies that if an OTT broadcasting service or a digital news broadcaster is a user on a social media platform, the two broadcasters will be responsible for complying with the act, not the social media company.

Regulating Online Advertisement

- The Bill creates the category of '**advertising intermediaries**' which refer to "an intermediary which primarily enables buying or selling of advertisement space on the internet or placement of advertisements on online platforms without itself endorsing the advertisement, and shall not include an advertiser or broadcaster as defined under the rules".
- **All ads published online** on a website, social media, or similar medium must conform with the Advertising Code.

General obligations for all broadcasters and network operators

General obligations for broadcasters and network operators now include compliance with the government's foreign direct investment policy and standard operating procedures

during disasters and natural calamities, at par with how such regulations have existed for conventional broadcasters.

Anti-piracy provisions

- The recent bill includes a section on anti-piracy provisions which prohibit everybody from carrying any content in their programmes that violates someone else's copyright.
- The Bill also empowers the central government to establish "a dedicated task force or unit" to investigate and combat piracy.

Regulatory sandbox to test new broadcasting technologies

- Under the new bill, the central government can create one or more 'regulatory sandboxes' to "encourage and facilitate innovation and technological development in broadcasting".
- A regulatory sandbox is a 'live testing environment where new products, services, processes and business models' can be deployed on a limited set of users for a specified period of time with relaxations from the provisions of the act.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements regarding the draft Broadcasting Services (Regulation) Bill, 2024.

1. The bill is meant to replace the Cable Television Networks Act, 1995.
2. The Bill puts the onus of complying with the act on social media companies, if a digital news broadcaster is a user on their platform.
3. Under the Bill, OTT broadcasting services are no longer a part of the definition of internet broadcasting services.

How many of the above statement(s) is/are correct?

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

Answer: (b) (1 and 3)

NATIONAL INSTITUTION FOR TRANSFORMING INDIA (NITI AAYOG)

Why in News: Recently, the government reconstituted the NITI Aayog, with four full-time members and 15 Union Ministers as either ex-officio members or special invitees.

Key Details

Composition of NITI Aayog (as of 16 July 2024)

- **Chairperson:** The Prime Minister of India

- Vice Chairperson: CEO of the NITI Aayog
- 4 Full-Time Members
- 4 Ex-officio Members
 - Minister of Defence
 - Minister of Home Affairs
 - Minister of Agriculture
 - Minister of Finance
- 11 Special Invitees

CEO of NITI Aayog: Appointed by the Prime Minister for a fixed tenure of 2 years (extensions can be given)

So far, eight meetings of the **Governing Council** have been held under the chairmanship of the Hon'ble Prime Minister.

It comprises of:

- Prime Minister of India
- Chief Ministers of all the States and Union Territories with legislature
- Lt. Governors of other UTs
- Ex-Officio Members
- Vice Chairman, NITI Aayog
- Full-Time Members, NITI Aayog
- Special Invitees

Functioning Limitations of the NITI Aayog

- **Centralisation of ideas:** NITI Aayog has become a symbol of centralisation of ideas, shifting the theatre of activity from ministries to the Aayog.
 - It is believed that it only performs the function of **retrospectively justifying policy decisions already made** by the top hierarchy in the government.
- **Lack of fund allocation power:** In the absence of powers to allocate funds, the body has become irrelevant for states.
- **Overambitious:** According to some in the government, NITI Aayog's reports and targets are too ambitious.
- **Voice of PMO:** It performs the function of justifying PMO decisions through a paper or a report.
- **Disagreements with Ministers:** Being a highly bureaucratic body, sometimes NITI Aayog seems to be at odds with the ministers.

Need of Reform and Restructuring of NITI Aayog

- There is a feeling that NITI Aayog is not delivering as per stated objectives and may need a reset in terms of its role and responsibilities so that it could play a more proactive role on policy matters in the country.
- The prime minister is reported to have instructed each ministry to develop five-year plans in their respective domains, hence a relook at the structure and functions of the Niti Aayog becomes obvious.
- Granting fund allocation powers analogous to that of the

Planning Commission. The NITI Aayog should be given the responsibility of allocating capital and revenue grants to the states.

- The NITI Aayog must be technically strengthened and reorganised so that it can develop long-term integrated programmes for investment and management of key interconnected sectors

Sampoornata Abhiyan - Launched by NITI Aayog

- It is a nationwide campaign launched with a focus to attain saturation in 12 key social sector indicators in 500 Aspirational Blocks and 112 Aspirational Districts.
- The campaign will start from 4th July – 30th September 2024 focuses on themes such as Health, Nutrition, Agriculture, Social Development, and Education.
- The Aspirational Districts and Blocks pledged their commitment to the 'Sampoornata Abhiyan' by reiterating its principles through the 'Sampoornata Pledge' committing to fulfil the campaign's goals and accelerating progress towards full saturation of the identified indicators.
- As part of the campaign, district and block officials along with elected people's representatives will organise awareness activities including Gram Sabhas, Nukkad Natak, Paushtik Aahar Mela, Health camps, Exhibitions, Poster making and Poem competitions around 12 themes identified in all aspirational blocks and districts.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements regarding Sampoornata Abhiyan:

1. It is launched by the Food Council of India.
2. It focuses on the themes of Health and Nutrition.
3. It is a comprehensive three month nationwide campaign.

How many of the above statements are correct?

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

Answer: (a) (2 only)

Descriptive Question

Q. Critically examine the role of NITI Aayog in strengthening cooperative federalism in India. How can NITI Aayog play a more proactive role on policy matters in the country. [15 Marks] [250 Words]

GRAM NYAYALAYAS IN INDIA

Why in News: Recently, the Supreme Court of India has sought a full report from State Governments and High Courts on the establishment and functioning of gram nyayalayas, meant to provide affordable and quick justice to rural India and de-clog local courts.

About Gram Nyayalayas

- Gram Nyayalayas were set up under the **Gram Nyayalayas Act 2008** to ensure that opportunities for securing justice are not denied to any citizen by reason of social, economic or other disabilities at grass root level.
- According to the Act, Gram Nyayalayas are to be **established for every Panchayat at intermediate level** or a group of contiguous Panchayats at intermediate level or for a group of contiguous Gram Panchayats.
- **Note:** It is **not mandatory** for the states to set up the Gram Nyayalayas.
- The concerned **State Governments** are responsible for establishing Gram Nyayalayas **in consultation with the respective High Courts**.
- Gram Nyayalayas are deemed to be a Court of Judicial Magistrate of First Class with **both civil and criminal jurisdiction** to settle petty disputes at the village level.
- The Gram Nyayalaya shall not be bound by the rules of evidence provided in the Indian Evidence Act, 1872 but shall be **guided by the principles of natural justice** subject to any rule made by the High Court.
- The **seat of the Gram Nyayalayas** shall be located at the **headquarters of the intermediate Panchayat**. The Nyayadhikari shall periodically visit villages and may hear the parties and dispose of the cases at the place other than its headquarters.
- The Act extends to the whole of India, except to the States of Nagaland, Arunachal Pradesh, Sikkim and to the tribal areas specified in Parts I, II, IIA and III of the Table below paragraph 20 of the Sixth Schedule to the Constitution of India within the States of Assam, Meghalaya, Tripura and Mizoram, respectively.
- **Appeals:**
 - An appeal in **Civil cases** shall be heard and disposed of by the **District Court** within six months from the date of filing of the appeal.
 - An appeal in **Criminal cases** shall be heard and disposed of by the **Court of Session** within six months from the date of filing of such appeal.

Challenges in Functioning of Gram Nyayalayas

- Due to financial and state capacity constraints. Resource allocation remains low or non-existent.
- Elements of reluctance on the part of police officials, lawyers and other functionaries in bringing cases to the Gram Nyayalayas.
- Many states have over the years gone ahead and established regular courts at the Taluk level thereby lessening the need for gram nyayalayas.
- Gram Nyayalayas exist in a grey area wherein as much as they help expand the formal legal setup, they simultaneously divert from mainstream legal system tenets as well, thus acting as a handicap on their wider adoption.

- Gram Nyayalayas have simply been relegated to the sidelines by most state governments in their pecking order of policy priorities.
- General sense of confusion as far as the jurisdiction of Gram Nyayalayas goes as specific courts and forums of litigation like Family courts and Labour courts have also been established over the years.

Way Forward

- **Awareness:** Mass awareness campaigns with the aim of sensitising stakeholders on the utility and benefits of Gram Nyayalayas.
- **Institutionalisation:** Establishing permanent Gram Nyayalayas, making it mandatory for new judicial officers to serve in these institutions, training Gram Nyayadhikaris better and so on.
- **Responsibilities and Powers:** Clearly specifying the jurisdiction of Gram Nyayalayas and re-defining it to remove any ambiguities

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements regarding Gram Nyayalayas in India:

1. These are constitutional courts deriving their mandate from the constitution of India.
2. They are established by the State Governments in consultation with the High Courts.
3. It is mandatory for all the states in India to establish Gram Nyayalayas in every district.
4. They handle civil cases but not criminal cases.

How many of the above statements are correct?

- (a) Only 1 (b) Only 2
(c) Only 3 (d) All four

Answer: (a) (2 only)

Descriptive Question

Q. Critically examine how the implementation challenges faced by Gram Nyayalayas impact access to justice in rural areas. [10 Marks] [150 Words]

CONSTITUTIONAL IMMUNITY UNDER ARTICLE 361

Why in News: The Supreme Court of India, recently, agreed to examine the contours of Article 361 of the Constitution which grants blanket immunity to Governors from any kind of criminal prosecution.

Key Details

- The protection given to the President and the Governor can be traced to the Latin maxim "rex non potest peccare" or "the king can do no wrong", which is rooted in English legal traditions.

- The debate on whether executive immunity is a blanket protection has been taking place in other countries as well.
- The Supreme court will consider whether that interpretation of Article 361 of the constitution of India covers a registration of FIR, initiation of a preliminary inquiry, or a magistrate taking cognisance of an offence, which is the technical start of a criminal case.

Article 361: Protection of President and Governors and Rajpramukhs

- The President, or the Governor or Rajpramukh of a State, shall not be answerable to any court for the exercise and performance of the powers and duties of his office or for any act done or purporting to be done by him in the exercise and performance of those powers and duties.
- The conduct of the President may be brought under review by a court, tribunal or body appointed or designated by either House of Parliament for the investigation of a charge under Article 61 (Procedure for impeachment of the President).
- **No criminal proceedings** whatsoever shall be instituted or continued against the President, or the Governor of a State, in any court **during his/her term of office.**
- **No process for the arrest** or imprisonment of the President, or the Governor of a State, shall be issued from any court **during his/her term of office.**
- No civil proceedings in which relief is claimed against the President, or the Governor of a State, shall be instituted during his term of office in any court in respect of any act done or purporting to be done by him in his personal capacity, whether before or after he entered upon the office as President, or as Governor without a 2 month notice.
- The word "**Rajpramukh**" was effectively omitted from the text (body) of Article 361 by the **Constitution (Seventh Amendment) Act, 1956**. It remains in the heading / title of Article 361.

Previous Judicial Interpretation of Governor's Immunity

- **Rameshwar Prasad vs Union of India (2006):** The Supreme Court said while the Governor enjoys "complete immunity" when exercising their powers under Article 361(1), this immunity "does not, however, take away the power of the Court to examine the validity of the action including on the ground of malafides (actions taken in bad faith)".
- In 2015, the **Madhya Pradesh High Court** categorically held that Article 361(2) "guarantees absolute protection from any malicious campaign or publicity against the Head of a State, so as not to undermine the solemnity of that office."
- **State vs Kalyan Singh & Others (2017):** The Supreme Court delayed the trial against then Rajasthan Governor Kalyan Singh, who was one of the accused in the Babri Masjid Demolition case (1992).

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements:

1. No civil proceedings can be instituted against the Governor of a State during his/her term of office.
2. No criminal proceedings can be instituted against the Governor of a State during his/her term of office.
3. The Governor of a State cannot be arrested by a court order during his/her term of office.

How many of the above statements are correct?

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

Answer: (b) (2 and 3)

POWER OF THE GOVERNOR WITH RESPECT TO STATE BILLS

Why in News: The Punjab Universities Laws (Amendment) Bill, 2023 proposing to replace the Punjab governor with the chief minister as the chancellor of the state universities has been returned by the President without her assent.

Article 200 of the Constitution (Power of the Governor with respect to State Bills)

A Bill after being passed by the State Legislative House(s) shall be presented to the Governor.

The Governor can either:

- Give his/her assent to the Bill, or
- Withhold his/her assent to the Bill, or
- Return the Bill (not in case of Money Bill) to the state legislative house(s) for reconsideration, or
 - If the bill is passed again by the House(s) and presented to the Governor for assent with or without the amendments prescribed by the Governor, then the Governor shall not withhold his/her assent to the bill.
- Reserve the Bill for the consideration of the President.
 - Any Bill which in the opinion of the Governor would derogate the powers of the High Court and endanger the position of the High Court shall be (compulsorily) reserved for the consideration of the President.

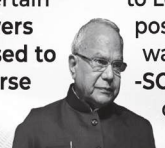
Supreme Court on the power of Governors to Assent to State Bills

- **Governors cannot sit on state Bills** i.e. "The Governor cannot be at liberty to keep the Bill pending indefinitely without taking any action whatsoever. Failing to make a decision and keeping a duly passed Bill pending for

indeterminate periods is a course of action inconsistent with that expression".

"The Governor can't be at liberty to keep the bill pending indefinitely without any action... Governor, as an unelected Head of the State, is entrusted with certain constitutional powers (which) can't be used to thwart normal course of lawmaking by State Legislatures"

Article 200 empowers Guv to withhold assent to the Bill. In such an event, Guv must mandatorily follow the course of action... of communicating to Legislature 'as soon as possible' a message warranting reconsideration -SC bench while hearing a case involving Punjab governor BL Purohit



- **Governor cannot refer re-enacted Bills to the President** i.e. The Governor, having withheld his assent to a Bill in the first instance cannot now refer the Bill, re-passed by the State legislature, to the President.

Article 201 of the Constitution

When a Bill is reserved by a Governor for the consideration of the President, the President can either:

- Give his/her assent to the Bill, or
- Withhold his/her assent to the Bill, or
- Direct the Governor to return the Bill to the State Legislative House(s) (not in case of Money Bill)
 - The House(s) shall reconsider the Bill accordingly within a period of six months.
 - If the bill is again passed by the House(s) with or without amendment, it shall be presented again to the President for his/her consideration.
 - It is not obligatory for the President to give his/her assent to the bill passed again by the House(s).

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements:

1. The Governor of a State can reserve a Money Bill passed by the Legislative House(s) of the State for the consideration of the President.
2. The Governor of a State enjoys Pocket Veto with respect to the Bills passed by the Legislative House(s) of the State.

Which of the above statement(s) is/are correct?

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

Answer: (a)

EXPUNCTION OF WORDS IN PARLIAMENT

Why in News: Recently, Leader of Opposition (LoP) in Lok Sabha wrote to the Speaker regarding a portion of his speech expunged during Motion of Thanks on the President's address.

Key Details

- Several portions of the maiden speech of Leader of the Opposition in Lok Sabha have been expunged from the records of the Parliament.
- LoP argued the application of Rule 380 to his remarks, asserting they did not meet the criteria for expunction.
- Citing Article 105(1) and Article 194 (for state legislatures) of the Constitution of India, LoP emphasized the freedom of speech enjoyed by all Members of Parliament to convey ground realities and questions of the people.
- LoP argued that the speech of another Member of Parliament is full of allegations and only one word has been expunged, questioning the consistency and logic behind selective expunction.
- **Different criteria:** Critiqued the disparity in treatment between different speeches of the treasury bench and opposition within parliamentary proceedings.

Expunction of words in Parliament

- **Meaning:** Expunction of Remarks in the Indian Parliamentary system refers to the process of removing certain remarks made by Members of Parliament (MPs) from the official records of parliamentary proceedings.
- **Rules of Procedure and Conduct of Business in Rajya Sabha, Rule 261:** If the Chairman is of opinion that a word or words has or have been used in debate which is or are defamatory or indecent or unparliamentary or undignified, he may in his discretion, order that such word or words be expunged from the proceedings of the Council.
- **Rules Of Procedure And Conduct Of Business In Lok Sabha rule 380:** If the Speaker is of opinion that words have been used in debate which are defamatory or indecent or unparliamentary or undignified, the Speaker may, while exercising discretion order that such words be expunged from the proceedings of the House.

Need of Expunction Powers

- **Functioning of House:** First, the circulation of the proceedings of the House is deemed to be essential for the effective functioning of the Parliament. Public should be aware of the issues that their representatives were raising in Parliament to ensure accountability with proper language.
- **Monitoring:** It was expected that the Speaker/Chairman would pull up members or express their displeasure for

making inappropriate statements before exercising the power of expunction in the Parliament.

- **Regulation:** The press does not have the right to publish those parts of speeches that have been expunged from the official record of the House. This position has also been upheld by the Supreme Court in **Pandit M.S.M. Sharma versus Shri Sri Krishna Sinha & Others. (1958).**

International Practices For Expunction of Words in Parliaments

United Kingdom: The Speaker of the House of Commons has the authority to order the expunction of words or remarks that are deemed unparliamentary or disorderly.

United States (Congress): In both the House of Representatives and the Senate, the presiding officers (Speaker of the House, Vice President or President Pro Tempore in the Senate) have the authority to order the expunction of remarks.

Australia (Parliament): The Speaker of the House of Representatives and the President of the Senate can order the expunction of remarks during parliamentary proceedings.

Conclusion

American author Frank Sonnenberg has said, "You don't win a debate by suppressing discussion; you win it with a better argument."

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

- Q. The power of expunction of remarks made by members in proceedings of Rajya Sabha lies with ?
- Speaker of Lok Sabha
 - President
 - Minister of Parliamentary Affairs
 - None

Answer: (d)

RULE 267 OF THE RAJYA SABHA RULEBOOK

Why in News: Rajya Sabha Chairman and Vice-President recently called for introspection among parliamentarians regarding the frequent use of Rule 267, terming it an "indiscriminate resort" to the provision.

Rule 267 of Rules of Procedure and Conduct of Business in the Council of States

- Rule 267 - Suspension of rules under Chapter XXI - General Rules of Procedure
- It allows for the suspension of day's business to debate the issue suggested by a Member of Parliament (MP) on an urgent matter with the Chairman's approval.

- Under this rule, any MP may, with the consent of the Chairman, move that any rule may be suspended in its application to a motion related to the business listed before the Council of the day. If the motion is carried, the rule in question shall be suspended for the time being.
- MPs must give notice before 10 am on the day they seek suspension. The motion is put to vote if the Chair allows but it doesn't apply if specific provisions for rule suspension exist.

Issues regarding Rule 267

- The frequent use of the rule has become a point of contention between the opposition and presiding officers of Rajya Sabha.
- Critics argue that the Opposition has been attempting to use Rule 267 as an equivalent to the adjournment motion in Lok Sabha, which allows for the scheduled business to be set aside to discuss matters of urgent public importance.

When has Rule 267 been invoked?

- According to the Rajya Sabha Chairman, in the past 36 years, Rule 267 has been allowed only on six occasions.
- According to the Hindu Newspaper, Rule 267 has been invoked 11 times since 1990, discussing issues like the Gulf War and corruption. The last discussion allowed under this rule was in 2016 on demonetisation during Vice-President Hamid Ansari's tenure

Rule 176 of Rules of Procedure and Conduct of Business in the Rajya Sabha

- Rule 176 - Notice under Chapter XIII - Short Duration Discussion
- It allows for short-duration discussions.
- These discussions do not last for more than two-and-a-half hours.
- Unlike Rule 267, Rule 176 does not require a formal motion or voting process. The MP who has given notice may make a short statement, and the Minister shall reply shortly. Other members, with prior permission from the Chairman, may also take part in the discussion.
- Similar to Rule 267, the Chairman has the authority to prescribe a time limit for speeches during these short-duration discussions if deemed necessary.
- **Simply put, Rule 267 is invoked to suspend rules for urgent debates, while Rule 176 facilitates short-duration discussions without the need for formal motions or voting.**

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

- Q. Consider the following statements regarding Rules of Procedure and Conduct of Business in the Rajya Sabha:
1. Article 176 deals with the short duration discussions in the Rajya Sabha.
 2. Article 267 deals with the suspension of rules in order to debate an urgent matter in the House.

Which of the above statement(s) is/are correct?

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

Answer: (c)

SIXTEENTH FINANCE COMMISSION

Why in News: Recently, the Sixteenth Finance Commission, headed by Arvind Panagariya, set up a five-member advisory council to advise the Commission on the Terms of Reference (ToR).

Key Details

16th Finance Commission Advisory Council

- **Established by:** Arvind Panagariya, head of the 16th Finance Commission.
- **Chairperson:** Poonam Gupta, Director General of the National Council of Applied Economic Research (NCAER).
- **Other Members:** D.K. Srivastava, Neelkanth Mishra, Pranjul Bhandari, Rahul Bajoria.
- **Role and Purpose of Advisory Council:**
 - Broaden the Commission's understanding of fiscal devolution.
 - Identify best practices for fiscal devolution nationally and internationally.
 - Monitor and assess studies commissioned by the Finance Commission.
 - Improve the quality, reach, and enforcement of the Commission's recommendations.
 - Assist in preparing research papers and studies.

The Terms of Reference (ToR) for Sixteenth Finance Commission

- **Distribution of Tax Proceeds:** Distribution of the net proceeds of taxes between the Union and states under Chapter I, Part XII of the Constitution and also measures needed to augment the Consolidated Fund of a State to supplement the resources of panchayats and municipalities.
- **Grants-in-Aid:** The principles governing 'grants-in-aid' of the revenues to states from the Consolidated Fund of India and the sums to be paid to states by way of grants-in-aid of their revenues will be addressed.

Note: The 16th Finance Commission may review the present arrangements on financing Disaster Management initiatives, with reference to the funds constituted under the Disaster Management Act, 2005 (53 of 2005), and make appropriate recommendations thereon.

The criteria for horizontal devolution among States over the last five FCs					
Criteria	11th FC 2000-05	12th FC 2005-10	13th FC 2010-15	14th FC 2015-20	15th FC 2021-26
Income Distance	62.5	50	47.5	50	45
Population (1971 Census)	10	25	25	17.5	-
Population (2011 Census)	-	-	-	10	15
Area	7.5	10	10	15	15
Forest cover	-	-	-	7.5	-
Forest and ecology	-	-	-	-	10
Infrastructure index	7.5	-	-	-	-
Fiscal discipline	7.5	7.5	17.5	-	-
Demographic performance	-	-	-	-	12.5
Tax effort	5	7.5	-	-	2.5
Total	100	100	100	100	100

16th Finance Commission

- **Appointed** by the President under Article 280 of the Constitution, mainly to give its recommendations on distribution of tax revenues between the Union and the States and amongst the States themselves.
- **Chairperson:** Arvind Panagariya (Former Vice Chairman of NITI Aayog)
- **Secretary:** Ritvik Ranjanam Pandey
- **Full-time Members:**
 - Ajay Narayan Jha (Former Expenditure Secretary)
 - Annie George Mathew (Retired Bureaucrat)
 - Niranjana Rajadhyaksha (Executive Director, Artha Global)
- **Part-time Member:** Soumya Kanti Ghosh (Chief Economic Advisor, SBI Group).
- The 16th Finance Commission has until October 31, 2025, to submit its recommendations for the period 2026-2031.
- Currently, India shares 41% of Union taxes with states as recommended by the 15th FC.

Conclusion

The Advisory Council of the Sixteenth Finance Commission will provide expert guidance, facilitating informed decisions on fiscal matters to promote balanced economic growth and fiscal sustainability across Indian states.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

- Q. With reference to 16th Finance Commission(FC), which of the following statements is/are correct?
1. It is headed by Arvind Panagariya.
 2. It is constituted under article 180 of the Indian constitution.
 3. Currently, India shares 41% of Union taxes with states as recommended by the 14th FC.

Select the answer using the code given below

- (a) 1 only (b) 1 and 2
(c) 1, 2 and 3 (d) None of the above

Answer: (a)

CENTRAL BUREAU OF INVESTIGATION (CBI)

Why in News: Recently, the Supreme Court of India, has upheld the maintainability of a suit filed by the West Bengal accusing the Centre of “constitutional overreach” and violation of federalism by unilaterally employing the Central Bureau of Investigation (CBI) without the state’s prior consent.

Key Details

- **Legal status:** CBI comes under Delhi Special Police Establishment Act, 1946. Not a statutory body, it is a police agency with its jurisdiction defined by the central government.
- **Jurisdiction:** Largely committed to the investigation of cases relating to corruption, economic offenses, high-profile cases of national importance, and cases of public servants.
- **Structure:** It is headed by a Director appointed by the Central Government and is headquartered in New Delhi. CBI functions under the administrative control of the Ministry of Personnel, Public Grievances and Pensions.
- **Investigative Powers:** Central Government can authorise CBI investigations in any area but only with the consent of the state government.
- However, there are exceptions:
 - The Supreme Court and High Courts can order CBI investigations anywhere in India, regardless of state consent.
 - CBI can take up cases in Union Territories without needing consent.

Working Challenges Faced by the CBI

- Delay and Difficulties in Obtaining the State Consent
- **Shortage of Workforce and Skill Training- Related Problems**
- **Loss of Public Trust Due to Political Interference**
- **Long Trial Process Due to Outdated Legislation and Delayed Investigation**
- Lack of Inter-Agency Coordination Due to Red Tapism

Recommendations to Address CBI’s Working Challenges

- **Parliamentary Standing Committee on Personnel, Public Grievances, Law and Justice (24th Report):**
 - **Statutory Backing:** Enact a new CBI Act in place of the Act of 1946. The Act would spell out the role, jurisdiction, and legal powers of the CBI beyond challenge or doubt, and also make them more independent.
 - **Manpower Strengthening:** Increase the manpower strength of CBI and provide corresponding infrastructure and financial resources to increase its operational capacity.

- **Law Commission of India (262nd Report):**
 - **Nature and Powers of Investigation:** Effectively grant powers to the CBI to directly register FIRs and investigate without depending on referrals either by state governments or courts.
 - Lay down time-bound procedures for the investigation and prosecution of CBI cases to facilitate the process of justice.
- **Central Vigilance Commission (CVC):**
 - **Selection of Director:** Recommend a more transparent and independent selection process for the CBI Director, potentially involving a committee headed by the Chief Justice of India or a retired Supreme Court judge.
 - **Internal Monitoring:** Strengthen internal oversight mechanisms within the CBI to identify and address potential instances of misconduct or inefficiency.
- **Supreme Court judgments:**
 - **Vineet Narain vs. Union of India (1996):** This judgment emphasized the requirement of statutory backing for CBI and safeguards against political interference.
 - **Prakash Singh vs. Union of India (2006):** When the Court was dealing with police reforms, it laid emphasis on similar reforms in the investigative agencies like the CBI and focused more precisely on security of tenure and independence.

Conclusion

A reformed CBI with statutory status, transparent appointment in leadership, better training, and oversight mechanism can become an instrumental institution in the fight against corruption and crime in India.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

- Q. Central Bureau of Investigation (CBI) functions under administration of?
- Ministry of Home Affairs
 - Ministry of Parliamentary Affairs
 - Ministry of Personnel, Public Grievances and Pensions
 - None of the above

Answer: (c)

Descriptive Question

- Q. CBI is emerging as a weak link in the federal polity structure of India. Critically Examine. [10 Marks] [150 Words]

INCLUSIONS AND EXCLUSIONS IN THE SCHEDULED CASTES LIST

Why in News: The Supreme Court of India has quashed a 2015 notification of the Bihar government by which it had deleted 'Tanti-Tantwa' caste from the Extremely Backward Classes (EBC) and merged it with 'Pan/Sawasi' caste in the Scheduled Castes list, to claim the benefits of Scheduled Castes.

Key Details

- The Supreme Court of India has held that Indian states cannot tinker with the Scheduled Castes List notified under Article 341 of the Constitution of India.
- Any inclusion or exclusion of any caste, race or tribe or part of or group within the castes, races or tribes has to be, by law made by the Parliament, and not by any other mode or manner.
- Neither the Central government nor the President on its own can make any amendments or changes in the notification issued under Article 341(1) specifying the castes in relation to the States or Union Territory, except the Parliament.
- The Scheduled Castes list specified under the notification under Article 341(1) can be amended or altered only by a law made by the Parliament.
- State Backward Commission has the jurisdiction to only recommend the joining of a caste or group with a notified Scheduled Caste community.

ARTICLE 341

- (1) The President may with respect to any State or Union Territory and where it is a State after consultation with the Governor thereof, by public notification specify the castes, races or tribes or parts of or groups within castes, races or tribes which shall for the purposes of this Constitution be deemed to be Scheduled Castes in relation to that State or Union Territory, as the case may be.
- (2) Parliament may by law include in or exclude from the list of Scheduled Castes specified in a notification issued under clause of any caste, race or tribe or part of or group within any caste, race or tribe, but save as aforesaid a notification issued under the said clause shall not be varied by any subsequent notification.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

- Q. Consider the following statements:
1. The Supreme Court of India has no jurisdiction in matters related to notification of a caste as Scheduled Caste under Article 341 of the Constitution.

2. The Centre government can include or exclude any caste in the Scheduled Castes List notified under Article 341 of the Constitution.

Which of the statement(s) above is/are correct?

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

(d) Answer:

CATEGORY 2A OF THE OTHER BACKWARD CLASSES (OBC)

Why in News: Panchamasali Lingayats have recently again started demanding inclusion in Category 2A of the Other Backward Classes (OBC).

Key Details

- To prevent any one dominant OBC group from cornering all quota benefits, most states have come up with further sub-categorisation of OBCs, which takes into account different castes' relative marginalisation, and their populations.
- The Karnataka State has four categories of OBC: 2A, 2B, 3A and 3B based on the economic, social and educational status.
- These communities get preferential reservation in jobs and educational institutions based on the categories.
- While 2A are the most backward, 2B are moderate, and little above them are 3A and 3B.
- The two dominant communities—Vokkaliga and Panchamasalis—which are in 3A and 3B category, have been demanding reservations under 2A status.
- The government decided to create two new categories of 2C and 2D. Those who are presently 3A and 3B would now find place in 2C and 2D.
- In Karnataka, the 32% total reservation for OBCs in government jobs and college admissions is distributed among five categories. Of these, at present, 102 castes fall in the 2A OBC category in Karnataka.
- Inclusion in 2A category will enable Panchamasalis to avail the 15% quota in government jobs and college admissions earmarked for this category, as against the 5% quota they currently enjoy under Category 3B of Karnataka's OBC quota.

Who are the Panchamasali Lingayats?

- The Panchamasalis are the largest sub-caste of Karnataka's dominant Lingayat community.
- The Lingayats (officially classified as Hindu sub-caste 'Veerashaiva Lingayats') are followers of Basavanna, a 12th century philosopher-saint who started a radical anti-caste movement which rejected orthodox ritualistic Hindu practices in favour of a more personal, affective relationship with God, specifically Lord Shiva.

- Today, the Lingayat community is an amalgamation of many sub-castes. Of these sub-castes, the agriculturalist Panchamasalis are the largest, making up nearly 70% of the Lingayat population.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Which of the following statement is correct about the Panchamasali community recently seen in the news?

- (a) It is a sub-caste of Vokkaliga community in Karnataka
(b) It is a class of landless farmers in Tamil Nadu
(c) It is a tribal group living in the Eastern Ghats
(d) It is a sub-caste of Lingayat community in Karnataka

(d) Answer:

LOCATION SHARING CANNOT BE A BAIL CONDITION

Why in News: Recently, the Supreme Court of India held that any bail condition that permits tracking the location of the accused by using any technology violates the right to privacy guaranteed under Article 21 of the Indian Constitution

Key Details

- The Supreme Court quashed a Delhi High Court order that made sharing the location through Google Maps a condition for granting bail to an accused person.
- Case:** The Court in **Frank Vitus v. Narcotics Control Bureau** reiterated the right to privacy inherent under Article 21 of the Constitution of India.
- It cannot permit the surveillance of the accused's movements on a real-time basis which would violate his right to privacy under Article 21 of the Constitution.
- The condition of sharing location through Google Maps is not a necessary condition for bail, the apex court declared.
- Foreign national:** This judgment is going to have wide ramifications, particularly in so far as it concerns foreign nationals who go through the legal process in India.
- It emphasized the delicate balance between a need to have the accused person present at court and protection of fundamental rights of the accused.

Article 21 and Right to Privacy

- On August 24th 2017, the Nine Bench in Justice K.S. Puttaswamy vs Union of India, unanimously recognised a fundamental right to privacy of every individual guaranteed by the Constitution, within Article 21 in particular and Part III on the whole.
- The Bench also held that while the right to privacy is intrinsic

to an individual's ability to exercise bodily autonomy, it is still not an "absolute right" in and of itself, placing limitations in a manner similar to those placed on the right to free speech and expression.

Right to Privacy: Worldwide Situation

- **The International Covenant on Civil and Political Rights (ICCPR)**, established in 1966, and Article 12 of the Universal Declaration of Human Rights, 1948, respectively, provide legal protection against "arbitrary interference" with one's privacy, family, home, correspondence, honour, and recognition.
- **India signed and ratified** the ICCPR without any objections in 1979.
- **The European Union's 2012 Charter of Fundamental Rights**, Articles 7 and 8, recognises the right to privacy and the right to one's own family life, home, and communications.
 - Private statistics and their series must be protected under Article 8 for a specific, justifiable purpose.
- **The European Union's General Data Protection Regulation (GDPR)** focuses on providing a thorough records protection framework for the processing of personal data.

Note: Please Refer June 2024 Monthly Current Affairs Magazine for 'Bail Conditions in India' in detail.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Which Article of the Constitution of India safeguards one's right to privacy?

- (a) Article 19 (b) Article 20
(c) Article 21 (d) Article 22

Answer: (c)

RIGHT TO A SPEEDY TRIAL

Why in News: Recently, the Supreme Court of India has underscored the constitutional right to a speedy trial under Article 21 of the Indian Constitution, irrespective of the severity of the alleged crime, as it granted bail to the accused in the case.

Key Details

- In the case of **Javed Gulam Nabi Shaikh vs. The State of Maharashtra**; Supreme Court granted bail to a man accused of possessing counterfeit currency on the ground

that he has been in jail as an undertrial prisoner for the past four years, and to this date, the trial court has not been able to even proceed to frame charges.

- The Supreme Court criticized the National Investigation Agency (NIA) for delaying the trial for four years.
- The apex court observed that the delay violated the accused's right to a speedy trial, enshrined in Article 21 of the Indian Constitution.
- The apex court mentioned that, even though the crime was allegedly serious [counterfeit currency and under section 18 (punishment for conspiracy) of the UAPA.], the right to a speedy trial applies regardless of the offense.
- The bench also relied on the landmark judgment of the apex court in **Hussainara Khatoon vs Home Secretary, State of Bihar (1980)** and **Union of India vs K.A. Najeeb (2021)**,

Constitutional Right to a Speedy Trial under Article 21

- **Union of India vs K.A. Najeeb (2021)**, the apex court held that the right to a speedy trial is a fundamental right, and that a violation of this right is grounds for bail in UAPA cases.
- **Kartar Singh v. State of Punjab (1994)**, the Supreme Court constitutional bench affirmed the right to speedy trial as intrinsic to Article 21 of the Constitution.
- **Abdul Rehman Antulay v. RS Nayak (1992)**, the Supreme Court underscored that the right to speedy trial encompasses the entirety of legal proceedings, imposing a burden on the prosecution to justify delays and calling for a balancing of interests in each case.
- **Hussainara Khatoon (I) v. Home Secretary, State of Bihar (1980)**, the Supreme Court ruled that any procedure lacking in trial speediness would violate Article 21 guarantee of fairness and justice.

The Bharatiya Nagarik Suraksha Sanhita (BNSS)

- It mandates sessions courts to frame charges within 60 days of the first hearing and deliver judgments within 30 days (extendable to 60 days) after completing arguments.
- Plea bargaining applications must be filed within 30 days of charge framing.
- BNSS requires medical reports in rape cases to be submitted within seven days and demands that victims be updated on investigation progress within 90 days.
- To speed trials, BNSS allows evidence collected by retired or transferred officers to be presented by their successors. It permits trials to proceed in absentia for accused individuals declared proclaimed offenders, with judgments possible against them.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. The Right to a Speedy Trial comes under which article of Indian constitution?

- (a) Article 19 (b) Article 20
(c) Article 21 (d) Article 22

Answer: (c)

THE CASE STUDY- ETHICS OF HUNGER STRIKES

Context: Hunger-strikes have always raised a series of complicated moral questions, such as whether it is appropriate to provide medicine against the will of a person on strike or if force-feeding could be a dangerous protocol.

Hunger Strike in India

- **Bhagat Singh and Jatin Das**
 - The most notable hunger strike in colonial India was undertaken by Bhagat Singh and Batukeshwar Dutt in protest against abysmal jail conditions. Their strike was joined by several comrades, including Jatin Das, whose death after a 63-day hunger strike in 1929 became a significant event in India's struggle for independence. Das's martyrdom highlighted the extreme physical toll of hunger strikes and their potential to galvanize public support for political causes.
- **Mahatma Gandhi's Approach**
 - Mahatma Gandhi's perspective on hunger strikes, which he preferred to term 'fasting,' was rooted in non-violence. He believed fasting should aim to reform rather than extort. Gandhi undertook several significant fasts, including one in 1922 following the Chauri Chaura incident, where he fasted for three weeks to quell violence among protestors. In 1932, he undertook another fast unto death to oppose the British government's decision to reserve legislative seats for Dalits. This decision was contentious and opposed by Dr. B.R. Ambedkar, who believed in direct political representation for Dalits. Although Dr. Ambedkar eventually acquiesced, he later criticized such methods, favoring constitutional approaches over what he termed "the grammar of anarchy."
- **Potti Sriramulu's Protest**
 - The first major hunger strike in independent India was Potti Sriramulu's 1952 fast unto death for a

separate Andhra Pradesh state. His death after 58 days of fasting sparked widespread protests and ultimately led to the creation of Andhra Pradesh. This event demonstrated the powerful impact of hunger strikes in post-independence India.

- **Irom Sharmila's Long Protest**

- Another significant hunger strike was Irom Sharmila's 16-year fast against the Armed Forces Special Powers Act (AFSPA) in Manipur, which began in November 2000 after the alleged gunning down of 10 civilians by the Assam Rifles. Sharmila was arrested for attempted "suicide" and held in police custody, where she continued her hunger strike. Her prolonged protest drew international attention to the draconian measures in Manipur.

Ethical Dilemmas and State Response

- **Monopoly on Violence**
 - In independent India, the state often seeks to suppress hunger strikes, sometimes resorting to violence and force-feeding. Authorities may attribute the death of a hunger striker to unrelated ailments to avoid accountability. For instance, Bengali revolutionary Mohan Kishore Namadas's death was attributed to "lobar pneumonia," ignoring the force-feeding that preceded it. Some prison personnel, refusing to participate in such abuses, highlight individual resistance within the state apparatus.
- **Social and Ethical Questions**
 - Hunger strikes raise complex moral questions. Is it ethical to provide medicine or nutrition against the striker's will? Is force-feeding a violation of the Hippocratic oath? Theologian Herbert McCabe's reflection on Bobby Sands's death during a hunger strike compares the state's role to murder and the striker's act to suicide, posing challenging ethical considerations.
- **Addressing Inequities**
 - Hunger strikes are a desperate form of resistance, underscoring the need for societies to address the demands of protestors and rectify state inequities. The brutal suppression of hunger strikes can only lead to tragedy. As Yeats poignantly noted in "The King's Threshold," the public outcry against perceived injustice sustains the practice of hunger strikes as a protest method, hoping for a collective moral awakening.

Conclusion

The history of hunger strikes reveals their dual nature as both a powerful tool for social and political change and a method fraught with ethical dilemmas. Societies must grapple

with these issues to ensure that the rights of protesters are respected and that the underlying causes of such protests are addressed. Hunger strikes will continue to be a part of the landscape of resistance as long as there are injustices that drive individuals to such extreme measures.

EXPECTED QUESTIONS FOR UPSC CSE

Descriptive Question

Q. Examine the ethics of hunger strikes as a mode of protest. Discuss its moral implications, effectiveness, and the ethical responsibilities of stakeholders involved. [10 Marks] [150 Words]



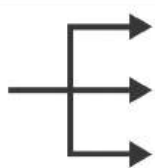
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INTERNATIONAL RELATIONS

NORTH ATLANTIC TREATY ORGANIZATION (NATO) SUMMIT 2024

Why in News: The United States of America has recently hosted the 2024 NATO Summit in Washington, D.C., marking the historic 75th Anniversary of the Alliance.

Key Details

- The Washington Summit was convened with all 32 Allies, along with its newest member, Sweden, to demonstrate the continued strength of the NATO Alliance and unwavering commitment to the transatlantic bond and Article 5 of the Washington Treaty, that an attack on one is an attack on all.
- The summit also included the Indo-Pacific four (IP-4): Australia, Japan, New Zealand and South Korea, which shows how NATO's strategy has changed because of new global risks, like tension over Taiwan and close cooperation between Russia and China.
- The meeting focused on three main themes:
 - **Deterrence and defence:** Modernisation of NATO's command structure and strengthening the Alliance's readiness and ability to respond capabilities.
 - **Long-term support to Ukraine:** Forming the bridge to Ukraine's future NATO membership, advancing military, political, and financial support.
 - **Cooperation with the EU and NATO's global partners:** Increasing connectivity between Euro-Atlantic and Indo-Pacific security in the face of global challenges.

Role of NATO in Contemporary Global Security Dynamics

- **Deterrence Against Conventional Threats:** The principle of collective defense by NATO through Article 5, deterred possible aggression against its member states.
 - In all of its history, there has never been any large-scale conventional attack against NATO members.
- **Collective Response to New Security Challenges:** Beyond traditional warfare, it tackles threats such as cyber attacks and hybrid warfare that blend conventional and unconventional warfare.
 - Right after the annexation of Crimea by Russia in 2014, NATO decided to increase the level of its Baltic air policing mission.

- **Crisis Management and Peacekeeping:** experience in crisis management and peacekeeping operations, contributing to global stability.
- **Promoting Democratic Values and Cooperation:** fosters cooperation and adherence to democratic principles. Freedom House's "Freedom in the World 2023" report findings.
- **Maintaining a Strong Transatlantic Security Partnership:** NATO strengthens the security partnership between North America and Europe, fostering global stability.
- **Addressing Non-Traditional Military Challenges:** NATO has expanded its scope to address emerging threats such as cybersecurity, disinformation campaigns, the weaponisation of new technologies, and cognitive warfare.

Contemporary Challenges Associated with NATO

A. INTERNAL

- **Divergent national interests:** The challenge lies in reconciling and maintaining cohesion and effectiveness of the alliance. Decisions regarding alliance enlargement involve considerations of security, stability, and potential geopolitical implications.
- **Defence spending disparities:** The Alliance's decision-making processes require consensus, and internal disagreements on military interventions can hinder timely and decisive action. Differences in military doctrines represent a persistent challenge in achieving seamless coordination and interoperability in joint military operations.
- **Erosion of trust:** Disputes over issues such as intelligence sharing, military interventions, or diplomatic strategies can erode trust and cooperation.
- **Political (dis)unity for decision-making:** Changes in leadership, shifts in foreign policy priorities, or internal political conflicts may hinder the Alliance's ability to formulate and implement a unified strategy.
- **Technology gaps:** Ensuring that all members have access to and can integrate cutting-edge technology is crucial for maintaining the Alliance's effectiveness.

B. EXTERNAL

- **Russia's aggressive actions:** The Russian Federation constitutes the principal and most direct threat to the security of NATO members and the overall peace and stability in the Euro-Atlantic region.

- **The global power competition:** Shifts in global power dynamics and competition among major powers, including the People's Republic of China (PRC), can have implications for NATO's strategic environment. Further, the deepening strategic partnership between the PRC and the Russian Federation, represents a major challenge to the Alliance's core values and strategic interests.
- **Growing terrorism:** Terrorist organisations aim to launch or incite attacks against NATO Allies. These entities have undergone network expansion, capability enhancement, and technological investment to extend their operational scope and lethality.
- **Regional conflict:** Ongoing regional conflicts, political instability, and the presence of extremist groups in several regions, specifically in the Middle East and North Africa have implications for NATO's security.
- **Emerging and disruptive technologies:** NATO faces challenges from hybrid warfare, which involves a combination of conventional military tactics, cyber-attacks, disinformation campaigns, and other unconventional methods. This multifaceted approach makes it challenging to respond effectively.
- **Proliferation of weapons of mass destruction:** The conceivable employment of chemical, biological, radiological, and nuclear materials or weaponry by antagonistic state and non-state entities against NATO continues to pose a threat to the security of the Alliance.
- **Maritime security challenges:** NATO confronts multifaceted challenges in the maritime domain such as an evolving spectrum of anti-access/area denial (A2/AD) strategies employed by potential adversaries, persistent spectre of maritime terrorism, illegal activities - piracy and trafficking, and resource competition at sea.
- **Climate change:** It poses long-term security challenges, including resource scarcity, migration pressures, and potential geopolitical shifts. It possesses the capacity to exacerbate conflict, fragility, and geopolitical competitions.

Conclusion

NATO is an important military alliance, which ensures collective defense and promotes stability in a large part of the world. However, internal and external threats are interlinked, challenging the NATO in different spaces, at different levels simultaneously. In the era of interconnectivity, NATO needs a strategy that transcends a unilateral approach and provides the foundation for enhancing proactive capabilities, tackling threats on multiple domains, and enhancing its capacity to anticipate and effectively address future challenges.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following countries:

1. Ireland
2. Mexico

3. Canada
4. France

How many of the above countries are members of NATO?

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

Answer: (b) 3 and 4 only

Descriptive Question

Q. Critically examine the relevance of NATO in the post Cold War world. [15 Marks] [250 Words]

THE SHANGHAI COOPERATION ORGANISATION (SCO) SUMMIT 2024

Why in News: External Affairs Minister S. Jaishankar represented India at the SCO Summit 2024 recently concluded in Astana, Kazakhstan.

Key Details

- External Affairs Minister S. Jaishankar lead the Indian delegation at the SCO Council of Heads of State in place of Prime Minister Narendra Modi.
- The 24th summit of the Council of Heads of State of the Shanghai Cooperation Organization (SCO) on July 4 adopted the Astana Declaration and approved 25 strategic documents covering energy, security, trade, finance, and information security.
- **Key Highlights of the Astana Declaration**
 - The SCO member states endorsed the Initiative on World Unity for a Just Peace, Harmony and Development, initially proposed by Kazakhstan.
 - Cooperation programs to combat terrorism, separatism, and extremism for 2025-2027.
 - The Anti-Drug Strategy for 2024-2029.
 - Strategies for energy cooperation until 2030.
 - Economic Development Strategy's Action Plan until 2030.
- The member states additionally signed statements affirming principles of good neighborliness, trust, and partnership, ensuring the safety of drinking water and sanitation, and promoting effective waste management. They also formalized an agreement on environmental protection cooperation among SCO governments.
- The People's Republic of China will assume the SCO chairmanship for the next term, and Qingdao will be appointed the SCO's tourism and cultural capital for 2024-2025.

Which countries want to join SCO



About Shanghai Cooperation Organisation

- Its origins lie in the “Shanghai Five”, formed in 1996 and consisting of China, Russia, Kazakhstan, Kyrgyzstan and Tajikistan.
- The SCO was established on June 15, 2001, in Shanghai as an international permanent intergovernmental organisation.
- Russia, Kazakhstan, Kyrgyzstan, China, Tajikistan, and Uzbekistan. In 2017, India and Pakistan joined, followed by Iran in 2023.
- There are two other observer states, Afghanistan and Mongolia, and 14 dialogue partners, including Türkiye.

Significance of SCO in the contemporary World:

- The SCO covers **40% of the global population, nearly 30% of the global GDP and 60% of the area of Eurasia.**
- SCO is one of the few international organisations which deal with security issues and primarily has Asian members. Russia and China have stressed its position as an alternative to a “Western” international order.
- The inclusion of India and Pakistan in SCO in 2017 was also seen as reflecting this jostling. While Russia supported India’s entry as a longstanding strategic partner, China backed its ally Pakistan to prevent the balance of powers from tilting in Russia’s favour.

- Iran’s inclusion was seen as a step for further enhancing “the international status and influence of the organization, and for Iran, it is an important step in breaking the US diplomatic blockade”.

Relevance of the SCO for India

- The SCO membership allows India to participate in a forum which enhances its scope of cooperation with Central Asian countries, which have not had particularly close relations with India since their formation in 1991.
- India used the SCO as a platform to secure its northern border from Pakistan’s state-sponsored terrorism. Moreover, India firmly stood for the SCO’s Regional Anti-Terrorist Structure (RATS) as an indispensable mechanism for effective regional counterterrorism cooperation and action. The SCO offers New Delhi the chance to safeguard, advance, and showcase its geostrategic and geoeconomic pursuits in the Central Asian and South Asian regions.
- To overcome the China-Pakistan axis, India invested in Chabahar Port and International North-South Transport Corridor (INSTC). Through its inclusive and participatory approach, most of the SCO countries have explored options to join India-led connectivity projects bilaterally and multilaterally. The SCO could also facilitate the Turkmenistan-Afghanistan-Pakistan-India (TAPI) pipeline.
- India leveraged its rising diplomatic clout and global stature to successfully incapacitate Chinese hegemonic interests to use the SCO as a block for its geostrategic, geoeconomic, and regional benefits amidst China’s intense rivalry with the United States.
- India’s increased global economic and political influence helped to consolidate its position as a key player in transforming the SCO into a development-focused organisation in Eurasia.
- India’s presidency in 2023 served as an invaluable platform for the country to gain recognition as a crucial regional power and establish itself as a constructive, reliable, and trusted partner for all SCO member states.

Conclusion

India emphasise the significance of maintaining peace and security following the UN Charter to promote the collective prosperity of the region. India has strengthened its diplomatic ties and intellectual capital with most of the SCO member states while also advocating a progressive agenda on connectivity, counterterrorism, and regional development.

EXPECTED QUESTION FOR UPSC CSE

Descriptive Question

- Q. Discuss how the Shanghai Cooperation Organisation provides opportunity for India to fulfill its national interests. Highlight some issues with the group and suggest a way forward. [15 Marks] [250 Words]

CHINA'S PAN-ASIAN RAILWAY PLAN

Why in News: China is planning to connect its rail projects in major Southeast Asian countries, as part of its Belt and Road Initiative.



Key Details

- China is aiming to connect Malaysia's **East Coast Rail Link (ECRL)** to other China-backed railway projects in Laos and Thailand, potentially expanding Beijing's **Belt and Road initiative (BRI)** across Southeast Asia running from Kunming in China to Singapore.
- The massive investment in the project is expected to bring enormous economic benefits through improved connectivity, including the movement of freight, and tourism. Chinese state media outlet CGTN described ECRL as "**the biggest economic and trade cooperation project between China and Malaysia**".
- China has been Malaysia's largest trading partner since 2009. The two nations also vowed to review visa-free travel arrangements set to expire in coming months.

About pan-Asian Rail Network

- The pan-Asian rail network was conceptualised during the 10th ASEAN summit in 2007 in the form of three

links — a western line from Kunming via Myanmar and Thailand; a central line via Laos and Thailand; and an eastern line via Vietnam, Cambodia, and Thailand.

- While the idea "remains powerful" for bolstering economic growth and regional cooperation, it has faced roadblocks for multiple reasons. Only the Laos-China section has been operational since 2021, connecting the north and south of Laos with Kunming. Like Malaysia, Thailand has also faced problems of high costs and the government's wariness about taking assistance from China.



China's interest in this regional connectivity

- China has direct influence in Southeast Asia on account of geography and strong economic and cultural ties.
- With the BRI, these ties can be further strengthened. China has emerged as a provider of loans for infrastructure projects in countries that have historically lacked them, the apprehensions in many countries about the terms of the financing notwithstanding.
- China's aggressive moves and territorial claims in the South China Sea have made many countries in the region nervous, and Beijing hopes to leverage economic ties built through infra investments to develop goodwill and trust.
- China has rejected accusations of practising "debt trap diplomacy", which involves providing loans at high interest rates, and then seizing control of strategic assets when the debtor countries fail to pay back.

The pan-Asian rail network will promote the construction of new international land and sea trade corridors, enhance regional connectivity, and deepen the building of the ASEAN community.

EXPECTED QUESTION FOR UPSC CSE

Descriptive Question

Q. Examine the concerns and impacts associated with China's Belt Road Initiative, which has expanded itself from being just an infrastructural project. [15 Marks]
[250 Words]

BIMSTEC FOREIGN MINISTERS RETREAT

Why in News: External Affairs Minister Dr. S. Jaishankar recently hosted the 2nd BIMSTEC Foreign Ministers Retreat in New Delhi.

Key Details

- The mechanism of the Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) Foreign Ministers' Retreat, comprising Foreign Ministers from BIMSTEC member States, serves as a high-level diplomatic platform for informal discussion and exchanging ideas along with fostering deeper cooperation and collaboration under BIMSTEC framework.
- The **first edition of the BIMSTEC Foreign Ministers' Retreat** was held in Bangkok, Thailand on 17 July 2023.
- The **2nd Retreat of the Foreign Ministers of BIMSTEC** was held in New Delhi, on July 11-12, 2024.
 - It aims to broaden and deepen cooperation across various sectors including in the fields of security, connectivity, trade and investment and people to people contacts in the Bay of Bengal region and littoral.
 - It also focused on possible outcomes of the 6th BIMSTEC Summit, which is scheduled to be held in September, 2024.

About BIMSTEC

BIMSTEC

The Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation



BIMSTEC was established on 06 June 1997 through **Bangkok Declaration**.



HQ: Dhaka, Bangladesh

Importance of BIMSTEC

- Accounts for **22% of the world's population**
- Combined GDP of **\$3.5 trillion**
- One-fourth** of the world's traded goods cross the Bay every year
- Six focus areas** - Trade, Technology, Energy, Transport, Tourism and Fisheries.

- The Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) is a regional multilateral organisation.
- Its members lie in the littoral and adjacent areas of the Bay of Bengal constituting a contiguous regional unity.
- BIMSTEC not only connects South and Southeast Asia, but also the ecologies of the Great Himalayas and the Bay of Bengal.
- It mainly aims to create an enabling environment for rapid economic development; accelerate social progress; and promote collaboration on matters of common interest in the region.

Genesis of BIMSTEC

- This sub-regional organization came into being in 1997 through the Bangkok Declaration.
- Initially, it was formed with four Member States with the acronym 'BIST-EC' (Bangladesh, India, Sri-Lanka and Thailand Economic Cooperation).
- It was renamed 'BIMST-EC' in 1997, following the inclusion of Myanmar.
- With the admission of Nepal and Bhutan in 2004, the name of the grouping was changed to 'Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation' (BIMSTEC).

Potential of BIMSTEC

- Bridge between South and South East Asia** and represents a reinforcement of relations among these countries.
 - The Bay of Bengal region has the potential to become the epicentre of the Indo-Pacific idea, a place where the strategic interests of the major powers of East and South Asia intersect.
- Platform for **intra-regional cooperation between SAARC and ASEAN** members.
- Home to around 1.5 billion people that constitute around 22% of the global population and a combined Gross Domestic Product (GDP) of USD 3.8 trillion, BIMSTEC has emerged as an influential engine of economic growth.
- A fourth of the world's traded goods cross the bay every year.
- Important Connectivity Projects:**
 - Kaladan Multimodal Project - links India and Myanmar.
 - Asian Trilateral Highway - connecting India and Thailand through Myanmar.
 - Bangladesh-Bhutan-India-Nepal (BBIN) Motor Vehicles Agreement - for seamless flow of passenger and cargo traffic.

Challenges Associated with BIMSTEC

- Though largely devoid of bilateral tensions, as is the case in SAARC, BIMSTEC does not seem to have made much progress.

- **Inconsistency in Meetings:** BIMSTEC planned to hold summits every two years, ministerial meetings every year, but only four summits have taken place in 20 years upto 2018.
- **Neglect by member states:** It seems that India has used BIMSTEC only when it fails to work through SAARC in the regional setting and other major members like Thailand and Myanmar are focused more towards ASEAN than BIMSTEC.
- **Broad Focus Areas:** The focus of BIMSTEC is very wide, including 14 areas of cooperation like connectivity, public health, agriculture etc. It is suggested that BIMSTEC should remain committed to small focus areas and cooperate in them efficiently.
- **Bilateral Issues between Member Nations:** Bangladesh is facing one of the worst refugee crisis of Rohingyas from Myanmar who are fleeing prosecution in the state of Rakhine in Myanmar. There is a border conflict between Myanmar and Thailand.
- **BCIM:** The formation of another sub-regional initiative, the Bangladesh-China-India-Myanmar (BCIM) Forum, with the proactive membership of China, has created more doubts about the exclusive potential of BIMSTEC.
- **Inadequate Focus on Economic Cooperation:** A quick look at the unfinished tasks and new challenges gives an idea of the **burden of responsibilities on the grouping**.
 - Despite signing a framework agreement for a comprehensive **Free Trade Agreement (FTA)** in 2004, BIMSTEC stands far away from this goal.
 - Of the seven constituent agreements needed for the FTA, **only two are in place as of now**.
- **Unfinished Projects:** The general formulations of the Colombo Declaration (fifth BIMSTEC Summit) instil **little confidence about prospects of early progress**.
 - Despite talks for the need for expansion of connectivity, much of the **work is unfinished when it comes to finalising legal instruments** for coastal shipping, road transport and intra-regional energy grid connection.

The 2nd BIMSTEC Foreign Ministers Retreat meeting assumes significance as it is being held in the backdrop of major developments in Myanmar where the military junta has been receiving battlefield setbacks against dozens of Ethnic Armed Organisations (EAOs). The developments in Myanmar pose a major issue before the BIMSTEC as instability there has put a question mark on a number of developmental and connectivity projects. Moreover, India has maintained a cautious approach to the crisis in Myanmar where the EAOs have gained control over the trade routes and territories that are close to the international borders of Myanmar.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

- Q. Which of the following set of nations are members of the BIMSTEC Initiative?
- Bangladesh, Bhutan, Maldives, India and Sri Lanka
 - Bangladesh, Bhutan, Nepal, India, Sri Lanka, Thailand and Myanmar
 - Bangladesh, Bhutan, Nepal, India, Sri Lanka and Maldives
 - Bangladesh, Bhutan, Nepal, India, Myanmar, Sri Lanka and Indonesia.

(b) : Answer

Descriptive Question

- Q. How effective is BIMSTEC in achieving its objectives of economic and technical cooperation among member countries? [10 marks] [150 words]

BRICS TRADE MINISTERS' MEETING

Why in News: The Commerce Secretary of India recently participated in the 14th BRICS Trade Ministers' meeting held under the BRICS Presidency of the Russian Federation.

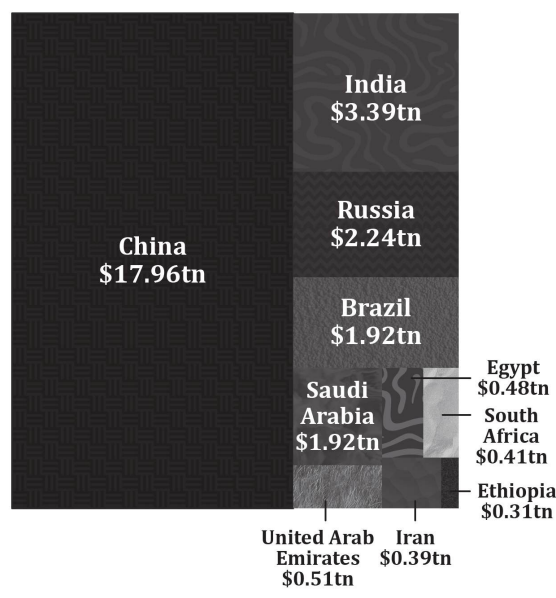
Key Details

- The Commerce Secretary of India expressed the need for strengthening multilateral trading system with WTO at its core, effective functioning of Joint Value Chains, expanding interaction among MSMEs and e-commerce and the relevance of cooperation among Special Economic Zones.
- He also highlighted the importance of collaborative efforts and commitment along with resilience, unity and transparency to face challenges under the principles of compassion, empathy and understanding, for a common brighter future of BRICS countries.
 - The theme of BRICS 2024 was **"Strengthening Multilateralism for Just Global Development"**.

About BRICS

- BRICS is an acronym for the grouping of the world's leading emerging economies, namely Brazil, Russia, India, China and South Africa.
- The BRICS Leaders' Summit is convened annually.

BRICS Countries and their GDPs GDP in trillions of US dollars



- The group (enlarged) consists of approximately 3.5 billion people, representing 45% of the world's population.

BRICS EXPANDS

EXISTING COUNTRIES NEW COUNTRIES



- Collectively, the economies of its members exceed USD 28.5 trillion, accounting for around 28% of the global economy.
- Iran, Saudi Arabia, and UAE, as part of the grouping, collectively contribute to approximately 44% of the global crude oil production.

ASSOCIATION OF SOUTHEAST ASIAN NATIONS (ASEAN)

Why in News India's External Affairs Minister S. Jaishankar recently participated in the Foreign Ministers' meeting of the Association of Southeast Asian Nations (ASEAN).

Key Details

- The 57th ASEAN Foreign Ministers' Meeting (AMM) was held on 25 July 2024, in Vientiane, Lao PDR.
- The Meeting was chaired by Lao PDR under the theme "ASEAN: Enhancing Connectivity and Resilience."

- During the opening session of the Asean-India Foreign Ministers Meeting, India's EAM had emphasized that the current political, economic, and security cooperation with Asean is India's top priority. Further he stressed that, for India, ASEAN is the cornerstone of its Act India Policy and its Indo-Pacific vision.

ASEAN-India Comprehensive Strategic Partnership

- ASEAN-India dialogue relations have grown rapidly from a sectoral dialogue partnership in 1992 to a full dialogue partnership in December 1995.
- The relationship was further elevated with the convening of the ASEAN-India Summit in 2002 in Phnom Penh, Cambodia. Since then the ASEAN-India Summit has been held annually.

Political and Security Cooperation

- India and ASEAN view each other as natural allies in creating a liberal and inclusive regional order. They are active participants in the East Asia Summit (EAS), ASEAN Regional Forum (ARF), ASEAN Defence Ministers Meeting Plus (ADMM-Plus), and the Expanded ASEAN Maritime Forum (EAMF).
- India-ASEAN strategic cooperation assumes greater significance against the background of an assertive and rapidly growing China.
- China's rise as an economic giant and its robust economic ties with the ASEAN countries gives India enough reason to step up its collaborative efforts vis-à-vis ASEAN.

Economic Cooperation

- An essential aspect of India-ASEAN partnership is economic cooperation. India's 'Look East' policy gained momentum after the creation of the India-ASEAN Free Trade Agreement in 2003.
- According to preliminary data, in 2023, India was the eighth largest ASEAN's trade partner among the ASEAN Dialogue Partners with the total trade amounting to \$ 101.9 billion, which makes 2.86% of total ASEAN trade.
- Meanwhile, the Foreign Direct Investment flows from India into ASEAN experienced an increase from \$ 2.04 billion in 2022 to \$ 5.63 billion in 2023.
- Despite the impressive trajectory of the India-ASEAN economic relationship, there is scope for further development through the integration of India into the Asian value chain.

Socio-Cultural Cooperation

- India and Southeast Asian countries share longstanding historical and civilisational ties. The impact of the cultural exchange is evident in religion, language, literature, beliefs, customs, cuisine, and architecture of the two regions.
- The cultural linkages have evolved over the centuries through the exchange of people, values, education, trade and commerce.
- The large Indian diaspora in many of the Southeast Asian

countries, especially Malaysia and Singapore, helps strengthen diplomatic, economic and security relations between India and ASEAN. The Indian diaspora comprise an important instrument of India's soft power and they facilitate greater interaction between the two regions.

Scope of Growth in India-ASEAN Relations

- The Asia-Pacific is one of the most dynamic regions of the world today, and it is necessary for both India and the ASEAN countries to keep contributing to the shaping of the so-called 'Asian century'.
- Formidable security challenges remain, and the two sides must think strategically to increase cooperation for a favourable balance of power that would ensure regional stability.
- India needs to engage more meaningfully as a beneficial strategic partner of the ASEAN by boosting its domestic economic reforms agenda, enhancing connectivity within the region, and increasing its presence in the regional institutions.

Conclusion

The member countries at the 57th ASEAN Foreign Ministers' Meeting (AMM) discussed the preparations for the 44th and 45th ASEAN Summits and Related Summits, which are scheduled to be held in October 2024 in Lao PDR.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Which of the following is/are the founding members of ASEAN:

1. Myanmar
2. Laos
3. Philippines
4. Malaysia
5. Thailand

Select the correct code:

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

Answer : (c)

Descriptive Question

Q. The multi-dimensional cooperation between India and ASEAN will contribute in shaping the 21st century as the Asian century. Comment. [15 Marks] [250 Words]

INDIA - RUSSIA STRATEGIC PARTNERSHIP

Why in News: Prime Minister of India recently visited the Russian Federation for the 22nd India – Russia Annual Summit amid ongoing geopolitical tensions.

Key Details

- Russian President Vladimir Putin welcomed Prime Minister of India at his official residence at Novo-Ogaryovo for a "private engagement" during which he praised the visiting Indian leader for the work he has done for the country's progress.
- The last in-person meeting between the Prime Minister of India and the Russian President took place on the sidelines of the Shanghai Cooperation Organization (SCO) Summit in Uzbekistan's Samarkand in 2022.
- Russian President Vladimir Putin thanked Prime Minister Narendra Modi for trying to help find a peaceful solution to the Ukraine crisis.
- Russia promised to discharge Indians 'misled' into joining its army.

India-Russia Bilateral Relations:

Political relations

- India and Russia have a longstanding and time-tested relationship with more than 77 years of mutually beneficial diplomatic ties. The relations between the two nations were elevated to the level of "Special and Privileged Strategic Partnership" in 2010.
- Regular bilateral engagement at all levels, including during India's Chairmanship of SCO and G20 in 2023 and under Russia's Chairship of BRICS in 2024, helped in further deepening and expansion of the growing bilateral partnership.

Trade and Economic partnership

- There is rise in the bilateral trade in 2023 which is around double of the bilateral trade target of USD 30 billion set by the Leaders for 2025. To achieve balanced and sustainable bilateral trade in long term, the Leaders stressed the need to increase Indian exports to Russia through strengthening industrial cooperation, forging new technological and investment partnerships, especially in advanced high-technology areas and finding new avenues and forms of cooperation.
- The Leaders agreed to set the bilateral trade target of USD 100 billion by 2030.
- **Cooperation in the Russian Far East and Arctic** Both sides showed their readiness to intensify trade and investment cooperation in the Far East and the Arctic zone of the Russian Federation.

Transport and Connectivity

- Both sides expressed readiness to actively work to expand logistics links with an emphasis on increasing the capacity of infrastructure, including for implementation of the **Chennai-Vladivostok (Eastern Maritime) Corridor** and the **International North-South Transport Corridor**, as well as using the potential of the **Northern Sea Route**.
- Both sides will continue joint efforts to intensify the use of **INSTC route** in order to reduce the time and cost of cargo transportation and to promote connectivity in the Eurasian space.

- The sides support cooperation in developing shipping between Russia and India via the **Northern Sea Route**.

Energy Partnership

- The Sides appreciated the ongoing cooperation in the coal sector and agreed to explore the possibility for further increasing supply of coking coal to India, and the opportunities of exporting **anthracite coal** from Russia to India.
- ONGC VIDESH and Rosnet are already sharing a bond of **Sakhalin 3 and 4** gas fields and the Russian fields. Also, for the past few months, India has been investing over \$5 billion in the Russian sector.
- **Civil Nuclear Cooperation** - The Sides welcomed the progress achieved in the construction of the remaining nuclear power plant units at **Kudankulam** and agreed on adhering to the schedule, including to the timelines for delivery of supplies.
- A joint **Rooppur Nuclear Power plant** is set up in Bangladesh.

Cooperation in Space

- Noting the importance of cooperation in Space, the Sides welcomed the enhanced partnership between the Indian Space Research Organization and the Russian State Space Corporation "Roscosmos" in the use of outer space for peaceful purposes, including in the human spaceflight programs, (Gaganyaan Mission).

Military Cooperation

- The Joint centres of Projects are: Four states of art missile stealth frigates, ILYUSHIN-HAL, transport aircraft, Brahmos cruise missile program, Fifth-generation fighter jet, KAMOV-226T light utility helicopters, INS Vikramaditya Aircraft carrier
- Apart from these, India has also bought several military products that include the following: S-400 Triumf Air Defence system, T-90 Bhishma tanks program, The Faktor airbase in Tajikistan, In 2019, Russia and India also signed a \$ 3 billion deal. It covered the lease of an attack submarine that is class nuclear-powered named Akula.

Cultural Cooperation

- There is a very strong cultural cooperation in Indo-Russian relations.
- Many institutions across Russia teach Hindi to their students. Many Russian experts know various Indian languages like Bengali, Marathi, Tamil, etc.

Several small-scale cultural events have been organised in Russia since 2008. These events continue to strengthen the bonds between both nations.

Conclusion

The Strategic Partnership between India and Russia has advanced over the past ten years, including in the areas of

energy, security, trade, investment, health, education, culture, tourism and people-to-people exchanges. It is believed that the relationship between India and Russia will persist in sharing a good bond of harmony, welfare, and beneficiary. These pillars have continued to stand strong despite the straining times. This allows for a strong positive belief in Indo-Russia relations.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements.

1. A joint Rooppur Nuclear Power plant is set up in Bangladesh by India and France .
2. India recently imported Lignite coal from Russia via INSTC Route.
3. India recently announced \$1 billion line of credit to resource-rich Russian Far East.

Which of the above statements is/are correct?

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

(c) : Answer

Descriptive Question

Q. Discuss the significance of India's recent bilateral visit to Russia amidst evolving global geopolitical dynamics. [15 Marks] [250 Words]

YOUNG PROFESSIONAL SCHEME (YPS)

Why in News: The UK Home Office has recently unveiled details for the second and final ballot of 2024 under the India Young Professional Scheme.

About Young Professional Scheme (YPS)

- It was announced on the sidelines of the G20 Bali Summit.
- Under the scheme, 3000 visas will be provided every year to graduates between the age of 18-30 to get 2-year visas to live and work in each other's country.
- YPS agreed as part of the India-UK Migration and Mobility Partnership, offers young UK citizens to come to India to live and work for up to two years.
- The scheme allows degree-holding Indian nationals in the age group 18-30 years to live and work in Britain for up to two years.
- **Significance:** The scheme will boost people to people exchanges between the two countries.

India Young Professionals Scheme visa

- An India Young Professionals Scheme visa allows Indian citizens between 18 and 30 years old to live and work in the UK for up to 2 years.
- **Eligibility:** To be eligible for the visa, one must:
 - be an Indian citizen
 - be between 18 and 30 years old
 - have an eligible qualification
 - have £2,530 in savings

India-UK Migration and Mobility Partnership

- Signed in 2021 with the intention to address swifter movement of working professionals between the two countries - an important element of India-UK economic partnership.
- **Objective:** It is aimed at Liberalising issuance of visas promoting mobility of students, researchers and skilled professionals and strengthening cooperation on issues related to irregular migration and human trafficking between the two sides.
- **Significance**
 - It would benefit Indian students, academics, and researchers, migrants for professional and economic reasons and those willing to contribute through various projects to the economic development of both countries without consideration of caste, creed, religion or gender.
 - Ministry of External Affairs closely monitors the effective implementation of the MoU of the programme through Joint Working Group mechanism.

India-UK Free Trade Agreement (FTA) - Current Development

- India-United Kingdom bilateral partnership was upgraded to a Comprehensive Strategic Partnership in May 2021 with a ten-year Roadmap to guide the progress of the relationship across all sectors including Trade and Investments, Defence and Security, Technology, Science, Innovation and people-to-people relations.
- India is engaging with the new Labour Government in the UK to take forward India-UK ties, including through a mutually beneficial free trade agreement.
- Both sides remain committed to deepening and diversifying the Comprehensive Strategic Partnership.
- India and the UK are negotiating a Free Trade Agreement (FTA) since 13th January 2022.
- There are 26 chapters in the agreement, which include goods, services, investments and intellectual property rights.
- Both sides are engaged to work out a trade deal that is fair, equitable and mutually beneficial, which takes into consideration the ambitions and sensitivities of both the sides.

- India's Minister for Commerce and Industries met UK Secretary of State for Business and Trade, Mr. Jonathan Reynolds on the sidelines of the G7 Trade Ministers Meeting in Apulia, Italy in July 2024. The talks included plans to take forward the discussions on Free Trade Agreement (FTA) between India and the UK.
- **Outstanding issues** which need to be addressed:
 - Duties in sectors like electric vehicles, alcoholic beverages, and services.
 - Investment protection, social security agreements and market access for British apples and cheese.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements regarding Young Professional scheme:

1. Announced during the G20 summit in New Delhi, the scheme is a part of India-UK Migration and Mobility Partnership.
2. Under the scheme, 3000 visas are provided every year to graduates between the age of 18-30 to get 2-year visas to live and work in each other's country.

Which of the statements above is/are correct?

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

(b) : Answer

Descriptive Question

Q. Discuss the recent developments in India-UK bilateral relations and their significance in people to people ties between the two countries. (10 Marks, 150 Words)

BRICS AND SOUTHEAST ASIAN COUNTRIES

Why in News: Malaysia and Thailand are the latest nations in Southeast Asia to express interest in joining the expanded BRICS group of emerging economies.

Why ASEAN Nations Members looking to join BRICS?

- **Alternative to Western-Dominated Institutions:** New members view BRICS as an alternative to established global bodies perceived as dominated by Western powers. They seek a platform with a stronger voice for emerging economies.
- **Economic Benefits:** BRICS membership offers access to potential development finance, which can fuel infrastructure projects and economic growth.
- **Enhanced Trade and Investment:** Membership can unlock opportunities for increased trade and investment flows with other BRICS members, all major economies with rapidly growing internal markets.

- Membership of Malaysia could accelerate their digital economy by facilitating integration with BRICS' strong digital markets and fostering knowledge sharing.
- Joining BRICS, Thailand could attract investments in key sectors like services, manufacturing, and agriculture.

- **Balancing Act:** Thailand exemplifies this approach. While seeking BRICS membership, they've also applied to join the OECD. This strategy offers them a diversified international presence, balancing ties with both established and emerging economies.
- **Influence on the World Stage:** Thailand hopes that BRICS membership will enhance its participation in shaping international economic policy and contribute to "creating a new world order" with a stronger voice for emerging economies.
- **Strengthened Relations:** Membership is likely to improve Malaysia and Thailand's relationships with China, the dominant power within BRICS.
- **Existing Trade Ties:** BRICS membership could further solidify these economic partnerships. Data shows China as the leading trading partner for both Malaysia (15 years) and Thailand (11 years).

Will other ASEAN nations follow?

- Malaysia and Thailand are not the only countries in Southeast Asia interested in joining BRICS.
- Vietnam's Foreign Ministry expressed their interest in joining BRICS+ and closely monitoring the process of BRICS membership expansion.
- Vietnam, Laos and Cambodia could be the potential applicants as they already have good ties with China, India, and Russia, all key players in BRICS.
- For Vietnam, which has been registering significant investments, it would be a good opportunity to further boost its trade beyond their traditional markets into the Middle East, Latin America, and Africa.
- Indonesia, the only G20 country in Southeast Asia hopes to complete the accession process with the OECD within three years and could become a BRICS member.

Note: For detailed articles on BRICS refer to the June 2024 monthly magazine's International Relations section of Chahal Academy.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following countries:

1. China
2. Malaysia
3. Thailand

How many of the above countries are members of both BRICS and ASEAN groupings?

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

Answer : (d)

INDIA-AUSTRIA RELATIONS

Why in News: The Prime Minister of India recently made a historic visit to Austria.

Key Detail

- Prime Minister of India visit to Austria on July 9-10 marked a historic event as it was the first trip by an Indian Prime Minister to the country in **41 years**.
- The visit coincided with the **75th anniversary of diplomatic relations** between India and Austria, underscoring the long-standing ties between the two nations.
- The two leaders emphasised that the shared values of democracy, freedom, international peace and security, a rules-based international order with the UN Charter at its core, the shared historical linkages, and the long-standing ties between the two countries are at the centre of the growing enhanced partnership.
- They reiterated their commitment to continue their efforts towards deepening and widening bilateral, regional and international cooperation for a more stable, prosperous and sustainable world.
- The two leaders agreed to enhance their partnership, focusing on economic and technological collaboration along with global security.
- They also recalled the **India-Middle East-Europe Corridor** initiative launched during the G20 summit in Delhi and discussed Austria's interest in engaging with this strategic project.
- They highlighted the **Start-Up Bridge initiative** and the exchange of start-ups between India and Austria, urging further collaboration in areas like renewable energy, water management, and clean technologies.
- They welcomed the bilateral **Migration and Mobility Agreement**, facilitating exchanges while combating irregular migration.
- India reiterated its support for Austria's UNSC candidature for the term 2027-28, while Austria expressed its support for India's candidature for the period 2028-29.
- PM of India invited Austria to join the **International Solar Alliance**, which recently welcomed its **100th member**.
- They noted the scope for engagement in the context of the Austrian government's Hydrogen Strategy and the National Green Hydrogen Mission launched by India.

- The leaders also noted the growing interest among Austrians in yoga and Ayurveda.
- **Space:** Austria's first two satellites, **TUGSAT-1/BRITE and UniBRITE**, were launched from **India's Satish Dhawan Space Centre, Sriharikota**, in 2013.

About Austria



- Austria is a country located in southern Central Europe. It borders eight countries namely, Germany, the Czech Republic, Slovakia, Hungary, Slovenia, Italy, Switzerland and Lichtenstein.
 - Austria is a highly mountainous country due to its position within the Alps mountain range. The Austrian Alps, also known as the Central Alps, form the country's backbone.
- Capital: Vienna
- Membership in International Organizations: European Union (EU) since 1995, OECD (Organisation for Economic Co-operation and Development), WTO (World Trade Organization), IMF (International Monetary Funds), and WHO (World Health Organisation).

QUAD FOREIGN MINISTERS MEET

Why in News: External Affairs Minister S. Jaishankar has recently visited Japan to attend the Quad Foreign Ministers' meeting.

Key Details

- The Quad Foreign Ministers' meeting, scheduled for July 29, will bring together top diplomats from Australia, India, Japan, and the United States.
- This meeting follows the leaders' summit held in

Hiroshima earlier this year and a subsequent follow-up meeting in New York.

- Key Highlights of Quad Foreign Ministers' Meeting Joint Statement:
 - Commitment to a free and open Indo-Pacific.
 - Unwavering support for ASEAN's unity and centrality, and the ASEAN-led regional architecture - including the East Asia Summit and ASEAN Regional Forum.
 - Emphasized the importance of adherence to international law, particularly as reflected in the United Nations Convention on the Law of the Sea (UNCLOS), to address challenges to the global maritime rules-based order, including with respect to maritime claims, and in the South and East China Seas.
 - Recognized the transformative power of critical and emerging technologies to support sustainable development in the Indo-Pacific and deliver economic and social benefits.
 - Establishment of the Quad Cyber Ambassadors Meeting to discuss capacity building projects and responsible State behaviour in cyberspace.
 - Committed towards implementing the Women, Peace and Security (WPS) Agenda including its application to disaster risk reduction.
 - Condemnation of terrorism and violent extremism in all its forms and manifestations including cross-border terrorism including the 26/11 Mumbai and Pathankot attacks and call for bringing the perpetrators of these attacks to justice without delay.
 - Call for concerted action against all UN-listed terrorist groups including Al-Qa'ida, ISIS/Daesh, Lashkar e-Tayyiba (LeT), Jaish-e-Mohammad (JeM), and their proxy groups.
 - Condemning North Korea for launching missiles and using ballistic missile technology and its continued pursuit of nuclear weapons in violation of multiple UN Security Council resolutions (UNSCRs).

What is QUAD?

- It is the grouping of four **democracies –India, Australia, the US, and Japan.**
- All four nations find a common ground of being democratic nations and also support the common interest of unhindered maritime trade and security.
- It aims to ensure and support a **“free, open and prosperous” Indo-Pacific region.**
- Emerging as a **Net Security Provider:**
 - There is a growing great power interest in the maritime sphere, especially with the arrival of the concept of 'Indo-Pacific'. For instance, many European countries have recently released their Indo-Pacific strategies.
 - With India, located right at the centre of the Indo-Pacific

geopolitical imagination can realise the vision of a 'broader Asia' that can extend its influence away from geographical boundaries.

- Moreover, India can build around collective action in humanitarian assistance and disaster relief, monitoring shipping for search and rescue or anti-piracy operations, infrastructure assistance to climatically vulnerable states, connectivity initiatives and similar activities.
- Further, India with Quad countries can check imperialist policies of China in Indian ocean region and ensure Security and growth for all in the region.
- **Note:** India is hosting the next Quad Leaders' Summit later this year, and the United States will be hosting the next Quad Foreign Ministers' meeting in 2025.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

- Q. The Quadrilateral Security Dialogue (QUAD) group consists of India, the USA, Japan, and Australia. Among the following, what is common among all the quad countries?
- (a) All are ASEAN Member States
 - (b) They are democratic countries and have similar maritime interests
 - (c) All are Parliamentary democracies
 - (d) All the above

Answer: (b)

BRETTON WOODS CONFERENCE CELEBRATES ITS 80TH ANNIVERSARY

Why in News : International Monetary Fund and World Bank Group has recently announced "Bretton Woods at 80" initiative.

Key Details

- The **"Bretton Woods at 80" initiative** aims to bring together global stakeholders to envision a long-term view on the future of the world economy and explore how we can best continue to serve global stability and progress on a livable planet.
- It will focus on pressing global issues including climate change, environmental protection, pandemic preparedness, conflict resolution, and digital adaptation.

About Bretton Woods Conference:

- The Bretton Woods Conference, officially known as the United Nations Monetary and Financial Conference was organised in **1944 at Bretton Woods, New Hampshire (USA)**.
- To agree upon a series of new rules for the post-World War II international monetary system. Delegates from 44 nations (including India) participated in it.
- **Outcomes of Conference :** Creation of the Bretton Woods Institutions: International Monetary Fund (IMF) and the International Bank for Reconstruction and Development (IBRD), now referred as World Bank (WB).

Sphere	IMF	World Bank
Mandate	- Promotes global macroeconomic and financial stability. - Also provides short- and medium-term loans to help countries that are experiencing balance of payments problems.	Promotes long-term economic development and poverty reduction by providing technical and financial support to help countries implement reforms or projects, such as building schools, etc.
Membership and Headquarter	190 Countries - Both organisation have their headquarter in Washington, D.C (USA)	189 Countries (India is member of both the organisations) ➤ However, India is not member of WB's International Centre for Settlement of Investment Disputes. Countries must first join the IMF to be eligible to join the World Bank Group.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

- Q. Consider the following statements:
1. Bretton Woods Conference lead to creation of World Bank, WTO, and IMF.
 2. The Headquarters of IMF and World Bank are located at Washington D.C. (USA).

3. IMF Promotes long-term economic development and poverty reduction by providing technical and financial support to help countries implement reforms or projects.

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

Answer: (c)

INTERNATIONAL COVENANT ON CIVIL AND POLITICAL RIGHTS (ICCPR)

Why in News: India recently concluded its 4th periodic review by the Human Rights Committee under the International Covenant on Civil and Political Rights (ICCPR) in Geneva.

Key Details

- The fourth periodic review, done during July 15-16, witnessed the Indian delegation engaging in “constructive dialogue” with members of the Human Rights Committee on a range of issues.
- The Human Rights Committee, comprising 18 independent experts, monitors the implementation of the ICCPR, reviews reports of all countries by conducting periodic reviews and make observations and recommendations.
- The Indian delegation, jointly led by Attorney General R Venkataramani and Solicitor General Tushar Mehta, included secretary (West) Pavan Kapoor and senior officials from the ministries of women and child development, social justice and empowerment, electronics and information technology, minority affairs, external affairs, tribal affairs, home affairs.
- India highlighted its efforts in protecting vulnerable groups and its contributions to the global human rights framework. The Committee appreciated India’s traditions of pluralism, non-violence, and diversity, noting its status as a vibrant parliamentary democracy.
- Topics discussed included anti-corruption measures, non-discrimination, women’s and minorities’ status, counter-terrorism and national security, judicial framework, privacy and data protection laws, and new criminal laws.

About ICCPR

- The ICCPR is an important international human rights treaty that, along with other key documents, forms the International Bill of Human Rights. It obligates countries to protect and preserve basic human rights such as the right to life, freedom of speech, and gender equality.
- The ICCPR, adopted by the UN General Assembly in 1966, commits nations to respect civil and political rights and came into force in 1976.
- India, a state party to ICCPR since 1979, had previously undergone three reviews, the last in 1997.

Conclusion

The fourth periodic review demonstrated India’s commitment to engaging with the international human rights framework and its “willingness to address concerns while continuing its efforts towards protection and promotion of human rights of its citizens.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements:

1. Recently, India successfully concluded its 3rd periodic review by the Human Rights Committee under the International Covenant on Civil and Political Rights (ICCPR) in Geneva.
2. The ICCPR, adopted by the UN General Assembly in 1966, commits nations to respect civil and political rights and came into force in 1976.

Select the correct statements using the code given below:

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

Answer: (b)

UN-LED CONFERENCE ON AFGHANISTAN

Why in News: India has recently joined the 3rd UN-led conference on Afghanistan in Doha.

Key Details

- The third edition of the United Nations (UN)-led international conference in Doha on Afghanistan was held on June 30th and July 1st and it is the first time the Taliban have attended the meeting.
- The five-member Taliban delegation attended the meeting after the organizers assured them that women would not be included in the meeting.
- The UN as international body made it clear beforehand that the Taliban’s participation in the meeting does not mean that the regime is getting international recognition.
- The three major demands put forward by Taliban delegation were:
 - Removal of the sanctions on the country’s banking sector.
 - Unfreezing of the Central Bank reserves
 - Provision of alternate source of livelihood for the Afghan farmers against the backdrop of the ban on poppy cultivation
- After the conclusion of the meeting, the Taliban expressed satisfaction at their message being successfully relayed to all the participating countries with ‘most countries’ agreeing to cooperate in these areas and ‘pledging’ that the banking and economic restrictions would be lifted.
- In spite of that, there was no real breakthrough in the meeting with the Taliban not making any solid commitment either on women rights or inclusive government.
- However, at the end of the conference, there was only an agreement to form two working groups on the private sector and counter-narcotics.

- India is one of 25 countries participated in this third conference, which aims to find ways to improve the lives of Afghan people under Taliban rule.
- Other participants include the European Union, the Organization of Islamic Cooperation (OIC), and the Shanghai Cooperation Organization (SCO).

India's Interest and Approach Towards Afghanistan

- India's approach to Afghanistan continues to be guided by its historical relations, friendship with its people and relevant UN resolutions, including UN Security Council Resolution 2593.
- The UNSC resolution 2593, adopted on August 30, 2021 talked about the need for upholding human rights in Afghanistan, demanded that Afghan territory should not be used for terrorism and that a negotiated political settlement should be found to the crisis.
- India is assisting Afghan people by supplying humanitarian aid. In this endeavour, India has supplied several shipments of humanitarian assistance consisting of 50,000 MTs of wheat, 250 tons of medical aid and 28 tons of earthquake relief aid.
- India has not yet recognised the Taliban set up and has been pitching for the formation of a truly inclusive government in Kabul besides insisting that Afghan soil must not be used for any terrorist activities against any country.
- Securing its investments in Afghanistan is one of the priority for India, which is involved in nearly 500 projects across all 34 provinces of the country.
- However, the top priority for India is ensuring that Afghan territory is not used to shelter terrorists or finance terrorist activities. India wants to emphasize that instability in Afghanistan poses a threat to the entire region.
- Taliban encouraged India to reopen its mission in Kabul, resumed direct flights to the country and also accept Afghan military trainees.
- India should increase its investment in Afghanistan, particularly in areas such as infrastructure development, agriculture, and energy. This would help improve the Afghan economy and create jobs, and also deepen India's economic engagement with Afghanistan.

Conclusion

India needs a **long-term strategic approach** towards Afghanistan that weaves political, economic, military and diplomatic dimensions into a coherent whole within the framework of a grand strategy. For the Taliban, their participation in the meeting was a diplomatic win for them—a testament of their 'effective diplomacy', with 'imaginary stakeholders' and a 'fictitious agenda' finding no presence in the discussion.

EXPECTED QUESTION FOR UPSC CSE

Descriptive Question

- Q. How should India reorient its ties with the Taliban-led Afghanistan? [10 marks] [150 words]

MERCOSUR

Why in News: Bolivia has recently become full member of MERCOSUR's customs union.



Key Details

- Bolivia's membership promises significant economic benefits and strengthens the country's position in the region, as 70 per cent of its border is with Mercosur member countries, facilitating cross-border mobility and trade.
- While Bolivia's accession to Mercosur takes effect in 30 days, the country will have up to four years to adopt the bloc's regulations.
- MERCOSUR is a trading bloc which has six member countries of Latin America viz. Brazil, Argentina, Uruguay and Paraguay being the founding members, Venezuela joining Mercosur in 2012 (later suspended in 2016) and Bolivia has been inducted in July 2024.
- MERCOSUR was formed in 1991 with the objective of free movement of goods, services, capital and people and it became a **customs union** in January 1995. It is now pursuing the third stage of its integration 'Common Market'.
- Intra-Mercosur trade is duty-free while there is Common External Tariff (CET) for imports from other countries. Although the average CET is 14% it could range from 0 to 20%.

- MERCOSUR has become a successful regional market of more than 290 million people with a GDP of more than two trillion US dollars. It is the fourth largest integrated market after EU, NAFTA and ASEAN.
- The Secretariat of MERCOSUR is located at Montevideo in Uruguay.

India and MERCOSUR

- The India-MERCOSUR trade agreement (since June 2009) has been a pivotal platform for economic interaction between India and the member countries of MERCOSUR.
- The potential expansion of the India-MERCOSUR trade agreement presents a significant opportunity for deepening economic ties, particularly with Uruguay, which currently holds the presidency of the South American trading bloc.
- The expansion of the agreement to cover services and goods, as well as improved mobility, is seen as a critical step towards modernizing the trade relations between India and MERCOSUR.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Which of the following countries are full members of the MERCOSUR Trading Bloc?

1. Brazil
2. Chile
3. Argentina
4. Paraguay

Select the correct answer using the code given below:

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

Answer: (b)

THE BLUE LINE: LEBANON-ISRAEL BORDER

Why in News: Recently, the United Nations has expressed grave concerns about intensified clashes and exchange of fire along the Lebanon-Israel frontier, known as the Blue Line.

Blue Line

- It is the UN-drawn provisional border between Israel and Lebanon.
- It functions as a de facto boundary between Israel and Lebanon.
- It is not technically an international boundary but, rather, a line of withdrawal mandated by the United Nations in 2000 following the removal of Israeli military forces from southern Lebanon.



- Blue Line was supposed to follow the boundary between Lebanon/Syria and Palestine as delimited by Britain and France in the early 1920s, but the demarcation is riddled with disputes and problem areas.
- The situation is further complicated by an abutting conflict between Israel and Syria over the Golan Heights, which was unilaterally annexed by Israel in 1981.

About Golan Heights

- The Golan Heights is a rocky plateau in south-western Syria, about 60km (40 miles) south-west of Damascus and covers about 1,000 sq km. It has a political and strategic significance which belies its size.
- Israel seized the Golan Heights from Syria in the closing stages of the 1967 Six-Day War. Most of the Syrian Arab inhabitants fled the area during the conflict.
- An armistice line was established and the region came under Israeli military control. Almost immediately Israel began to settle the Golan.
- Syria tried to retake the Golan Heights during the 1973 Middle East war. Despite inflicting heavy losses on Israeli forces, the surprise assault was thwarted. Both countries signed an armistice in 1974 and a UN observer force has been in place on the ceasefire line since 1974.
- Israel unilaterally annexed the Golan Heights in 1981. The move was not recognised internationally, although the US Trump Administration did so unilaterally in March 2019.
- There are more than 30 Israeli settlements in the Golan, which are home to an estimated 20,000 people. The settlements are considered illegal under international law, although Israel disputes this.
- The settlers live alongside some 20,000 Syrians, most of them Druze Arabs, who did not flee when the Golan was captured.
- Syria has always insisted that it will not agree a peace deal with Israel unless it withdraws from the whole of the Golan.
- The heights give Israel an excellent vantage point for monitoring Syrian movements. The topography provides a natural buffer against any military thrust from Syria.

- The area is also a key source of water for an arid region. Rainwater from the Golan's catchment feeds into the Jordan River.
- The land is fertile, and the volcanic soil is used to cultivate vineyards and orchards and raise cattle.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Blue line refers to the UN drawn provisional border between:

- | | |
|-----------------------|------------------------|
| (a) Israel and Jordan | (b) Israel and Lebanon |
| (c) Israel and Syria | (d) Syria and Lebanon |

Answer: (b)

Free Initiative by Chahal Academy 

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CRITICAL MINERAL RECYCLING

Why in News: The Ministry of Mines has recently proposed a Production Linked Incentive (PLI) scheme to boost the recycling of critical minerals in India.

Production Linked Incentive (PLI) scheme for critical minerals recycling

- **Purpose:** To boost domestic critical mineral recycling, foster a circular economy, and reduce reliance on imports.
 - The PLI scheme, while yet to be finalised, will target e-waste recycling to recover critical minerals such as lithium, copper, cobalt, graphite, chromium, and silicon.
 - These minerals are crucial for clean energy technologies like solar PV modules, wind turbines, energy storage systems, and EVs, as well as consumer electronics.
- **Alignment:** Complements the Battery Waste Management Rules (BWMR) 2022 and NITI Aayog recommendations.
- **Target:** E-waste recycling (urban mining) to recover critical minerals like lithium, copper, cobalt, graphite, chromium, and silicon.
- **Incentives:** Financial support for production of recycled critical minerals and investment in advanced recycling technologies.
- **Urban mining** is the practice of extracting valuable materials from waste, much of which would otherwise end up in landfills or incineration. For instance, electronic waste (e-waste) like smartphones contains materials such as gold, silver, copper, lithium, and cobalt that can be recovered through urban mining.

Considerations of the New Production Linked Incentive (PLI) scheme

- **Stakeholder Involvement:** Input sought from Department of Science & Technology, Ministry of New and Renewable Energy (MNRE), and Ministry of Heavy Industries (MHI).
- **Focus Minerals:** Lithium, copper, cobalt, graphite, chromium, and silicon due to their importance in clean energy technologies.
- **Incentive Structure:** Quantum of incentive linked to type and value of recycled minerals.
- **Industry Debate:** Disagreement on scheme's scope (high-purity minerals vs. black mass).

- **E-waste Growth:** Anticipated surge in e-waste from solar panels, wind turbines, and electric vehicles.
- **Environmental Benefits:** Recycling critical minerals can reduce the need for virgin ores and new mines.

Critical minerals: Critical minerals are elements that are the building blocks of essential modern-day technologies, and are at risk of supply chain disruptions. Based on their individual needs and strategic considerations, different countries create their own lists.

Examples of Critical Minerals

- **Energy:** Lithium, cobalt, nickel, rare earth elements (REE)
- **Technology:** Indium, gallium, tantalum
- **Industrial applications:** Titanium, zirconium, chromium.

Circular economy: The circular economy is a system where materials never become waste and nature is regenerated.

- In a circular economy, products and materials are kept in circulation through processes like maintenance, reuse, refurbishment, remanufacture, recycling, and composting.
- The circular economy tackles climate change and other global challenges, like biodiversity loss, waste, and pollution, by decoupling economic activity from the consumption of finite resources.

Challenges and Considerations for Critical Mineral Recycling in India

- **Technological Advancements**
 - **Hydrometallurgy and pyrometallurgy:** While these are common methods, they often require significant energy and chemicals, impacting both economic viability and environmental sustainability.
 - **Direct recycling:** Innovative techniques like direct lithium extraction (DLE) or solvent extraction are more efficient and environmentally friendly recovery, but require significant R&D investment.
 - **Automation and AI:** To reduce labour costs, and enhance precision in mineral separation and purification.
- **Economic Viability**
 - **High capital costs:** Setting up recycling facilities requires substantial investments in equipment, technology, and infrastructure.
 - **Low-grade feedstock:** The quality and composition of

e-waste can vary significantly, affecting the efficiency and cost of mineral recovery.

- **Market volatility:** Price fluctuations of critical minerals can impact the profitability of recycling operations.
- **Policy support:** Government incentives and subsidies can play a crucial role in making recycling economically viable.
- **Policy Framework**
 - **EPR implementation:** Effective enforcement of Extended Producer Responsibility (EPR) can improve waste collection and management.
 - **Tax incentives:** Offering tax benefits for recycling operations can encourage investments and innovation.
 - **Standardisation:** Developing standards for recycled materials can facilitate their integration into supply chains.
- **Infrastructure:** Collection networks, modern recycling facilities, logistics, skilled workforce.
- **Global Cooperation:** Technology transfer, supply chain diversification, joint research and development, lack of the international standards.

Battery Waste Management Rules (BWMR), 2022

- **Purpose:** To ensure environmentally sound management of waste batteries.
- **Key provisions:**
 - Mandates Extended Producer Responsibility (EPR) for battery producers, importers.
 - Sets minimum yearly recovery targets for EPR (70% in 2024-25, 80% in 2025-26, 90% from 2026-27 onwards).
 - Prohibits landfilling or incineration of waste batteries.
 - Requires recycling and refurbishment of waste batteries.
 - **Environmental Compensation Fund:** The Central Pollution Control Board (CPCB) or State Pollution Control Boards (SPCBs) will manage the fund.

India's Critical Minerals Strategy

- **Identification of Critical Minerals :** A committee was established in November 2022 to identify critical and strategic minerals by the Ministry of Mines.
 - **List of critical minerals:** The committee identified 30 critical minerals for India.
 - These minerals are Antimony, Beryllium, Bismuth, Cobalt, Copper, Gallium, Germanium, Graphite, Hafnium, Indium, Lithium, Molybdenum, Niobium, Nickel, PGE, Phosphorous, Potash, REE, Rhenium, Silicon, Strontium, Tantalum, Tellurium, Tin, Titanium, Tungsten, Vanadium, Zirconium, Selenium and Cadmium.

- **National Institute proposed:** A Centre of Excellence on Critical Minerals (CECM) is recommended to regularly update the critical mineral list.
- **Policy and Regulatory Framework**
 - **MMDR Act amendment:** The Mines and Minerals Development and Regulation Act was amended in 2023 to include 24 critical and strategic minerals in Schedule I.
 - **Auction of mineral blocks:** The government has started auctioning critical mineral blocks, with the first tranche of 20 blocks auctioned in November 2023.
- **Domestic Resource Exploration and Development:**
 - **KABIL formation:** Khanij Bidesh India Ltd. (KABIL) was created to secure critical and strategic minerals in India and abroad in countries like Argentina and Australia.
- **Research and Development:** Promotion of Research and Innovation in Startups and MSMEs in Mining, Mineral Processing, Metallurgy and Recycling Sector (**S&T-PRISM program**) under the Ministry of Mines provides grants for research and innovation in mineral extraction and processing.
- **International Cooperation: Mineral Security Partnership:** India is actively involved in international partnerships to secure critical mineral supply.
 - **G20 New Delhi Leaders' Declaration:** India highlighted the importance of critical minerals in the global energy transition during its G20 presidency.

Conclusion

A PLI scheme for critical mineral recycling is crucial, fostering sustainable resource management, economic robustness, and environmental integrity in our technology-driven society.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following elements:

- | | |
|--------------|------------|
| 1. Iron | 2. Nickel |
| 3. Aluminium | 4. Lithium |

How many of the above are critical minerals?

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

Answer: (b) 2 and 4 only

Descriptive Question

Q. What are critical minerals? Discuss the significance of, and challenges associated with critical mineral recycling in India. [15 Marks] [250 Words]

CLIMATE- RESILIENT AGRICULTURE

Why in News: The Government of India is planning to promote **climate-resilient crop varieties** in 50,000 villages located in **climatically-vulnerable districts of India**.

About climate resilient agriculture in climatically vulnerable districts

- The report titled 'Climate Vulnerability Assessment (CRA) for Adaptation Planning in India Using a Common Framework', identifies the **most vulnerable states and districts** in India with respect to current climate risk and key drivers of vulnerability.
- The initiative is part of a 'National programme on climate-resilient agriculture'.
- The report has identified Jharkhand, Mizoram, Orissa, Chhattisgarh, Assam, Bihar, Arunachal Pradesh, and West Bengal as states highly vulnerable to climate change.
- These states, mostly in the **eastern part of the country**, require prioritisation of adaptation interventions. Thus, such interventions require a holistic approach such as **Climate-resilient agriculture (CRA)**.
- It includes **sustainably using existing natural resources** through crop and livestock production systems to achieve **long-term higher productivity** and farm incomes under climate variabilities.
- CRA practices can alter the current situation and **sustain agricultural production** from the local to the global level, especially in a sustainable manner.
- Food security concerns:** According to 'State of Food Security and Nutrition in the World', 2020 report, nearly 14 per cent of the population are still undernourished in India, the 'Global Hunger Index 2023' placed India at the 111th position among 125 countries.
- Heat stress on crops:** High temperatures may **reduce crop duration**, permit changes in photosynthesis, **escalate crop respiration rates**, and influence **pest** population. For example, it can cause moisture stress, leading to sunburn and cracking symptoms in fruit trees like apricot, apples and cherries.
- Heat stress on animals:** When temperatures exceed the thermal **comfort zone** threshold in animals, it leads to heat stress, **metabolic disorders and immune suppression among livestock leading to low milk yield**, and lesser body weight and egg production in poultry leading to less egg density and egg breakage.
- Rise in soil salinity levels:** It will continue to increase with the **onset of global sea- level** increase and further the hydrological changes.
- Accelerates nutrient mineralisation:** It hampers fertiliser use efficiency (FUE) and hastens the evapotranspiration in soil.

- Employment source:** Small and marginal farmers rely on dairy sector for **off season earning**. Heat stress leads to decline in milk production causing **financial losses** along with limited input supply, credit availability, proper transport, and market facility.
- Agricultural Income:** Climate changes impact agri-income of farmers **creating food shortages, nutrient deficiencies in humans** due to inadequate intake of healthy food makes humans vulnerable to health issues.

Steps needed to improve Climate Resistant Agricultural practices

- Efficient water management
- Climate-smart technologies
- Digital Support
- Precision agriculture
- Remote sensing technologies
- Socio-economic resilience
- Research and development
- Effective policy and governance frameworks
- Climate collaboration



Challenges

Data gaps and insufficiencies: The current schemes do not factor in **humidity** i.e. way to measure humidity required at crop levels, or real time analyses of different crops and pest management etc.

- Limited access:** To **finance and technology** for small and marginal farmers.
- Capacity building:** Lack of **awareness and capacity building** initiatives and competing land-use priorities among stakeholders themselves due to fragmented land ownership.
- Policy gaps:** At the national and global levels policies are more tilted towards big farmers and middlemen have more **dominating influence** eg. Arathiyas etc.
- Lack of awareness:** Farmer are still **reluctant change**

their farming methods, practices, and way of selling their crops, for e.g. Farm laws had to be withdrawn with farmers apprehension leading to delay in policy outreach.

- However, these challenges also present opportunities for innovation, collaboration, and investment in sustainable agriculture and food systems.

Government Initiatives to address the challenges in creating CRA

- **National Innovations in Climate Resilient Agriculture' (NICRA) launched by ICAR in 2011:** The project aims at **strategic research on adaptation and mitigation**, demonstration of technologies on farmers' fields and creating awareness among farmers and other stakeholders to minimize the climatic change impacts on agriculture.
- **National missions:** Implemented by Department of science and technology on climate change as part of the **National Action Plan on Climate Change**. These are National Mission for Sustaining the Himalayan Ecosystem (NMSHE) and National Mission on Strategic Knowledge for Climate Change (NMSKCC).
- **Programmes:** Soil Health Cards, Paramparagat Krishi Vikas Yojana (PKVY), and Per Drop More Crop.
- **State Cells under national missions:** Implemented by DST, in 25 States and Union Territories. They carry out assessment of **vulnerability due to climate change** at district and sub-district levels and the national level vulnerability.
- **Climatically Vulnerable districts:** The officials will select **50,000 villages from 310 such districts spread across 27 states**. A framework to include measures such as promoting crops that are less water intensive, conserving water sources in the respective areas and monitoring fertiliser inputs will be undertaken. **The initiative will run for five years and most of its funding will come through convergence with existing schemes.**
- **Resilient crop varieties:** The **Indian Council of Agricultural Research has developed more than 2,000 such varieties** for improving food production. These include both abiotic stress-tolerant varieties and biotic stress-tolerant varieties.
- **Carbon market:** the Agriculture Ministry also plans to launch a **voluntary carbon market** project for sustainable agriculture practices.
- **Insurance programs:** PM Fasal Bima Yojna to secure the farmer from adverse natural hazards by providing financial support.
- **Infrastructural support:** Empowerment initiatives like Krishi Vigyaan kendras for knowledge, skilling and information dissemination on resilient crop practises to farmer on field.

Way Forward

Along with the above suggestions, learnings can be imparted from global experiences such as **Kenya and Europe**, where

insurance schemes are more **comprehensive** covering economic losses, including milk production and quality, reproductive efficiency, cow health and labour losses this can be taken as **policy decisions** and can be brainstormed keeping Indian scenarios in perspective. By addressing these challenges and seizing opportunities, we can **build resilient food systems that ensure food security, protect natural resources and promote sustainable development for future generations.**

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements about National Initiative on Climate Resilient Agriculture (NICRA):

1. NICRA was launched by Indian Council of Agricultural Research (ICAR) with the funding from Ministry of Cooperatives affairs.
2. It's three major objectives are strategic research, technology demonstrations and capacity building across all sectors of agriculture, dairying and fisheries.

Which of the above statement(s) is / are correct?

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

Answer: (b)

Descriptive Question

Q. "Climate-smart agriculture (CSA) is a local solution to the global issues of food security." Analyse. [10 Marks] [150 Words]

GOODS AND SERVICES TAX (GST)

Why in News: On July 01, 2024, the implementation of the Goods and Services Tax (GST) completed 7 years.

Key Details

- GST has significantly contributed towards the creation of a **unified national market** and **reduced tax-cascading**.
- A retrospect on the past seven years clearly indicates a substantial **growth in the indirect tax revenue and surge in the taxpayer base**.
- It may be relevant to note that India witnessed a record gross GST collection of **2.10 lakh crore for the month of April 2024**.
- Increase in the tax revenue can majorly be attributed to growth in the economy, increase in the tax-payer base,

constantly widening gamut of transactions which are brought under the tax net and significantly improved compliances.

- However, one other key factor driving this revenue growth has been the inflationary trend in the economy during the period.
- At the time of introduction of GST, it was widely anticipated that since earlier taxation of commodities was subject to tax by Union through levy of Excise duties, as well as States by imposition of VAT, consolidating the same under a unified tax regime should result in a lower effective tax rates, thereby having a positive impact on the household budget.
- Critics of the reform point out that subsumption of multiple indirect taxes into a single tax has not resulted in lowering the prices for the end-consumers, as was expected.

About GST

Features

- **As a One Nation, One Tax:** It replaced multiple indirect taxes levied by the Central and State Governments, such as excise duty, service tax, etc.
- **Destination-based Tax:** GST is a destination-based tax, levied at each stage of the supply chain.
- **Tax Slabs:** 0%, 5%, 12%, 18%, and 28%.
- **Dual Structure:** Comprises of the Central GST (CGST) and the State GST (SGST).
 - In the case of Inter-state transactions, Integrated GST (IGST) is applicable, which is collected by the Central Government and apportioned to the respective State.
- **Governance:** GST Council is key decision making body.
 - Goods and Services Tax Network (GSTN) provides IT system of the GST portal.

Existing Challenges and Concerns

- Multiplicity of Tax Slabs and various products are still outside purview of GST (e.g liquor).
- State's power of taxation has reduced.
- Shortfall in revenue collection of states is not compensated timely.

Potential Solutions

- Rationalizing Tax Structure, reducing the number of Tax Slabs
- Revenue loss of states should be compensated on time
- Early operationalisation of all the benches of the GST Appellate Tribunal (GSTAT).

Conclusion

As GST completes its seventh year and with stakeholders' growing confidence in the regime, it is essential to focus on further strengthening the features that have contributed to its success and aim to make it more efficient.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements:

1. GST Council is chaired by RBI Governor.
2. GST Council is a Constitutional body under Article 280 of the Constitution.

Which of the above given statements are correct ?

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 or 2

(b) : Answer

Descriptive Question

Q. How has GST performed in the last Seven years. What are the challenges and associated solution with this tax structure? [15 marks] [250 words]

LIVESTOCK REARING IN INDIA

Why in News: States and private firms in India are implementing insurance schemes to protect livestock rearers against milk production losses caused by heat stress.

About Livestock Sector in India

- In the Indian scenario, livestock play a vital role in improving the **socio-economic conditions** of rural India.
- It's **CAGR of 7.38** per cent during 2014-15 to 2022-23.
- **GVA** (at constant prices) in agriculture and allied sectors increased from **24.32** per cent in 2014-15 to **30.38** per cent in 2022-23.
- The sector contributes **4.66** per cent of the total GVA.
- Dairy Sector contributes **5%** of the national economy and employs more than crores of farmers directly.

Current Status

Largest producer of milk

Ranks **1st** in cattle and **buffalo** population

Largest producer of Buffalo meat

Largest exporter of sheep and goat meat

2nd biggest exporter of poultry products

3rd globally in production of eggs

Challenges in livestock rearing sector

Despite its crucial role in the agricultural economy, livestock rearing in India encounters numerous challenges. Some of the key issues include:

- **Lack of financial support:** High cost of inputs and limited access to credit.

- **Market access and infrastructure:** Poor market linkages and inadequate infrastructure and lack of proper storage, transportation, and processing facilities leads to high post-production losses.
- **Low genetic potential:** Poor breeding practices and inbreeding issues leading to lower yields.
- **Veterinary services:** Lack of skilled personnel and inadequate healthcare infrastructure.
- **Diseases and parasites:** Prevalence of diseases and pests increase the cost and yield of produce.
- **Poor access to quality feed and fodder:** Shortages and bottlenecks in the fodder supply chain.
- **Water stress:** Poor quality of water and insufficient water resources in India.
- **Policy access:** Inconsistent policy formulation and implementation Issues.
- **Climate stress:** Rising burden of insanitary conditions are taking a toll on animal health through disasters.

Steps taken by government to bolster livestock sector

Rashtriya Gokul Mission

It aims to develop and conserve **indigenous bovine breeds** which leads to better **milk yields** along with **employment opportunities** to farmers.

- **Breed Multiplication Farms:** Have been created to connect small/marginal farmers via **hub and spoke model**, thereby connecting—farmers, dairies, and entrepreneurs.
- **Breed improvement programme:** IVF, artificial insemination alongside sex sorted semen have ensured **more female calves** which not only **limits stray cattle** but also **improves milk production**.
- **Gokul Gram:** It is the **development and conservation of indigenous bovine breeds** and **integrated indigenous cattle development centres**.
- **Genomic selection:** DNA based selection has remarkably reduced the production cost. Also, **progeny testing along with the pedigree selection** is used to ensure production of high genetic merit bulls.

National Programme For Dairy Development:

- It is focussed on **creation and strengthening the infrastructure** for production, procurement, and processing along with the marketing of milk & milk products.

Dairy Processing & Infrastructure Development Fund (DIDF)

- Its prime objective is to **create/modernise the milk processing, cold storage and value addition infrastructure**. A **2.5% interest subvention loan** is provided under NABARD.

Supporting Cooperatives and FPO's In Dairy Activities

- The prime objective of the scheme is to **assure assistance through the interest subvention schemes** and also the **soft working capital loan**. This helps to deal with the ambiguous market conditions or in cases of natural calamities.

National Livestock Mission

- It aims to ensure **sustainable development** of the livestock sector. It focuses on improving the availability of **quality feed and fodder**, also ensuring **risk coverage**, along with increased credit flow.

Animal Husbandry and Infrastructure Development Fund

- It assured a **corpus of Rs.15000 crore**, thereby **incentivizing investments** by individual entrepreneurs, private sector companies, **MSME, and the FPOs**.
- It also helps to **increase milk and meat processing capacity** through greater access for unorganised rural links via producer and market connections.

Livestock health and disease control:

- It is under a **CSS scheme towards prevention, control and containment of animal diseases** which are of prime economic and zoonotic importance, through vaccination.

Livestock Census & Integrated Sample Survey Scheme:

- It is a **Centrally Sponsored Scheme** implemented throughout the country. It aims to bring out **estimates of major Livestock Products (MLP)** such as milk, egg, meat and wool. This plays a crucial role in policy planning.

Kisan Credit Cards (KCC):

- It is under the **Atmanirbhar Package**, which aims to **provide credit to landless Animal Husbandry farmers at low interest**. It is also for dairy farmers of milk cooperatives and milk producer companies.

Conclusion

The livestock rearing sector remains **vital to local and global food systems, economies, and cultures**. Addressing its challenges through **sustainable practices, technological innovations, and effective policies** will be essential to ensure its long-term **viability and positive impact on society and the environment and bolster employment**. Legislative enactments and National missions aim to ensure the **agricultural economy** leads to holistic and more inclusive **Economic Development**.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements regarding Dairy processing & Infrastructure Development Fund (DIDF):

1. The fund has been set up with NABARD.
2. It aims to modernize the milk processing plants and machinery and to create additional infrastructure for processing more milk.

3. It is implemented by National Dairy Development Board (NDDB) and National Cooperative Development Cooperation (NCDC).

How many of the above statements are correct?

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

(c) : ANSWER

Descriptive Question

- Q. Examine the initiatives taken by Government of India to bolster the livestock sector by highlighting the challenges associated with the sector. [10 Marks] [150 Words]

ELECTRONICS MANUFACTURING IN INDIA

Why in News: The NITI Aayog has recently outlined a fiscal, financial, regulatory and infrastructure support roadmap to boost electronics manufacturing in India.

Key Details

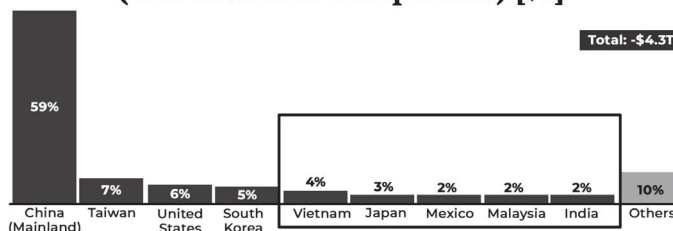
- The National Institution for Transforming India (NITI) Aayog, in a report titled "Electronics: Powering India's Participation in **Global Value Chains**," has set an ambitious target of \$500 billion in electronic manufacturing in value terms for India to be achieved by 2030.
- This will help India achieve its ambition of becoming the world's third-largest economy.

Status of the Electronic Manufacturing sector in India

The NITI Aayog report analysed the electronic sector in India and its potential and suggested a series of policy initiatives to realise this target. Here are some of the important points of the report.

- India's electronic sector has recorded impressive growth from \$48 billion in domestic production in 2017-18 to 101 billion in 2022-23.
- Out of the \$101 billion production, the contribution of finished goods was \$86 billion, while the contribution of component manufacturing was \$15 billion.
- Mobile phones constitute 43 percent of total electronic manufacturing, and India meets 99 per cent of its smartphone requirements domestically.
- China's share of the global electronic manufacturing output is 28.4 per cent, while India's share was only 3.3 per cent.
- India's export of electronic goods in 2022-23 was around \$25 billion, less than 1 per cent of the global electronics export market.

Global Electronics Production, CY2022 (End-devices & Components) [\$T]



Challenges in Making India an Electronics Hub

- **Duties as a Double-Edged Sword:**
 - ◆ **High import duties and strict localisation norms** are often imposed to promote local manufacturing. While they do succeed to an extent in ensuring local manufacturing, they also **negatively impact a country's global competitiveness**.
- This is **particularly true in electronics** where **supply chains are globally intertwined**.
 - ◆ Countries like **Vietnam and China** have **more favourable subsidy structures** than India does in **areas like machinery** used for manufacturing, and research & development.
- **Lack of Component Ecosystem:**
 - ◆ Another challenge is **India lacking a robust ecosystem of companies locally manufacturing components** required for electronic products.
 - ◆ In the absence of a full-fledged component ecosystem in India, **these components are required to be imported**, resulting in increased costs and lead time for the manufacturers.
 - ◆ An active policy support to promote local manufacturing, including through domestic players, appears to be missing at present.
- **Skill Development:**
 - ◆ There is a **shortage of skilled labour in the electronics manufacturing sector**. To become a global hub, India needs to **invest in developing a highly skilled workforce** with expertise in areas such as electronics engineering, research and development, and advanced manufacturing technologies.
- **Regulatory Environment:**
 - ◆ The regulatory framework and bureaucratic procedures in India can be **complex and time-consuming**.
 - ◆ Streamlining regulations and reducing **bureaucratic red tape** would enhance the ease of doing business, attract investments, and foster a conducive environment for electronics manufacturing.

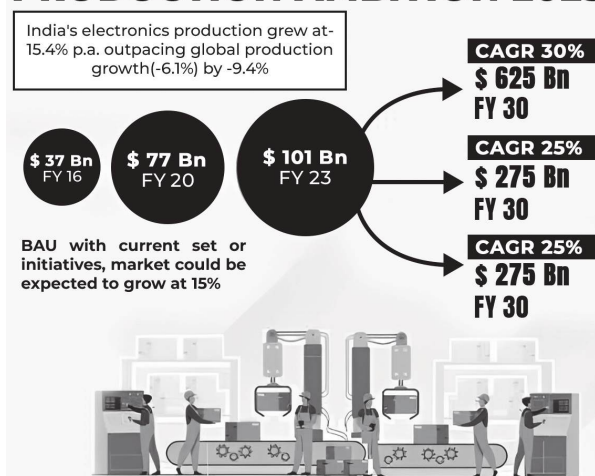
- **Environmental Sustainability:**
 - ◆ Electronics manufacturing often generates **electronic waste**, which poses environmental challenges.
 - ◆ **Absence of effective implementation of sustainable practices** like e-waste management and promotion of environmentally friendly manufacturing processes can do more harm to the environment than the intended good.

Steps to Improve India's Electronics Sector

- **Increasing Scalability:**
 - ◆ Electronics manufacturing prospers in large clusters which provide requisite economies of scale. However, India hasn't envisaged its manufacturing clusters at requisite scale.
- **India currently has almost 400 SEZs** across the country to drive exports, which even if put together, account for half the exports when compared to the **Shenzhen SEZ in China**.
 - ◆ **India must double down on creating mega, global scale electronics clusters** in a couple of locations across the country. **UP (Noida), Tamil Nadu, and Telangana are already emerging as front runners** and time has come to bet big to create electronics clusters of global scale.
- **Limiting High Exports Duty:**
 - ◆ In order to gain a fair share of the global electronics market, there needs to be a **complete overhaul in our thinking, especially for taxation, labour laws and worker housing**.
- **India is now shifting from being an import-substitution electronics economy to an export-led economy.**
 - ◆ Complex duty structure with high and constantly changing rates serve as major barriers to making India an assembly hub for global OEMs and thus require a revisit.
- **Private-Government Collaboration:**
 - ◆ While India has been a leading manufacturer of mobile phones in the past few years, it has largely been in the low technology category. Now, Indian manufacturers can work towards becoming a part of the global value chains.
- **Public-private collaboration**, supportive policies and legal framework are key to driving this growth.
 - ◆ The government's aim to create a **10 million-strong skilled IT workforce in the next three years**, roll out the semiconductor design-linked incentive policy, etc. - all these initiatives work towards building a robust electronic manufacturing ecosystem.

- **Looking for Cooperation amid Tensions:**
 - ◆ Some of the biggest electronics companies globally today are Chinese in addition, thousands of Chinese electronics components suppliers.
- **Difficulties in cooperation arising due to border tensions** between India and China severely limits India's ability to attract large scale manufacturing investment.
 - ◆ In this context, the **China-Taiwan example can be emulated where**, despite being on the verge of war, over **4,000 Taiwanese companies operate in China** including Foxconn, one of the biggest employers in China.
- **Finding a way to do business with China in India's enlightened self-interest** despite political tensions will be critical for success in electronics manufacturing.
- **Increasing Flexibility:**
 - ◆ In 2008, Vietnam removed local content requirements on its FDI which encouraged Samsung to move its manufacturing base from South Korea to Vietnam, and **today, 60% of all Samsung smartphones are manufactured in Vietnam**.
- Other tech giants like LG, Apple, Nintendo, and several others have also transferred large parts of manufacturing to Vietnam.
- As a result, Vietnam has climbed from the **47th position in global electronics exports ranking in 2001 to the 7th position in 2021**.
 - ◆ **Similar incentives regarding flexibility should be provided to Indian manufacturers** to utilise the workforce in line with practices in competing countries.

PRODUCTION AMBITION 2023



Target for 2030

The NITI Aayog reports mention that if India aims to become the third-largest economy in the world, then the electronic manufacturing sector will have to play a major role.

- NITI Aayog has set a \$500 billion electronic manufacturing target by 2030.
- The target for finished goods manufacturing is \$350 billion, while the target for components manufacturing is \$150 billion.
- It will create an estimated 55 to 60 lakhs of new employment opportunities in the country.
- It will boost electronics exports to \$240 billion.

EXPECTED QUESTIONS FOR UPSC CSE

Descriptive Question

Q. Discuss India's scope and major challenges in becoming a global manufacturing hub in Electronics System Design and Manufacturing (ESDM) sector. [15 Marks] [250 Words]

RIGHT TO REPAIR

Why in News: India's Department of Consumer Affairs (DoCA) has recently asked automobile companies to join the Right to Repair Portal India.

Key Details

- The unified **Right to Repair** Portal India has been launched by the Department of Consumer Affairs to provide consumers with an easy access to information for repairing their products and enabling them to reuse it.
- The initiative is part of the government's efforts to protect consumer rights and address concerns about hassle-free repairs by eliminating obstacles such as restricted access to tools or repair information, ensuring that consumers have complete ownership of products they purchase.
- It has been noted that repair services are increasingly constrained due to significant delays in service and absence of repair documentation for vehicles.
- The portal allows consumers to repair their products instead of purchasing replacements or using expensive manufacturer services. This can help save money and reduce e-waste.
- The portal contributes to the circular economy by promoting product maintenance, reuse, and upgrades.

Proposed Sectors for Implementation

- Farming equipment
- Mobile phones/ tablets
- Consumer durables
- Automobiles/equipment

About Right to Repair

Global Status

- The right to repair has been recognised in many countries across the globe, including the **US, UK and European Union**.
- In the US, the **Federal Trade Commission** has directed manufacturers to **remedy unfair anti-competitive practices** and asked them to make sure that consumers can make repairs, either themselves or by a third-party agency.

Need for Right to Repair

- Generally, **manufacturers retain proprietary control** over spare parts, including their design, this kind of monopoly on repair processes **infringes the customer's "Right to Choose"**.
- **Warranty cards** of several products mention that getting them repaired from an outfit not recognised by the makers **would lead to customers losing their warranty benefit**.
- Companies also tend to **avoid the publications of manuals that can help users make repairs easily**.
- The technical service/product companies **do not provide complete knowledge and access to manuals, schematics, and software updates**.
- Manufacturers are encouraging a culture of **"planned obsolescence"**.
 - This is a system whereby the design of any gadget is such that it **lasts a particular time only and after that particular period it has to be mandatorily replaced**.
 - A product that cannot be repaired or falls under planned obsolescence i.e. designing a product with an artificially limited useful life, **not only becomes e-waste but also forces the consumers to buy new products** for want of any repair to reuse it.
- India has recently launched the concept of **LiFE movement (Lifestyle for Environment)** in India.
 - This includes the concept of **reuse and recycling various consumer products**.
 - Right to Repair will assist in achieving the targets under LiFE.

Way Forward

- **The parts and tools to service devices, including diagnostic tools** should be made available to third parties, including individuals so that the product can be repaired in case of minor glitches.
- Right to Repair law **could be especially valuable** in a country like India, where **service networks are often spotty and authorised workshops are few and far between** in the hinterland.
- India's **informal repair sector does a good job with the repairing work**.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQs

Q. Right to Repair Portal, recently seen in the news, is an initiative of which ministry?
(a) Ministry of Heavy Industries

- (b) Ministry of Steel
- (c) Ministry of Consumer Affairs
- (d) None of these

(c) :Answer

CROSS-BORDER RETAIL PAYMENTS

Why in News: Reserve Bank of India has recently joined 'Project Nexus' to enable instant cross-border retail payments.

Key Details

- The Reserve Bank of India (RBI) has joined Project Nexus, a multilateral international initiative to enable instant cross-border retail payments by interlinking domestic Fast Payments Systems (FPSs).
- India's Unified Payments Interface (UPI) and FPSs of Malaysia, the Philippines, Singapore and Thailand will be interlinked through Nexus. Going ahead, the platform can be extended to more countries.
- Project Nexus is conceptualised by the Innovation Hub of the Bank for International Settlements (BIS).
 - It seeks to enhance cross-border payments by connecting multiple domestic instant payment systems (IPS) globally.
 - It is the first BIS Innovation Hub project in the payments area to move towards live implementation.

Significance of Project Nexus

- **For Industry Participants**
 - **Efficient cross-border transactions:** Nexus reduces the complexity of cross-border payments by shortening the transaction chain, reducing overall cost and time for cross-border transactions.
 - **Cost-effective global solution:** Participants would only incur a one-time integration cost to connect to Nexus, to access all participating countries. This minimises the time, effort and cost required for integration while maximising scalability as a global solution.
 - **A standardised and resilient ecosystem:** All Nexus participants would adhere to a common Nexus Scheme Rulebook, ensuring consistency and harmonisation.
- **For Individuals**
 - **Seamless integration with existing apps:** Users can

utilise existing apps of any participating PSP in order to make a Nexus transaction.

- **Greater convenience via the use of proxies:** Proxies, such as mobile phone numbers, can be used for Nexus transactions, eliminating the need for lengthy international bank account numbers.
- **Transparent fee disclosure:** Users will receive upfront details on all fees, FX rate and amount to be credited into the recipient's account.

What to expect for the future?

- **Geographical Expansion:** Nexus has plans to extend the network to new countries and regions, ensuring global accessibility and impact.
- **Use Case Diversification:** Nexus use cases will evolve to expand beyond A2A payments to include QR merchant payments and other functionalities.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Which of the following bodies conceptualised the Project Nexus?

- (a) World Bank
- (b) IMF
- (c) WTO
- (d) BIS

(d) :Answer

Descriptive Question

Q. What is Project Nexus? Discuss the features, significance and scope of project nexus. [15 Marks] [250 Words]

WIRELESS NETWORK ARCHITECTURE

Why in News: Institute of Electrical and Electronics Engineers (IEEE) has recently approved a wireless network architecture for affordable broadband access in rural areas, developed at IIT Bombay.

Mobile/Cellular Networks

- A cellular network, such as a 5G network, includes a set of network equipment connected by communication links.
- They work together to move data between different devices and to other networks, e.g., the Internet.
- A cellular network can be divided into two sub-networks: the access network (AN) and the core network (CN).

Access Network (AN)	Core Network (CN)
• AN consists of base stations that provide wireless connectivity to mobile devices in a limited geographical area, called the coverage area. • A network operator usually installs base stations across the length and breadth of the region to be covered.	• CN of a cellular network has equipment that provides connectivity to other networks, such as the Internet. • Unlike AN base stations, the CN operates in a central location, and possibly far from any of the base stations. The CN is linked to a base station by an optical fibre link called the backhaul.

- Data from a user's device must pass through both a base station and the CN to reach its desired destination, such as the Internet or another user's device.
- Even if two users are nearby and are connected to the same or adjacent base stations, the data must pass through the central CN.
- CN is essential to support user mobility, a key feature offered by cellular networks.

Limitations for Rural Connectivity

- Lower income of rural people. A big chunk of the rural population finds mobile services unaffordable.
- Lower population density
- Clustered distribution of population and remoteness.
- Most existing cellular networks cater to the urban populations, e.g., the 5G network focuses on providing 10 Gbps data rate and 1 ms latency. Rural connectivity lags far behind.

IEEE 2061-2024 standard

- The standard defines a wireless network architecture for affordable broadband access in rural areas. It was approved on June 6 by the Institute of Electrical and Electronics Engineers (IEEE).
- IEEE-2061 network also includes a CN and AN similar to cellular networks.
- IEEE-2061 AN is heterogeneous wherein different types of base stations coexist: it includes base stations covering large coverage areas called macro-BS supplemented by small coverage area Wi-Fi.
- It is different from the 5G network, where the AN is homogeneous comprising base stations of the same type and typically smaller coverage area.
- The macro-BS in IEEE-2061 can be built with any cellular technology that can support a large coverage area.
- A key capability of the system is that it allows a device to move from a Wi-Fi based connectivity to a macro-BS connectivity without any service disruption. This is enabled by an integrated AN control functionality in the IEEE-2061 network.

Middle-Mile Network

- The IEEE-2061 standard proposes the use of a multi-hop wireless middle-mile network to extend connectivity to areas where optical-fibre links are not available.
- A multi-hop wireless middle-mile provides cost-effective connectivity over long distances, eliminating the need for a costly and difficult-to-deploy optical fibre.
- An IEEE-2061 network can flexibly use one or more technologies like satellites, or long-range Wi-Fi for the middle-mile.
- The IEEE-2061 AN also has a direct and alternate path to the Internet, unlike the (4G/5G) network, where Internet connectivity is possible only via the CN.
- Direct connection to the Internet from an AN, avoiding the centralised CN, would be a more optimal solution for stationary users in rural areas.

- Unlike the 4G/5G networks, an IEEE-2061 network can avoid the CN for communication between nearby users, which can be directly routed within AN instead.

Significance

If adopted, IEEE 2061 can help provide affordable connectivity to rural populations. Its novel concepts, including the CN bypass, and integrated AN control may also pave the way towards a flexible and scalable mobile network in future.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements regarding cellular network:

1. A cellular network is divided into two sub-networks i.e. the access network and core network.
2. Data from a user's device must pass through both a base station and the core network to reach its desired destination.
3. Core network is not essential for 4G network connectivity.

How many of the above statements are correct?

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

Answer: (b) (1 and 2)

RIGHT TO LEVY TAX ON MINERAL

Why in News : The Supreme Court of India recently ruled that the power of State Legislatures to tax mining lands and quarries is not limited by the Parliament's Mines and Minerals (Development and Regulation) Act of 1957.

Key Details

- A nine-judge Constitution Bench of the Supreme Court ruled that the power of states to levy royalty on extraction of minerals from their land and said they can also tax the lands which comprise mines and quarries.
- The apex court ruled that the 'royalty', as envisaged under Section 9 of the 1957 Act, "is not in the nature of tax."
 - Rather, Royalty is a contractual consideration paid by the mining lessee to the lessor for enjoyment of mineral rights.

- The tax payable to the State Government depends on the “yield” of the mineral-bearing land.
- The yield of such a land is based on the royalty payable or the quantity of minerals produced from mining it.
- The majority judgment said that State Legislatures derive their power to tax mines and quarries under Article 246 read with Entry 49 (tax on lands and buildings) in the State List of the Seventh Schedule of the Constitution.
- Further, it said Parliament can even prohibit states from taxing mineral rights by virtue of Entry 50 of List II (State List), but pointed out that “there is” however “no specific provision” in the 1957 Act that governs the field “which imposes limitations on the power of the states to tax mineral rights”.
- Furthermore, the Parliament does not have the legislative competence to tax mineral rights, with Entry 54 of the Union List (Regulation of mines and minerals development declared by parliamentary law to be expedient in the public interest) being only a general entry.

New Challenge

- Mineral development in the country in an uneven and haphazard manner and increase competition between the states and engage them into what has been termed by Louise Tillin (professor at King’s India Institute) in a ‘race to the bottom’ in a nationally sensitive market.
- There would be unhealthy competition between the states to derive additional revenue and consequently, the steep uncoordinated and uneven increase in cost of minerals.

About Mines and Minerals (Development and Regulation) Amendment Bill 2023

- The Bill previously mentioned six atomic minerals (lithium, beryllium, niobium, titanium, tantalum and zirconium) from a list of 12 which cannot be commercially mined (reserved for government entities).
 - These six minerals are now being put into a list of “critical and strategic” minerals.
- The Bill allows prohibited activities under the Act like pitting, trenching, drilling, and sub-surface excavation as part of reconnaissance, which included mapping and surveys.
- The Bill also proposes a new type of license to encourage reconnaissance-level and or prospective stage exploration by the private sector.
- This exploration licence (EL), for a period of five years (extendable by two years), will be granted by the state government by way of competitive bidding.
- This license will be issued for 29 minerals specified in the Seventh Schedule of the amended Act, which would include critical, strategic, and deep-seated minerals.
- It also specifies the maximum area for exploration - activities in upto 1,000 sq kms will be allowed under a single exploration licence.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements about Mines and Minerals (Development & Regulation) Amendment Act, 2023:

1. It aims to strengthen the exploration and extraction of critical minerals essential for India's economic development and national security.
2. It seeks to remove 6 minerals from the list of 12 atomic minerals limited to exploration by State agencies.

Which of the statements above is/are correct?

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

Answer: (c)

FARMER PRODUCER ORGANIZATIONS (FPOs)

Why in News: The Ministry of Agriculture and Farmers Welfare is developing a new national policy for Farmer Producer Organizations (FPOs).

National Policy on FPOs

- **Aim:** To scientifically and systematically consolidate existing FPOs, and establish 50,000 FPOs. Policy will directly benefit 2.50 crore farmers.
- **Guiding Principles:**
 - Assessment of all schemes: To promote FPOs, including 2021 Central sector scheme ‘Formation and promotion of 10,000 FPOs’.
 - End-to-end Value Chain: To boost farmers’ income through a comprehensive value chain approach, from production to marketing.
 - Emulating AMUL model: To develop FPOs on 3 tier AMUL model (Village Dairy Cooperative, District Milk Cooperative Union, State Cooperative Milk Federation) which emphasize collective business goals, capacity building, and professional management.
- **FPO eligibility:**
 - Minimum 300 members in areas other than North East/hilly/UTs (100 in North East/hilly/UTs).
 - Registered as legal entity either under Companies Act 2013 or under any law relating to Cooperative Society for time being in force.

- Must register with FPO Registry Portal, maintained by Central Government.
- **Central Nodal Department (CND):** Department of Agriculture and Farmers' Welfare (DA&FW).
- **Role of CND:**
 - Allocate funds for FPO development through convergence of central government schemes.
 - **Making institutional loan available to FPOs at cheaper interest rate.**
- **Central Nodal Agency:** Small Farmers' Agribusiness Consortium, New Delhi (under DA&FW).

About FPOs

- FPOs are formed for the purpose of leveraging collectives through economies of scale in production and marketing of agricultural and allied sector.
 - Currently, 5000 FPOs have been registered on Open Network for Digital Commerce portal for selling the produce online.
- Its objective is to ensure better income for the producers and enable farmer-producers and agrarian communities to enhance productivity through efficient, cost-effective and sustainable resource use.

INDIA'S LIQUEFIED NATURAL GAS (LNG) DEMAND SURGE

Why in News: India has imported 2.60 million tonnes (mt) of LNG in the month of June, which is the highest in the last 3.5 years.

Why sudden rise in purchase?

- Gas-based power plants operated at notably higher run rates than their usually subdued capacity utilization levels amid a surge in electricity demand due to the severe heatwave.
- Reasonable prices and ample availability of LNG in the international spot market and the government's thrust on raising power production to meet high summer demand evidently led to higher-than-usual electricity generation by gas-based units, thereby pushing LNG purchases higher.
- As per data from the Central Electricity Authority (CEA), power generation from gas-based units was nearly 52 per cent higher than units in the corresponding month of last year.
- Domestic natural gas production is able to meet just around half of India's total gas consumption, the cheaper local gas is allocated as per a priority list in which city gas distribution and fertiliser sectors have a higher priority than the power sector.

Action taken

- The Power Ministry had invoked the Section 11 of the Electricity Act, 2003, on April 12, issuing a set of instructions to the power generation companies to ensure that electricity demand is met.

Facts

- India is the world's fourth-largest LNG importer.
- The United States is the world's largest producer of natural gas.
- **LNG**
 - **LNG Basics:** Liquefied Natural Gas (LNG) is natural gas that has been cooled to a liquid state, at about -260°F, for shipping and storage.
 - The volume of natural gas in its liquid state is about 600 times smaller than its volume in its gaseous state.
 - Liquefying natural gas is a way to move natural gas long distances when pipeline transport is not feasible.
 - Markets that are too far away from producing regions to be connected directly to pipelines have access to natural gas because of LNG.
 - In its compact liquid form, natural gas can be shipped in special tankers to terminals around the world. At these terminals, the LNG is returned to its gaseous state and transported by pipeline to distribution companies, industrial consumers, and power plants.
 - It consists of a mixture of hydrocarbons, 90%–95% of which is methane (CH₄), in addition to other components such as ethane, propane, butanes, pentanes, water, hydrogen, nitrogen, carbon dioxide, and other gases.

DIGITAL BHARAT NIDHI

Why in News: The Department of Telecommunications (DoT) recently released draft rules to operationalise the Digital Bharat Nidhi.

Key Details

- The proposed draft rules aim to replace rules 523 to 527 of the Indian Telegraph Rules, 1951, which prescribed USOF operations.
- The new rules remove definitions of financial terms such as "capital recovery", "net cost" and "revenue".
- They also omit definitions of technical terms like "village public telephone", "secondary switching area" and "broadband connectivity".
- According to the draft rules, the central government will appoint an "administrator" of the DBN who will select

“DBN implementers” through “bidding” or invitation of applications from eligible persons.

- The administrator will have power to formulate bidding and application procedures, disburse funds, and specify terms related to assets created through DBN funds.
- To improve access to established telecom services in underserved areas, DBN implementers will be selected through bidding, as per rule 7, similar to USOF rules.
- Draft rules stipulate that the implementers will be selected through application for research and development of new or emerging telecom technologies.
- The USOF was established to provide telecom services in remote and rural areas at affordable prices through a universal access levy, a percentage of revenue earned by operators under various licences.
- USOF is a pool of funds generated by a 5 per cent Universal Service Levy charged upon all the telecom fund operators on their Adjusted Gross Revenue (AGR).
- Since its establishment in 2003, a common criticism of the USOF has been its relative underutilisation.
- **Working mechanism for DBN:**
 - Under section 25, payments received for DBN will first be credited to the Consolidated Fund of India.
 - Then it will be credited to the DBN by the central government (on parliamentary approval through a law) exclusively to provide access to telecommunication services in
 - ◆ Underserved rural, remote and urban areas;
 - ◆ Fund research and development of telecommunication services, technologies, and products;
 - ◆ Advisory support for improving connectivity;
 - ◆ Introduction of telecommunication services, technologies, and products.

RBI DOMESTIC MONEY TRANSFER RULES

Why in News: The Reserve Bank of India (RBI) in a review of **Domestic Money Transfer** framework has made it tougher for transfer of money in banking channel by account holders.

Details

- RBI has issued a new circular detailing the changes which will come into effect from November 1.
- Based on the review it has been decided that for Cash Pay-out Service the remitting bank will need to obtain and keep a record of the name and address of the beneficiary.
- The updated rules are designed to guarantee adherence to current financial legislation and enhance the security of domestic money transfers.

- With the ongoing evolution of cashless and digital transactions, these steps seek to offer a robust and safe framework for money transfers within India.

Changes from November 1, 2024.

- **Cash Pay-out Service:** The remitting bank shall obtain and keep a record of the name and address of the beneficiary.
- **Cash Pay-in Service:**
 - **Verify cell phone number and documents:** Remitting banks or Business Correspondents (BCs) will register the remitter using a verified mobile phone number and a self-certified ‘Officially Valid Document (OVD)’ as specified in the Master Direction - Know Your Customer Direction 2016, as revised from time to time.
 - **Additional Factor of Authentication :** Every transaction by a remitter shall be validated by an Additional Factor of Authentication (AFA).
- **Income Tax Act, 1961:** Remitting banks and their BCs must follow the provisions of the Income Tax Act of 1961 and the rules / regulations issued thereunder (as amended from time to time) regarding cash deposits.
- **Remitter details:** Remitter bank should include remitter details as part of the IMPS / NEFT transaction message.
- **Cash-based remittance:** The transaction message should include an identifier to identify the fund transfer as a cash-based remittance.

Note: The guidelines on Card-to-Card transfer are excluded from the purview of the DMT framework and shall be governed under the guidelines / approvals granted for such.

ARAKU COFFEE

Why in News: Recently Prime Minister Narendra Modi, in the recent episode of ‘Mann Ki Baat’ praised the “flavor and significance” of Araku coffee.

About Araku coffee

- ARAKU Coffee is the world’s largest certified organic plantation in the Eastern Ghats of India.
- Araku Valley, in Andhra Pradesh, has proven to be excellent highlands for growing 100% Arabica coffee.
- It is supported by Naandi Foundation.
- It is the first fair-trade certified homegrown coffee to bypass any middlemen and put forward an equitable system in the form of Arakunomics.

Arakunomics

- A model endorsed by The Rockefeller Foundation’s ‘Food System Vision 2050 Prize’.
- In 2018, the World Economic Forum highlighted this “how indigenous Indian farmers are fighting deforestation with gourmet coffee.”

- Araku coffee is grown with an emphasis on regenerative agriculture,
- It is nurtured in micro plots and selectively harvested to fully express the richness of its unique character.
- In 2018, it also became the first specialty coffee from India to receive an international claim .
- Araku coffee received its Geographical Indication (GI) tag in 2019.
- Araku Valley Arabica coffee is sourced from the hilly terrains of Visakhapatnam district in Andhra Pradesh, and the Odisha region is grown at elevations of 900-1100 meters above sea level.
- Tribal communities follow an organic approach, for coffee production emphasising practices such as the use of organic manures, green manuring, and organic pest management.
- India is the 6th largest producer of coffee in the world.

Others types of Coffee in India that have been granted GI tag

- Coorg Arabica coffee is cultivated exclusively in the Kodagu district of Karnataka.
- Wayanaad Robusta coffee is grown specifically in the Wayanad district in the eastern part of Kerala.

- Chikmagalur Arabica coffee is produced in the Chikmagalur district, located in the Malnad region of Karnataka on the Deccan plateau.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Which of the following statement are correct regarding Araku Coffee:

1. ARAKU Coffee is the world's largest certified organic plantation in the Eastern Ghats of India.
2. Araku Valley Arabica coffee is sourced from the hilly terrains of chikmagalur district in tamil nadu.
3. It is supported by Naandi Foundation.
4. Araku coffee is grown with an emphasis on regenerative agriculture.

Choose the correct statement:

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

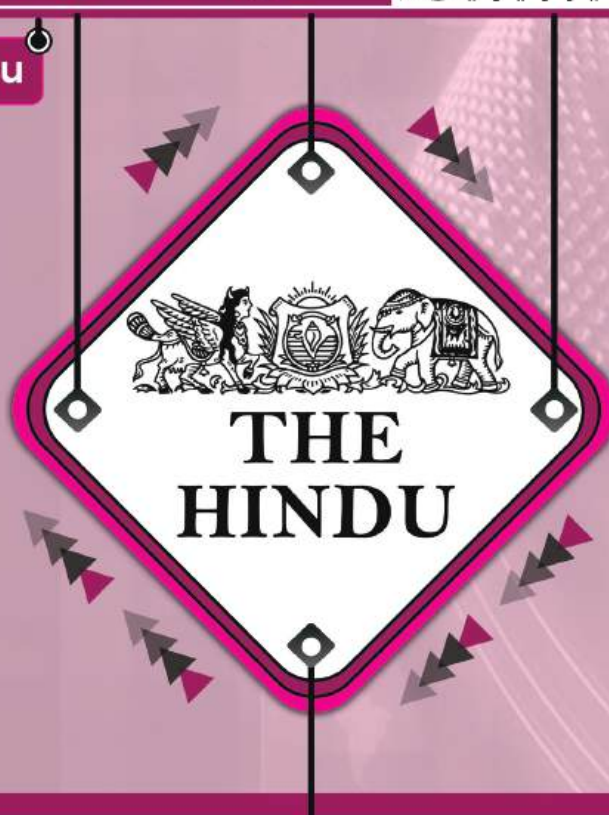
Answer: (b)

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ENVIRONMENT & GEOGRAPHY

INDIA'S GREEN ENERGY

Why in News: The World Bank recently approved a \$1.5 billion loan to support India's green hydrogen push.

Key Details

- This funding aims to promote the market for green hydrogen, electrolyzers, and increased renewable energy penetration in India.
- The initiative aligns with India's National Green Hydrogen Mission and energy transition targets, including achieving 500 GW of installed renewable energy capacity by 2030 and reaching net zero by 2070.

Objectives:

- **Green Hydrogen Market:** Boost production and consumption of green hydrogen.
- **Electrolyser Production:** Support the production of critical technology needed for green hydrogen production.
- **Renewable Energy Penetration:** Encourage battery energy storage solutions and amend the Indian Electricity Grid Code for better renewable energy integration.

About Green Hydrogen: Green hydrogen (GH₂ or GH₂) is hydrogen produced by the electrolysis of water, using renewable electricity. Production of green hydrogen causes significantly lower greenhouse gas emissions than production of grey hydrogen, which is derived from fossil fuels without carbon capture.

What is Green Energy?

- Green energy is defined as energy derived from renewable sources. Green energy is also known as clean, sustainable, or renewable energy.
- Green energy generation emits no dangerous greenhouse gases into the atmosphere, resulting in little or no environmental impact.
- Solar, wind, geothermal, biogas, low-impact hydroelectricity, and certain qualified biomass sources are all key green energy sources.

Green Energy Transition Initiatives in India

- India declared in 2019 that it would increase its installed renewable energy capacity to **450 GW by 2030**. The Production Linked Incentive Program (PLI) scheme is another initiative of the Government of India aimed at improving the industrial sector in order to produce raw materials for renewable energy.

- The **PM-KUSUM (Pradhan Mantri-Kisan Urja Suraksha evam Utthaan Mahabhiyan)** aims to achieve solar power capacity addition of 34.8 GW by 31.3.2026.
- The Ministry of New and Renewable Energy also hosts the **Akshay Urja Portal** and the India Renewable Idea Exchange (IRIX) Portal. IRIX is a platform for energy-conscious Indians and the global community to exchange ideas.

Lack of a robust domestic renewable energy industry.

Social and environmental concerns due to rapid renewable energy growth.

Challenges Related to India's Green Energy Development

High dependence of fossil fuel and vulnerability in green technology.

High capital costs and lack of adequate debt financing in green energy

Other Initiatives Influencing India's Energy Transition

- Pradhan Mantri Sahaj Bijli Har Ghar Yojana (SAUBHAGYA)
- Green Energy Corridor (GEC)
- National Smart Grid Mission (NSGM) and Smart Meter National Programme
- Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles (FAME)
- International Solar Alliance (ISA)

Challenges Related to India's Energy Sector

- **Access to energy** is a serious issue, with significant disparities in access. In India, around 77 million families still use kerosene for lighting. The situation is exacerbated in rural India, where up to 44% of households lack access to electricity.
 - In the first half of 2022-23, **India's crude oil import bill** climbed by 76% to USD 90.3 billion, while overall import amount increased by 15%. With its rising reliance on imported oil.
 - In terms of renewable energy, India also relies heavily on other countries such as China for solar modules. **Backward integration in the solar value**

chain is lacking since India currently lacks capacity for manufacturing solar wafers and polysilicon, impeding the shift to sustainable energy.

- **Climate change** has a direct impact on fuel supply, energy demand, and the physical durability of current and future energy infrastructure. Heatwaves and disrupted monsoons caused by climate change are already stressing existing green energy generation:
 - According to data from the Ministry of Coal in 2021, the **gap between demand and domestic supply of coal is growing**. Despite the existence of significant reserves, coal output in the largest coal-producing states has been dropping. Rising rates and unresolved contractual concerns with electricity plants are exacerbating the problem.
 - The International Energy Agency predicted in its World Energy Outlook report that with increased urbanisation and industrialisation, the demand for energy in India alone would rise by more than 3% each year. At the same time, global petroleum prices are rising rapidly.

Area of Cooperation between India and France on sustainability

- **Partnership for the Planet:** The elevation of the 'Partnership for the Planet' as a vital pillar of the Indo-French Horizon 2047 Roadmap reflects India and France's commitment to addressing global environmental challenges.
- **French Development Agency (AFD) Projects in India:** The French Development Agency (AFD) has supported India's sustainability goals through various projects. These include One-Horned Rhino Protection in Assam, Pune's Metro System, and Chandigarh's Future Water Supply System. Since 2008, AFD has committed over €4 billion to nearly 100 projects in India.
- **Private Sector-Led Projects:** Proparco, the private sector arm of AFD, supports private sector-led projects that deliver significant local impact.
- **Indo-Pacific Dimension:** The Indo-French partnership is increasingly acquiring an Indo-Pacific dimension, focusing on biodiversity protection and green technology development.
- **Innovation and Future Initiatives:** The Indo-French Year of Innovation announcement in 2026 aims to spotlight innovative solutions. Additionally, the partnership includes joint research in clean energy, decarbonized hydrogen, digital technology, and precision agriculture.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

- Q. Which among the statements correctly describes Green Hydrogen?
- (a) It is produced by splitting methane with solid carbon as a by-product; depending on the energy source, extraction of the natural gas and further processing of the solid carbon.

- (b) It is produced by splitting methane with CO₂ as a by-product, which is stored and not emitted.
- (c) It is produced by splitting fossil fuels and electricity from fossil energies.
- (d) It is produced from electrolysis of water with oxygen as a by-product, using electricity from renewable energy sources.

Answer

Descriptive Question

- Q. What are the challenges related to India's Energy Sector? Mention the initiatives taken by Indian Government for Green Energy Transition Initiatives in India. [15 Marks] [250 Words]

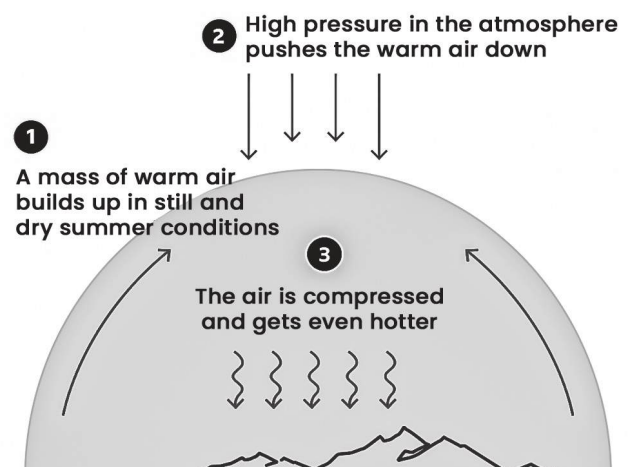
HEAT DOMES

Why in News: Recently, high temperatures were recorded in California, western USA due to the 'heat domes' effect.

About Heat Domes:

- A heat dome is a weather phenomenon where a high-pressure system in the atmosphere traps warm air like a lid on a pot, for an extended period of time.
- As the warm air is not able to rise upward, the sky remains clear — clouds are formed under the opposite circumstances as the rising warm air cools down, and the water in it condenses out.
- The high-pressure system allows more sunlight to reach the earth, which results in more warming and drying of soil.
- This leads to less evaporation and reduces the likelihood of the formation of rain clouds. The longer the heat dome stays in one place, the warmer conditions can get with every passing day.
- While heat domes cause heatwaves, they can occur without heat domes as well.

How a heat dome forms



Role of the jet stream in heat dome's formation

- A heat dome's formation is tied to the behaviour of the jet stream — an area of fast-moving air high in the atmosphere that usually helps move weather systems along the Earth's surface.
- Typically, the jet stream has a wave-like pattern that keeps moving from north to south and then north again.
- When these waves get bigger and elongated, they move slowly and sometimes can become stationary.
- This is when a high-pressure system gets stuck in place, and leads to the occurrence of a heat dome.

How is climate change impacting heat domes?

- Scientists are still debating over how climate change is impacting the blocking weather events that cause heat domes. However, they have ascertained that rising global temperatures have made heat domes larger and more intense.
- A 2021 study carried out by an international team of 27 climate researchers, who were part of the World Weather Attribution, found that searing temperatures recorded during the heat dome in Canada, which occurred in June that year, "would have been virtually impossible without the influence of human-caused climate change".
- Another study, published in the journal *Nature* 2023, indicated that the intensity of heat domes is outpacing the rate of global warming — which means that climate change is fuelling their intensity.
- The intensities of temperature extremes associated with heat dome-like atmospheric circulations increase faster than background global warming in both historical change and future projection.

Impacts on Ecosystems

- Heat domes can cause widespread stress and disruption to ecosystems.
- Extended periods of extreme heat can lead to heat stress in plants, resulting in reduced crop yields and increased susceptibility to pests and diseases.
- Additionally, heatwaves can also raise water temperatures, leading to adverse impacts on aquatic life, including fish kills and the destruction of coral reefs.

Human Health and Well-being

- Perhaps the most concerning impact of heat domes is the threat they pose to human health and well-being.
- Prolonged exposure to high temperatures can lead to heat-related illnesses, ranging from heat exhaustion to heatstroke, which can be life-threatening.
- Vulnerable populations, such as the elderly and those with pre-existing health conditions, are particularly at risk during these extreme heat events.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

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

1. A heat dome is a weather phenomenon where a low-pressure system in the atmosphere traps warm air like a lid on a pot, for an extended period of time.
2. It has been responsible for the entire western United States coming under the grip of a sweltering heatwave.

Which of the above given statements are correct?

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 or 2

Answer: d

Descriptive Question

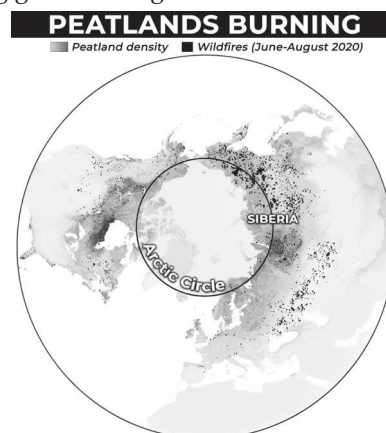
Q. Recently, high temperatures were recorded in western US due to the 'heat domes' effect. Explain what a heat dome is and describe the role of the jet stream in its formation. Additionally, assess the impacts of heat domes on ecosystems and human health. [15 Marks] [250 Words]

ARCTIC WILDFIRES

Why in News: A recent wildfire above the Arctic Circle has unleashed megatonnes of carbon emissions resulting in the third highest for the time of year in two decades of monitoring.

Key Details

- Intense wildfires above the Arctic Circle in the month of June 2024 have released megatonnes of carbon into the atmosphere, according to European Union scientists.
- Data from the Copernicus Atmosphere Monitoring Service (CAMS) shows that a majority of the fires are burning in the Sakha Republic in Russia's Far North.
- These seasonal wildfires are gradually moving north as climate change causes temperatures to rise in the Arctic. They have entered through tundra and boreal forests, releasing greenhouse gases from the carbon-rich soil.



- Fire is a natural part of Arctic ecosystems. But as the Arctic warms, the nature of wildland fires in the region is changing. The fire season is longer with more frequent and intense fires.

Climate Change and Arctic wildland Fires

The Arctic is ground zero for climate change and the increasing risk of Siberian wildfires are a clear warning sign that this essential system is approaching dangerous climate tipping points. Some of the ways that climate change affect Arctic Wildland fires are as follows:

- **LONGER FIRE SEASONS** - Climate change is expected to further increase the length of the fire season, possibly create drier conditions and increase the number of lightning strikes.
- **HIDDEN FIRES** - Fires in peat can smolder for months, years, or even decades. These hold over, or “**zombie fires**” emit a great deal of smoke and are difficult to extinguish. However, these fires can also be self-limiting if they warm and re-wet the peat around them through melting of permafrost.
- **MORE FIRES** - According to the Global Wildland Fire Information System, the number of fire incidents has more than tripled since 2018 in much of the Arctic region. In some areas where wildland fires were previously uncommon, more and larger fires are expected in the future.
- **MORE INTENSE FIRES** - As Arctic temperatures rise, many areas of boreal and Arctic forests are drying out, creating ideal conditions for larger, more intense fires. But in some areas, we may see a shift from coniferous (pine) forests to deciduous (e.g. birch) forests, which can reduce fire intensity.

Preventive Measures

- Develop **technology** to reduce the amount of carbon dioxide in the atmosphere.
- For Immediate concerns **relocating communities**.
- Support an emerging **pan-Arctic observing system**, along with early warning components and development of Arctic system models to track Arctic change.
- Enhanced **global cooperation** and collaboration of various stakeholders.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

- Q. Which one of the following best describes the ‘Zombie Fires’?
- Fire burns trees up their entire length to the top.
 - Fire burns only surface litter and duff.
 - Fires occur in deep accumulations of humus, peat, and similar dead vegetation that become dry enough to burn.

- (d) Fires that continue to burn underground and then reignites on the surface after a period of time.

Answer:

PEOPLE'S BIODIVERSITY REGISTER AND THE BIODIVERSITY BEYOND NATIONAL JURISDICTION (BBNJ) AGREEMENT

Why in News: Thazhakara grama panchayat based in Alappuzha district of Kerala recently updated information filled in People's Biodiversity Register (PBR) to raise awareness among the population about endangered species and their preservation.

Key Details

- Thazhakara has become the **first grama panchayat in Alappuzha and one of the first in Kerala** to update and publish a People's Biodiversity Register (PBR) to document biota.
- The PBR was gazetted with the participation of all the stakeholders with particular focus on participation of the community in the management of the biological diversity of the region.

About People's Biodiversity Register

- PBR is a record that captures all the biological wealth – physical environment, topography, and population density, of a particular geographical area right from the village level.

Legal Framework

- **Biological Diversity Act (2002) - Section 41:** Mandates that each local body set up a Biodiversity Management Committee (BMC) to conserve, use and document biodiversity.
- **Biological Diversity Rules (2004) - Rule 22:** Makes it a primary mandate of the BMC to coordinate the preparation of PBRs in participation with the local people. National Biodiversity Authority (NBA) and State Biodiversity Boards (SBB) offer consultations and technical assistant to prepare PBR.

Union Cabinet recently approved India's signing of the Biodiversity Beyond National Jurisdiction (BBNJ) Agreement

Key Points:

- This decision marks a significant step towards the conservation and sustainable utilisation of marine biological diversity in areas beyond national jurisdiction.
- The ‘High Seas’, areas beyond national jurisdiction are the global common oceans open to all for internationally lawful purposes such as navigation, overflight, laying submarine cables and pipelines, etc.

NEW BIOSPHERE RESERVES

Why in News: UNESCO has recently approved the designation of 11 new biosphere reserves in 11 countries.

Key Details

- The United Nations Educational, Scientific and Cultural Organization (UNESCO) announcement will bring the total number of sites in the World Network of Biosphere Reserves to 759, spanning 136 countries worldwide.
- The sites are located in Belgium and Gambia for the first time and two transboundary biosphere reserves. The other new biosphere reserves are located in Colombia, Dominican Republic, Italy, Mongolia, Kingdom of the Netherlands, Philippines, Republic of Korea, Slovenia and Spain.
- These additions were decided during the 36th session of the International Co-ordinating Council, the governing body of UNESCO's Man and the Biosphere programme, which is composed of 34 representatives of UNESCO Member States. The Council held its session in Agadir, Morocco, from 2 to 5 July following the UNESCO Conference on Soils.

Newly Designated Biosphere Reserves The latest additions to the UNESCO Biosphere Reserve list showcase a diverse range of ecosystems and cultural landscapes across the globe. These new sites include:

- Kempen-Broek Transboundary Biosphere Reserve (Belgium, Kingdom of the Netherlands)
- Darién Norte Chocoano Biosphere Reserve (Colombia)
- Madre de las Aguas Biosphere Reserve (Dominican Republic)
- Niumi Biosphere Reserve (Gambia)
- Colli Euganei Biosphere Reserve (Italy)
- Julian Alps Transboundary Biosphere Reserve (Italy, Slovenia)
- Khar Us Lake Biosphere Reserve (Mongolia)
- Apayaos Biosphere Reserve (Philippines)
- Changnyeong Biosphere Reserve (Republic of Korea)
- Val d'Aran Biosphere Reserve (Spain)
- Irati Biosphere Reserve (Spain)

- The Ministry of Earth Sciences will spearhead the country's implementation of the BBNJ Agreement. **About Biodiversity Beyond National Jurisdiction (BBNJ) Agreement**
- The BBNJ Agreement, or the '**High Seas Treaty**', is an international treaty under the United Nations Convention on the Law of the Sea (UNCLOS).
- It aims to address the growing concerns over the long-term protection of marine biodiversity in the high seas. It sets precise mechanisms for the sustainable use of marine biological diversity through international cooperation and coordination.
- Parties cannot claim or exercise sovereign rights over marine resources derived from the high seas and ensure fair and equitable sharing of benefits. It follows an **inclusive, integrated, ecosystem-centric approach** based on the **precautionary principle** and promotes using traditional knowledge and the best available scientific knowledge.
- It helps **minimise impacts on the marine environment** through area-based management tools and establishes rules for conducting environmental impact assessments. It would also contribute to achieving several SDGs, particularly SDG14 (Life Below Water).
- The BBNJ Agreement allows us to **enhance our strategic presence** in areas **beyond our EEZ (Exclusive Economic Zone)**. In addition to shared monetary benefits, it will further strengthen our marine conservation efforts and collaborations, open newer avenues for scientific research and development, access to samples, sequences and information, capacity building and technology transfer, etc.
- The BBNJ Agreement was agreed upon in March 2023 and is open for signature for two years starting September 2023. It will be an **international legally binding treaty** after it enters into force 120 days after the 60th ratification, acceptance, approval or accession. As of June 2024, 91 countries have signed the BBNJ Agreement, and eight Parties have ratified it.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. With reference to the Biodiversity Beyond National Jurisdiction (BBNJ) Agreement, consider the following statements:

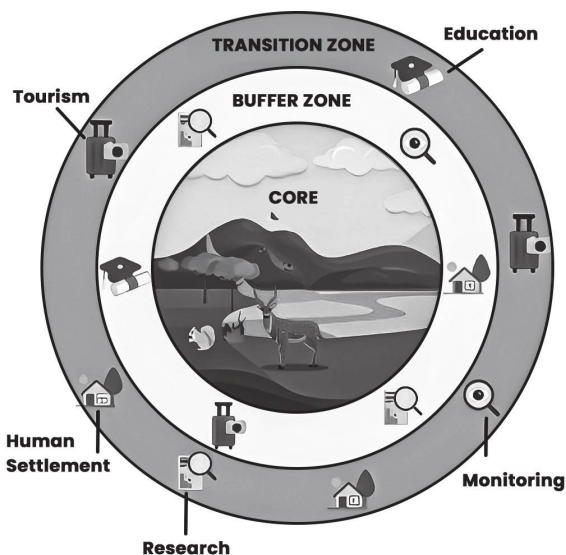
- The BBNJ Agreement, or the 'High Seas Treaty', is an international treaty under the The Intergovernmental Oceanographic Commission of UNESCO.
- Countries can claim or exercise sovereign rights over marine resources derived from the high seas.

Which of the above given statements are correct?

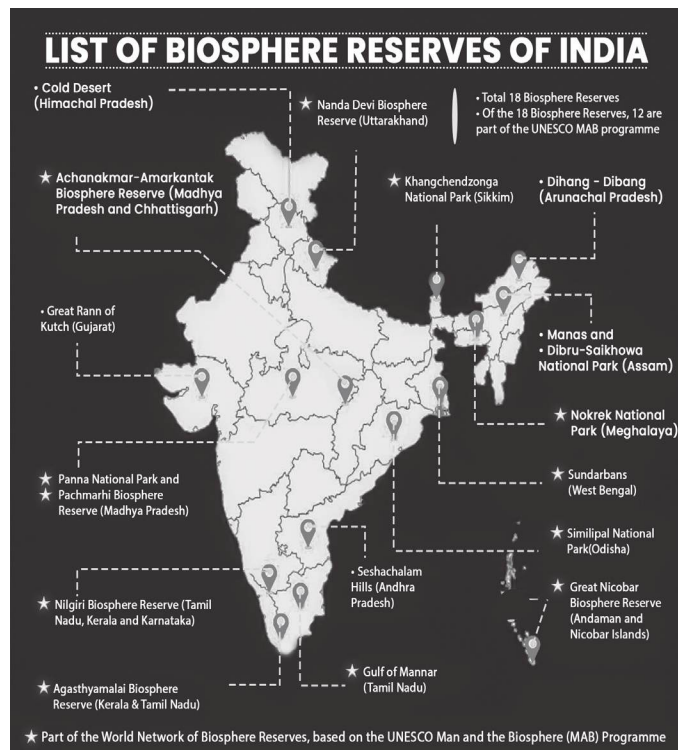
- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 or 2

Answer: d

About Biosphere Reserves:



- A Biosphere Reserve is an international designation granted by UNESCO for areas that represent significant natural and cultural landscapes.
- These reserves can encompass large terrestrial, coastal, or marine ecosystems, or a combination thereof. The fundamental goal of Biosphere Reserves is to achieve a delicate balance between economic and social development, the preservation of cultural values, and the conservation of nature.
- A biosphere reserve can be categorised into three Zones: Core, Buffer and Transition zone (see diagram).



Criteria for Designation-

1. Contain a protected core area of high nature conservation value.
2. Be a biogeographically significant unit large enough to sustain viable populations across all trophic levels.
3. Involve local communities and utilize their knowledge in biodiversity preservation.
4. Demonstrate potential for preserving traditional tribal or rural modes of living that harmonize with the environment.

Biosphere Reserves in India

- In 1986, the Government of India launched the Biosphere Reserve scheme, aligning with UNESCO's Man and Biosphere (MAB) programme.
- As of 2024, India boasts 18 notified biosphere reserves, of which 12 are recognized by UNESCO's MAB programme.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. With reference to the Biosphere Reserves, consider the following statements:

1. As of 2024, India boasts 18 notified biosphere reserves, of which 12 are recognized by UNESCO's MAB programme.
2. Nokrek Biosphere Reserve is the only biosphere reserve from "Seven sister states" to be included in UNESCO's Man and Biosphere (MAB) programme.
3. A biosphere reserve can be categorised into three Zones: Core, Transition and Buffer respectively from inside to outside.

Which of the above given statements are correct?

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

Answer: a

Descriptive Question

Q. Explain the concept of a UNESCO designated biosphere reserve and discuss the criteria for their designation. Also, analyse the potential impact of designation of Biosphere reserve on conservation and local communities. [250 Words] [15 Marks]

PLASTIC POLLUTION

Why in News: Recent evidence shows that current plastic waste recycling practices around the world are insufficient and often counterproductive.

Key Details

- To date, over 10 billion metric tonnes of plastic have been produced worldwide, with plastic production increasing by more than 18,300 per cent over the past 65 years. Currently, around 460 million metric tonnes of plastic are produced annually, and without intervention, this figure is projected to triple by 2050.
- Despite decades of advocacy and public education campaigns by plastic manufacturers, governments, and organizations, plastic waste continues to proliferate. This disconnect raises critical questions about the viability of recycling as a sustainable solution. For example:
 - Less than 9% of all plastic ever made worldwide has been recycled, 12% is incinerated or openly burned, and the remaining 79 per cent ends up in landfills or the environment.
 - Moreover, although the government of India had already banned plastic imports in 2014, a loophole allowed companies in Special Economic Zones to continue importing plastic, which was heavily exploited.
 - Malaysia has a recycling capacity of 515,009 tonnes but imports an average of 835,000 tonnes of plastic waste each year, in addition to an estimated 2.4 million tonnes of domestic plastic waste.

Issues with Plastic Recycling

- Historically, plastics were never designed to be recycled. The recycling process often leads to **downcycling**, where plastics are transformed into products of lesser quality and utility, such as plastic lumber, park benches, among others.
- Many of these products cannot be recycled again, and the process is **energy-intensive**, contributing significantly to greenhouse gas emissions and contaminating water resources.
- Additionally, recycled plastics frequently contain a **toxic cocktail of chemicals**, making them unsuitable for many applications, particularly food and beverage packaging. Research has shown that these toxic chemicals can leach into products, posing serious health risks.
- The concept of **plastics circularity**, where plastics are endlessly reused without adverse effects, is fundamentally flawed. Current recycling practices exacerbate environmental degradation, climate change, and public health issues. Effective recycling requires significant inputs of virgin plastics and toxic additives, undermining the notion of a closed-loop system.
- Since monitoring of plastic waste trade began in 1988, more than 250 million tonnes have been legally exported across the world, highlighting stark inequalities by often **shifting the burden of plastic waste to the Global South**. These regions become dumping grounds where plastic waste is frequently burned in the open, releasing toxic

pollutants into the air and disproportionately affecting vulnerable communities.

- As awareness of plastic recycling's limitations grows, the plastic and fossil fuel industries have promoted "**chemical recycling**" techniques, which involve the chemical breakdown of plastics into fuels or other materials. These methods are marketed as innovative solutions but often perpetuate harmful practices, diverting attention from the need to reduce plastic production.

Way Forward

- **Policy Regulation:** To address the plastic crisis, a paradigm shift is necessary. Policymakers must prioritise reducing plastic production and supporting sustainable, reuse-based solutions. This involves implementing policies that **restrict single-use plastics, incentivise reusable alternatives and promote equitable waste management practices**.
- **Awareness:** On an individual level, adopting **plastic-free habits** in daily life can significantly reduce the demand for disposable plastics. Countries like Sweden have made strides in reducing plastic use by implementing strict regulations and promoting reusable alternatives, resulting in lower plastic waste levels.
- **Participation of all the stakeholders:** Scientific consensus and **indigenous knowledge** emphasise minimising plastic use to protect human health and the environment. For instance, indigenous communities around the world have long practised sustainable living and resource management, offering valuable insights into reducing plastic dependency.
- **Accountability:** Society must move beyond the false promises of recycling and embrace comprehensive strategies that **tackle plastic pollution at its source**.

Conclusion

The notion that we can recycle our way out of plastic pollution is a dangerous illusion. Evidence shows that current recycling practices are insufficient and often counterproductive. By focusing on reducing plastic production and fostering a culture of reuse, substantial strides can be made toward mitigating the plastic crisis. It is time to abandon the myth of plastic recycling and implement real, effective solutions that prioritise the health of our planet and its inhabitants.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

- Q. What is the effect of plastic pollution on marine life?
- (a) It poisons them
 - (b) It starves them to death
 - (c) It makes reproduction complex
 - (d) All of the above

Answer: d

INDIA'S SOIL ANOMALIES

Why in News: A study finds nearly half of India's soil vulnerable to floods and a third to droughts.

Key Details

- Soil moisture anomalies refer to deviations from the normal or average soil moisture levels typically observed over a specific period in a particular region.
- The study titled **Unearthing India's soil moisture anomalies: impact on agriculture and water resource strategies** analyses the changes that have occurred in the soil moisture levels across India by comparing data from 2023 with averages between 2000 and 2005 using soil moisture at the depth of 0 to 10 cm.
- The study is significant in understanding of soil moisture content for predicting droughts in agriculture and how climates impact each other.
- The study asserts that soil moisture fluctuations critically influence crop yields, water availability, and food security across India's diverse climatic zones.
- Impact of Negative soil moisture anomalies (SMA) on Drought Vulnerability:
 - In 2023, approximately 32.8% of India's land area experienced negative SMA, indicating vulnerability to drought stress across about 1.08 million square kilometers.
 - This has potentially affected agricultural productivity and water resource management.
- **Positive SMA and Risks of Flooding:**
 - Conversely, about 47.7% of India's geographical area saw soil moisture levels exceeding historical averages, totaling about 1.57 million square kilometers.
 - This positive anomaly increased the risks of flooding and waterlogging in rural and urban areas.

State-Wise Findings

The study **recommended developing policies specifically designed to address distinct soil moisture conditions in each region.**

- **Seasonal Analysis and State-Specific Strategies:**
 - Period December and February:
 - ◆ Punjab benefitted from positive soil moisture anomalies (SMA) boosting its agriculture productivity during winter months.
 - ◆ The study suggests the positive SMA could be used for winter crops, reducing the need for surplus irrigation.
 - The pre-monsoon period ranging from March to May, with warmer temperatures and varied rainfall:
 - ◆ Punjab continued to maintain above-average levels of soil moisture, while Odisha faced negative SMAs, necessitating improved water

management strategies to mitigate the situation of pre-monsoon water stress.

- ◆ Andhra Pradesh and Kerala showed favourable conditions, while Bihar exhibited below-average soil moisture, underlining the need for water conservation.
- ◆ The Andaman and Nicobar Islands witnessed dry conditions, highlighting the need for improved water management practices.
- ◆ Assam requires adaptable agricultural practices owing to varied soil moisture levels, while Maharashtra should necessitate effective water management methods.
- During the monsoon period June to September
 - ◆ Punjab benefited from positive SMAs, supporting robust crop growth and mitigating flooding risks.
 - ◆ By learning techniques from Punjab to manage excess water Odisha can improve its agriculture output during monsoon months.
 - ◆ States like Bihar and Jharkhand continue to struggle with below-average soil moisture, prompting the adoption of enhanced irrigation and water conservation methods.
 - ◆ States like Maharashtra and Madhya Pradesh, experiencing above-average soil moisture variability, require robust water management policies for sustainable agriculture.
 - ◆ Soil moisture levels in Andhra Pradesh during the monsoon period demands customised plans to address changing conditions.
 - ◆ Favourable conditions in Kerala emphasised sustainable farming practices.

The Case Study

The **fertility of soil is lost in certain situations** mainly due to the imbalanced use of chemical fertilizers coupled with low use of organic manures.

- Long term fertilizer experiment recently conducted by Indian Council of Agriculture Research (ICAR) at Ludhiana revealed that integrated nutrient management practices maintained the soil fertility status (organic carbon, available nitrogen, phosphorus, potassium with improved biological activity), and that imbalanced use of chemical fertilizers resulted in decrease in soil fertility.
- Further, studies on rice-wheat system with integrated nutrient management for 30 years in Punjab indicated no negative effect on soil organic carbon, available nitrogen (N) and phosphorus (P). As such, there is no harmful effect of fertilizers on soil fertility, if applied in a balanced and judicious manner.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. With reference to the Soil anomalies, consider the following statements:

1. Positive Soil Moisture Anomaly indicates that the soil moisture level is higher than the historical average. This can lead to conditions such as water logging and increased risk of flooding.
2. Negative Soil Moisture Anomaly indicates that the soil moisture level is lower than the historical average. This can lead to conditions such as drought stress, reduced agricultural productivity, and water scarcity.

Which of the above given statements are correct?

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 or 2

Answer: c

MOSS SYNTRICHIA CANINERVIS

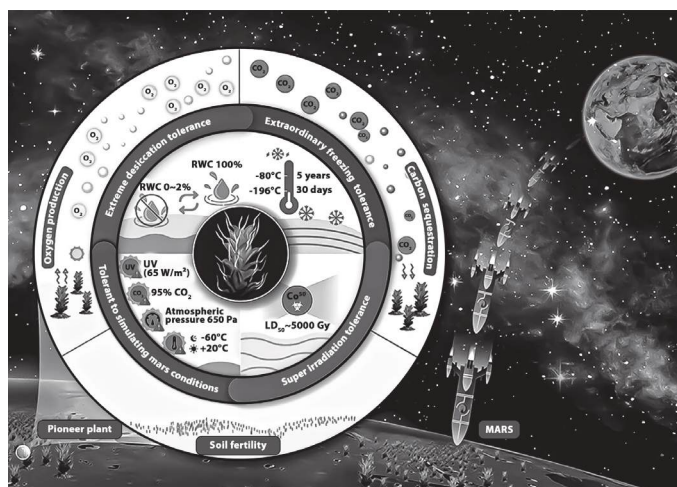
Why in News: Recently, a team of scientists have discovered a moss species in Gurbantungut desert that could possibly be able to survive and grow in the harsh climate of Mars.

Key Details

- A desert moss scientifically named *Syntrichia caninervis* with capacity for tolerating harsh conditions on Earth such as:
 - Ability to thrive in drought conditions.
 - Withstand frigid temperatures (as low as -196°C).
 - Survive high radiation levels might survive Mars' desolate landscape.
- The researchers found that the moss was even more resilient than other nearly indestructible organisms like hardy algae, whose survival ability have also been tested in harsh conditions found in space.
- It is the first time a whole plant, rather than a microorganism or plant spore, has been tested against such conditions. During an experiment, it was found that:
 - It can lose over 98 percent of its water content and revive within seconds upon rehydration.
 - Regenerating after five years in a -80°C freezer or a month submerged in liquid nitrogen.
- It is predicted that the *Syntrichia caninervis* can serve as a potential **Pioneer species in Primary Succession** for space flora colonization.
- As a pioneer species, *Syntrichia caninervis* could pave the way for other plants and organisms by initiating

the ecological processes necessary for a sustainable environment.

Pioneer species: These are species that are the first to colonize newly created environments or recently disturbed environments during the processes of primary succession and secondary succession, respectively. Pioneer species—which include lichens, mosses, fungi, and microorganisms such as bacteria—reproduce and grow quickly, enabling them to take advantage of the resources in a barren environment before larger competitors arrive.



About *Syntrichia Caninervis*

- On Earth, *Syntrichia Caninervis* can be found as ground cover in desert areas in Tibet, the Middle East, the Mojave Desert, and Antarctica.
- Mosses like this also support the local ecosystem by providing nutrients and aiding decomposition, among serving many other functions.
- The plant has evolved several advantages that help it survive, including the ability to continue photosynthesis while under snow cover, prevent water loss through the overlapping structure of its leaves, and reflect intense ultraviolet radiation (UV) from the sun via hairlike bristles called awns at the top of its leaves.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements regarding Pioneer species.

1. These are species that are the first to colonize newly created environments or recently disturbed environments during the processes of primary succession and secondary succession
2. *Syntrichia caninervis* can serve as a potential Pioneer species in Secondary Succession for space flora colonization.

Which of the above given statements are correct?

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 or 2

Answer: a

SCIENTIFIC DEEP DRILLING PROJECT

Why in News: Borehole Geophysics Research Laboratory (BGRL) is carrying out a six-kilometre borehole in the earth's crust near Koyna, Maharashtra

Key Details

- A 3 km-deep scientific research borehole has been drilled successfully to understand the genesis of **artificial water reservoir triggered earthquakes** in the Koyna intraplate seismic zone.
- This Koyna region has been experiencing frequent and recurrent earthquakes since the Shivaji Sagar Lake, or the Koyna Dam, was impounded in 1962. The Ministry of Earth Sciences is committed to completing the task of reaching a depth of 6 km.
- Deep-drilling operations at Koyna use a rig capable of both called mud rotary drilling and percussion drilling (a.k.a. air hammering).
- The decision to use each technique at a particular point of time is based on the site's requirements, such as rock type, presence of highly fractured rock, water inflow zones, and the need to collect core sample.

Challenges to Deep Drilling

- Deep-drilling is **labour- and capital-intensive**.
- The earth's interior is also a **hot, dark, high-pressure region** that hinders long and continuous operations.
- The complexities of drilling through fractured rocks in the Koyna seismic zone, and the possibility of drill rods and sensors getting stuck all become significantly higher with increasing the depth from 3 km to 6 km.
- Operators can encounter more frequent fault lines and fracture zones, through which water could enter the borehole and stall the drilling exercise.
- Lack of highly skilled and trained technical personnel for a 24/7 on-site engagement for about six to eight months at a time in harsh weather conditions.

Key Findings of Deep Drilling at Koyna

- The drilling mission at Koyna has yielded significant information about buried fault zones and their properties by integrating various data sets and using advanced analysis. For example, the Koyna region is critically stressed, so even small stress perturbations could cause the rock to fail and potentially trigger frequent, small-magnitude earthquakes in the region.

Other findings are:

- Presence of 1.2-km thick and 65-million-year-old Deccan trap lava flows, and below them 2,500-2,700-million-year-old granitic basement rocks.
- Conditions from a depth of 3 km have provided hitherto unknown information on the physical and mechanical properties of rocks, and fracture orientations at depth.
- Presence of water down to 3 km was found to be meteoric or rain-fed, implying deep percolation and circulation are possible.

Conclusion

The Koyna deep drilling mission will inform future deep-drilling experiments as well as expand academic knowledge in multiple ways like access to study earthquakes and expands our understanding of the earth's history, rock types, energy resources, life forms, climate change patterns and the evolution of life.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. With reference to the International Maritime Organisation (IMO), consider the following statements:

- India's Borehole Geophysics Research Laboratory (BGRL) is carrying out a six kilometre borehole near Koyna, Maharashtra
- Borehole Geophysics Research Laboratory (BGRL) is a specialised institute under the Ministry of Earth Sciences

Which of the above given statements are correct?

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 or 2

Answer: c

NATIONAL LANDSLIDE FORECASTING CENTRE

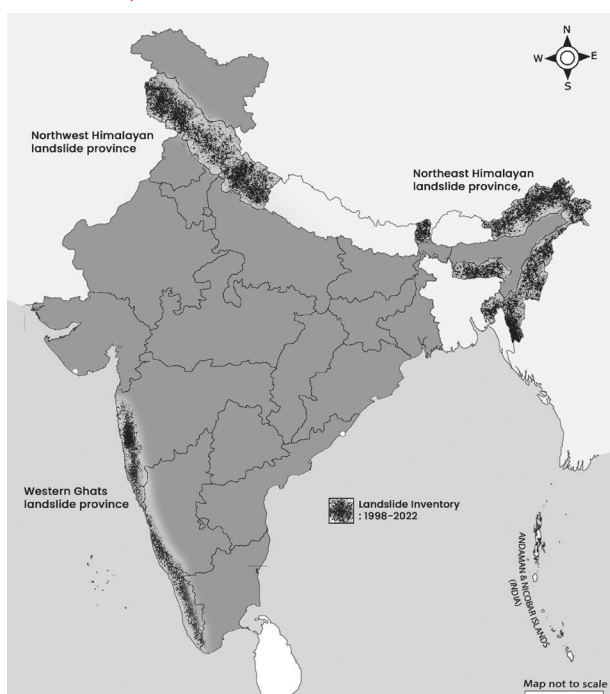
Why in News: Union Minister of Coal and Mines, G Kishan Reddy recently has Inaugurated National Landslide Forecasting Centre at the Geological Survey of India (GSI) Dharitri Campus, in Kolkata, West Bengal.

Key Details

- The National Landslide Forecasting Centre (NLFC), Kolkata aims to mitigate landslide hazards in India.
- NLFC will provide early warning bulletins for all landslide-prone states and plans to operationalize a nationwide Landslide Early Warning System (LEWS) by 2030.

- NLFC will provide early information to local administration and communities, update landslide inventories, and integrate real-time rainfall and slope instability data for enhanced forecasting accuracy.
- The Union Minister has also launched the Bhusanket Web Portal and Bhooskhalan Mobile App.
- The Bhusanket Web Portal will facilitate the dissemination of relevant data and information on landslide hazards, initiating short-range and medium-range landslide forecasting in the country.
- The Web Portal, **Bhooskhalan Mobile App**, will enable quick dissemination of daily landslide forecasts and allow stakeholders to share and update spatial and temporal information on landslide occurrences.

India's Vulnerability to Landslides (as per ISRO's Landslide Atlas of India)



- **Global Ranking:** India ranks among the **top five countries** globally prone to landslides, witnessing **at least one death per 100 sq km annually** due to such events.
- **Primary Cause:** Rainfall variability, particularly in the **Himalayas and Western Ghats**, stands as the predominant cause of landslides in India.
- **Geographical Vulnerability:** Excluding snow-covered areas, **over 12%** of the country's geographical land area is susceptible to landslides.
- **Regional Breakdown:**
 - **Over 66% of landslides** occur in the **North-western Himalayas**.
 - About 19% are reported in the **North-eastern Himalayas**.
 - The Western Ghats contribute to **over 14% of landslide events**.

Way Forward for Landslide Management in India

- Early Landslide Monitoring and Detection Involves by deploying sensors, satellite imagery, and ground-based instruments.
- Generating Landslide Hazard Maps using Terrestrial Laser Scanners, and high-resolution Earth Observation (EO) data.
- Special Purpose Vehicle (SPV) for Landslide Management and Risk Mitigation Strategies for identified landslide hotspots.
- Learning from International Best Practices like Brazil's SNAKE System, a Landslide Early Warning System (LEWS).

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements:

1. Recently, National Landslide Forecasting Centre was inaugurated at Hyderabad, Telangana.
2. Over 66% of landslides in India occur in the North-western Himalayas.
3. Western Ghats are stable mountain ranges and do not contribute significantly to landslide events.

How many of the above statements are correct?

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

Answer: a: (2 only)

INNER CORE SLOWS DOWN

Why in News: Recent scientific discoveries have confirmed that the Earth's inner core is experiencing a significant slowdown and a reversal in its rotational direction after a long period of time.

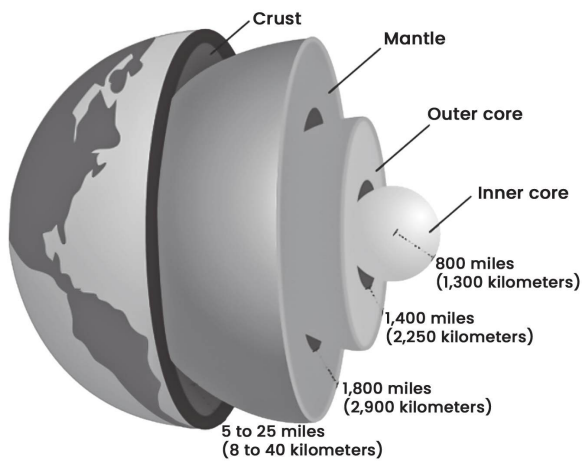
Key Details

- University of Southern California scientists have recently proven that the Earth's inner core is backtracking, slowing down, in relation to the planet's surface.
- The deceleration of the core is part of a decades-long pattern of slowing down and speeding up.
- The inner core is considered to be **reversing and backtracking relative to the planet's surface** due to moving slightly slower instead of faster than the Earth's mantle for the first time in approximately 40 years.
- The inner core's slowing speed was **caused by the churning of the liquid iron outer core that surrounds it**, which generates Earth's magnetic field, as well as gravitational tugs from the dense regions of the overlying rocky mantle.

- The implications of this change in the inner core's movement for Earth's surface can only be speculated.
 - Scientists said the backtracking of the inner core may alter the length of a day by fractions of a second.
 - Moreover, slowing down of inner core could affect geological and geomagnetic events on Earth.
- The researchers further observed that the earth has occasionally super rotated for some time and then began to sub-rotate. For example, seismographic data between 2008-2023 showed that the inner core sub-rotated a few times before going into the super-rotational phase.

Structure of the Earth

The Earth is made up of a series of layers



About Earth's core

- The core and the mantle are separated by **Guttenberg's Discontinuity**.
- Because it is largely made up of iron (Fe) and nickel, it is also known as **NiFe (Ni)**.
- The planet's core accounts for around **15%** of its volume and **32.5 percent** of its mass.
- With densities ranging from 9.5-14.5g/cm³, the **Earth's core is the densest layer**.
- The Core is made up of two sub-layers: the **inner core and the outer core**.
- The interior core is solid, whereas the exterior core is liquid (or semi-liquid).
- A split between the **upper and lower cores** is known as the **Lehmann Discontinuity**.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

- Q. With reference to the inner structure of earth, consider the following statements:
1. The core and the mantle are separated by Guttenberg's Discontinuity

2. The earth's crust is the densest layer.
3. A split between the upper and lower cores is known as the Lehmann Discontinuity.
4. Inner core is largely made up of iron (Fe) and nickel, it is also known as NIFE (Ni).

Which of the above given statements are correct?

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

Answer: c

KALLAKKADAL PHENOMENON

Why in News : Kallakkadal, a coastal flooding phenomenon caused by distant ocean storm, has recently affected Kerala and Tamil Nadu.

About Kallakkadal

- Kallakkadal is essentially coastal flooding during the pre-monsoon and monsoon season by swell waves on the southwest coast of India.
- The term Kallakkadal, used by local fishermen, is a combination of two Malayalam words, including "Kallan" and "Kadal". Kallan means thief and Kadal means sea. In spoken language, these words were combined and pronounced as Kallakkadal, meaning ocean that arrives as a thief. In 2012, the term was formally approved by the United Nations Educational, Scientific and Cultural Organization (UNESCO).
- Kallakkadal is caused by waves that are formed by an ocean swell (upto 11 meters), hence the name swell surge. Ocean swells occur **not due to the local winds**, but rather due to distant storms like hurricanes, or **even long periods of fierce gale winds. During such storms, huge energy transfer takes place from the air into the water, leading to the formation of very high waves.** Such waves can travel thousands of kilometres from the storm centre until they strike shore.
- Usually, Kallakkadal is a consequence of the strong winds in the southern part of the Indian Ocean, where an ocean swell is generated, and the waves then travel north to reach the coast in two or three days.
- Kallakkadal occurs without precursors or any kind of local wind activity and as a result, it has been very difficult for the coastal population to get an advance warning. However, early warning systems like the Swell Surge Forecast System, launched by the Indian National Centre for Ocean Information Services (INCOIS) in 2020, give forewarning seven days in advance.

How is Kallakkadal different from tsunami?

- Kallakkadal causes flooding through high waves in the south-west coast of India, predominantly during the pre-monsoon season, while tsunamis are caused by earthquakes occurring below or near the ocean.
- Kallakkadal waves can swell up to 11 metres in height onshore while tsunamis have a small wave height offshore while it may reach a maximum vertical height onshore above sea level, called a runup height, 30 metres.
- Forewarning seven days in advance is possible in case of 'kallakkadal' phenomenon.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. With reference to the Swell Surges, consider the following statements:

1. Kallakkadal is essentially coastal flooding during the pre-monsoon and monsoon season by swell waves on the Eastern coasts of India such as Utkal coast.
2. Kallakkadal waves are smaller in height as compared to Tsunami waves.

Which of the above given statements are correct?

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 or 2

Answer: d

Descriptive Question

Q. What are Kallakkadal waves? How is Kallakkadal different from tsunami? [150 Words] [10 Marks]

URBAN FLOOD

Why in News: A high-level committee headed by Union Home Minister recently approved disaster mitigation and capacity building projects for various states that include combating urban flooding and checking glacial lake outburst floods.

Key Details

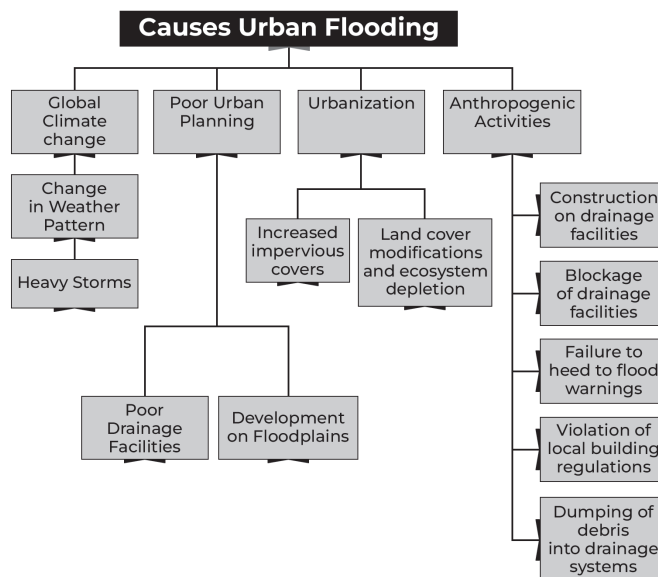
- The high-level committee gave its approval to **nine proposals** for funding from National Disaster Mitigation Fund (NDMF) and National Disaster Response Fund (NDRF).
- The six cities where the funds will be spent are **Mumbai, Kolkata, Bengaluru, Hyderabad, Ahmedabad and Pune**, according to an official statement.
- Among the proposals approved include six projects in **Telangana, Gujarat, Karnataka, West Bengal and**

Maharashtra at a total cost of Rs 2514.36 crore for urban flood management.

- Three project proposals were approved under the scheme for **"Expansion and Modernization of Fire Services in the states"** for Assam, Karnataka and Tamil Nadu of Rs 810.64 crore.
- In addition, the committee has approved a project proposal for **Glacial Lake Outburst Flood risk mitigation** for the states of Himachal Pradesh, Uttarakhand, Sikkim and Arunachal Pradesh of Rs 150 crore. Further, for modernisation of fire services, the Centre has created a corpus of Rs 5,000 crore under the NDRF.
- The committee also approved a proposal of **Yuva Aapda Mitra Scheme (YAMS)** at an outlay of Rs 470.50 crore from NDRF in all 28 states, which will be implemented in **315 most disaster-prone districts** of the country for training of 1300 trained **Aapda Mitra Volunteers as Master Trainers** and 2.37 lakh volunteers exclusively from NCC, NSS, NYKS and BS&G (Bharat Scouts & Guides) in disaster preparedness and response.

Note: The Union Budget 2024 has allocated funds for flood relief in states affected by recurrent natural disasters. Bihar received Rs 11,500 crore for flood control projects, while Assam, Himachal Pradesh, Uttarakhand, and Sikkim will also get financial aid for flood mitigation and reconstruction.

Causes of Urban Flooding in India



EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements:

1. National Disaster Response Force (NDRF), constituted under Section 46 of the Disaster Management Act, 2005.

- The National Disaster Response Force is administered by the Ministry of Home Affairs.
- The Centre contributes 40% of the SDRF allocation for general category States.

How many of the above statements are correct?

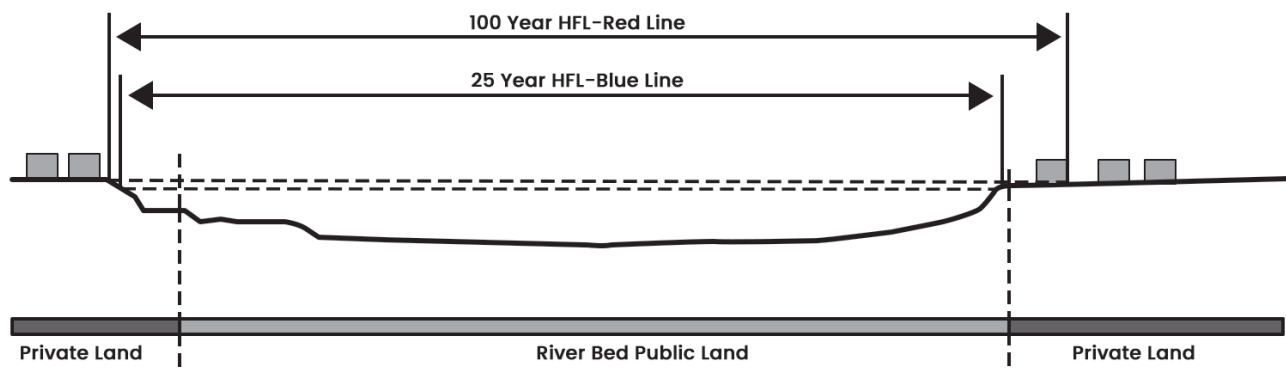
- (a) Only One (b) Only Two
(c) Only three (d) None

Answer: b (1 and 2 only)

INDRAYANI RIVER

Why in News: Recently, the National Green Tribunal has directed that all structures within the riverbank and floodline of the Indrayani River to be demolished.

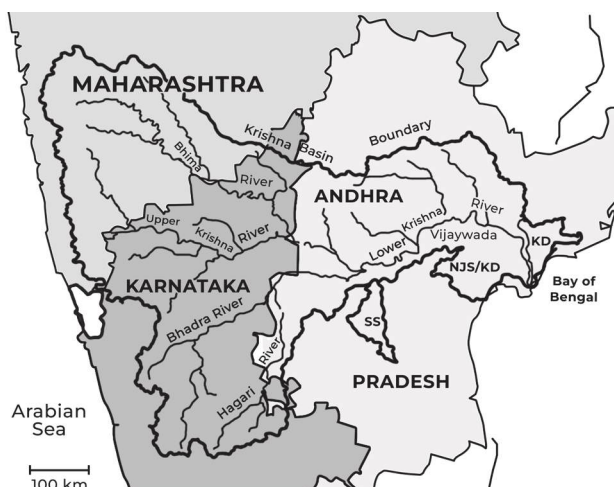
About Blue Floodline



Blue Flood Lines mark the level of the flood that comes every 25 years whereas the Red Flood Lines mark level of the flood which comes every 100 years. The portion of land between the two Blue Flood Lines is known as “prohibitive zone” where no construction is permissible.

About Indrayani River

- The Indrayani River originates in Kurvande village near Lonavla, a hill station in the **Sahyadri mountains** of Maharashtra.



Key Details

- The order was passed by the NGT to implement the provisions of the Maharashtra Regional Town Planning Act (MRTP), 1966 under which the area between the river bank and blue flood line of the Indrayani River was demarcated as **No Development Zone**.
- A recent judgment, the western zone bench of the NGT in Pune has directed that all structures including 29 bungalows constructed within the riverbank and **blue floodline** of the Indrayani River in Maharashtra to be demolished.
- The NGT has also directed levying the amount of environmental damage compensation (EDC) which has been calculated by the joint committee to be Rs 5 crore from all those who have constructed illegal buildings to be completed within a period of six months.

- It is an **east flowing tributary of Bhima River** which in turn is a tributary of Krishna River.
- There is a hydroelectric gravity dam called Valvan Dam on the river Indrayani.
- Cultural Significance:**
 - It is revered as a holy river in Maharashtra and is associated with religious figures such as Sant **Tukaram** and **Dnyaneshwar**.
 - Important Hindu pilgrimage centers of **Dehu** and **Alandi** are situated on the banks of Indrayani river.
- Historical Significance:** **Bhaja Caves** and **Kanheri caves** (Buddhist cave sites constructed during the Mauryan period between 3rd century BC to 2nd century BC) are located at the Valley of Indrayani River.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. With reference to the Indrayani River consider the following statements:

- It is a west flowing tributary of Bhima River which in turn is a tributary of Krishna river.

2. There is a hydroelectric gravity dam called Ukai Dam on the river Indrayani
3. Ajanta caves are located at the Valley of Indrayani River.

Which of the above given statements are correct?

- (a) 1 only (b) 1 and 3 only
(c) 1, 2 and 3 (d) None of the above

Answer: d

IMO 2024 AWARD FOR EXCEPTIONAL BRAVERY AT SEA

Why in News: Captain Avhilash Rawat and crew members of oil tanker named, the Marlin Luanda, recently named among the winners of the International Maritime Organisation (IMO) 2024 Award for Exceptional Bravery at Sea for their “extraordinary courage” shown in a Red Sea rescue mission.

Key Details

- Captain Avhilash Rawat and his crew are declared winners by the IMO for the “determination and endurance” demonstrated while coordinating firefighting and damage control efforts to combat a fire that broke out after an anti-ship missile reportedly fired by Iranian-backed Houthi rebels struck their Ship named ‘Marlin Luanda’.
- Despite the extreme danger and the constant threat of further attacks, Captain Rawat and his crew fought the fire using fixed foam monitors and portable hoses. The fire continued to spread, particularly affecting an adjacent tank, but the crew managed to contain it using seawater after foam supplies were exhausted.
- The annual awards ceremony will be held at IMO Headquarters in London on 2 December 2024 during the 109th session of the Maritime Security Committee.
- Moreover, **Letters of Commendation** will be sent to **Captain Brijesh Nambiar and the crew of the INS Visakhapatnam**, Indian Navy, nominated by India, for their courage and great resolve demonstrated in joining firefighting efforts onboard the oil tanker Marlin Luanda, which was struck by an anti-ship ballistic missile whilst laden with highly hazardous cargo.

About International Maritime Organization (IMO)

- The IMO is the United Nations **specialized agency** with responsibility for the safety and security of shipping and the prevention of marine and atmospheric pollution by ships.
- The IMO was established following agreement at a UN conference held in Geneva in 1948 and the IMO came into existence ten years later, meeting for the first time on **17 March 1958**. Headquartered in **London**, United

Kingdom, the IMO, in 2024, has 176 Member States and three Associate Members.

- Its main role is to create a **regulatory framework** for the shipping industry that is fair and effective, universally adopted and universally implemented.
- **India and IMO:**
 - India is **not a founding member** and joined IMO in **1959**.
 - India’s recently acceded to the **Hong Kong International Convention** for the Safe and Environmentally Sound Recycling of Ships a.k.a Hong Kong Convention (The IMO adopted the Hong Kong Convention in 2009. It is aimed at ensuring that ships being recycled after reaching the end of their operational lives do not pose any unnecessary risks to human health, safety and the environment.), which will help in providing a boost to the ship- recycling industry in India.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. With reference to the International Maritime Organisation (IMO), consider the following statements:

1. The IMO headquartered at New York (U.S.A) is the United Nations specialized agency with responsibility for the safety and security of shipping and the prevention of marine and atmospheric pollution by ships.
2. India is a founding member of IMO.

Which of the above given statements are correct?

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 or 2

Answer: d

BLUE PLANET PRIZE

Why in News: Recently, the **Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES)** won the **Blue Planet Prize** for 2024.

Key Details

- IPBES was awarded as “the leading global authority on the state of knowledge and science about biodiversity, ecosystem services and nature’s contributions to people”.
- The other awardee is **Robert Costanza** from the Institute for Global Prosperity, University College London, for his contributions to the field of **ecological economics**.

About Blue Planet Prize

- It was established in **1992**, the year of the **Rio Earth Summit**.

- This award is given annually by **Japan's Asahi Glass Foundation** for **outstanding achievements in scientific research** and its application which have helped to solve **global environmental problems**.
- Two winners are chosen every year and the prize includes an award of USD 500,000.

About IPBES

- **About:** An independent intergovernmental body aimed at strengthening the science-policy interface for biodiversity and ecosystem services.
- **Established** - In Panama City in 2012 by 94 Governments (including India). Currently has more than 145 Member States. **Secretariat** - Bonn, Germany.
- **Goal:** To provide the best **expertise** from across all scientific disciplines and knowledge communities to provide policy-relevant knowledge and to catalyse the implementation of knowledge-based policies at all levels in government, the private sector and civil society.
- **Relations with UN:** It is not a United Nations body, however, the United Nations Environment Programme (UNEP) provides secretariat services to IPBES.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. With reference to the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) consider the following statements:

1. It is a United Nations body with 195 member states.
2. The Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) won the Blue Planet Prize for 2024.
3. India is a founding member of IPBES.
4. Which of the above given statements are correct?

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

Answer: b

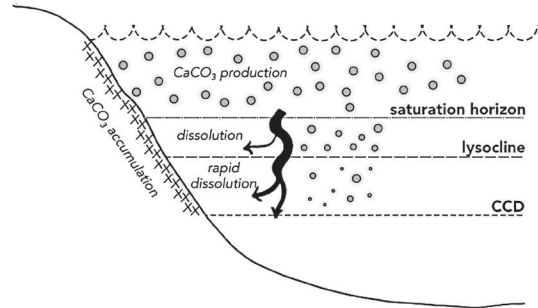
CARBONATE COMPENSATION DEPTH

Why in News: In a recent study, a deep-sea acidic zone below 4,000 meters known as carbonate compensation depth seems to be expanding.

Key Details

- In the deepest parts of the ocean, below 4,000 metres, the combination of high pressure and low temperature creates conditions that dissolve calcium carbonate, the

material marine animals use to make their shells. This zone is known as the **carbonate compensation depth** which is expanding.



- Because of rising concentrations of carbon dioxide in the ocean, its pH is decreasing (becoming more acidic), and the deep-sea area in which calcium carbonate dissolves is growing, from the seafloor up.
- The **transition zone** within which calcium carbonate increasingly becomes chemically unstable and begins to dissolve is called the **lysocline**. Because the ocean seabed is relatively flat, even a rise of the lysocline by a few metres can rapidly lead to large under-saturated (acidic) areas.
- The recent study showed this zone has already risen by nearly 100 metres since pre-industrial times and will likely rise further by several hundreds of meters this century.

Implications of Rise in Carbonate Compensation Depth

- **Marine Life:** It will lead to exposure of more organisms to water with lesser carbon, leading to the **dissolving of their shells** in water and subsequently their death.
- **Ecological Cycle:** It will **disrupt the entire food cycle** in the ocean and will have an impact on all life on earth.
- **Global Warming:** This rise means less carbon will be trapped in oceans, resulting in the **decline of blue carbon** in the world and an increase in the level of carbon in the atmosphere. This will further increase global warming.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Which of the following correctly explains the concept of Carbonate Compensation Depth:

- (a) It is the transition zone within which calcium carbonate increasingly becomes chemically unstable and begins to dissolve.
- (b) It is the depth of ocean waters where all the carbonates present in ocean water is dissolved.
- (c) The depth at which seawater is supersaturated with respect to calcite.
- (d) None of the above.

Answer: a

GREAT INDIAN BUSTARD (GIB) AND LESSER FLORICAN

Why in News: Recently, the Compensatory Afforestation Fund Management and Planning Authority (CAMPA) approved funding for the conservation program of the Great Indian Bustard (GIB) and the Lesser Florican for the 2024-2029 period.

Key Details

The proposal is prepared by the Wildlife Institute of India (WII), an autonomous body under the Union Environment Ministry. The conservation plan consists of two components.

- **First Component**
 - **Conservation Breeding Centers (CBC):** Completion

of the CBC in Jaisalmer's Ramdevra and development of the Sorsan Lesser Florican facility.

- **Captive-bred Birds:** Preparatory work for releasing captive-bred birds and post-release monitoring.
- **Artificial Insemination:** Development and implementation as a backup for captive breeding.
- **Second Component**
 - **In-situ Conservation:** Efforts in other range states including Gujarat, Maharashtra, Karnataka, Andhra Pradesh, and Madhya Pradesh.
- As part of the project run by the three parties, two GIB conservation breeding centres and one Lesser Florican centre are functioning in **Rajasthan's Sam, Ramdevra and Sorsan respectively.**

Great Indian Bustard	Lesser Florican
About • GIBs are the largest among the four bustard species found in India. • The other three being MacQueen's bustard, lesser florican, and the Bengal florican. • Being terrestrial birds, they spend most of their time on the ground with occasional flights to go from one part of their habitat to the other. • GIBs are considered the key indicator species of the grassland habitat, which means its survival also signals the health of grassland habitats.	About • Lesser florican is the smallest bird of the bustard family (Otididae). • It is endemic to India and is one of the four bustard species of India. • Locally, the bird is known as Kharmor (grass peacock) in Gujarat and Khar titar (grass pheasant) in Rajasthan.
Habitat and Status: ➤ This bird, found mainly in Rajasthan and Gujarat, has been categorised as critically endangered by the International Union for Conservation of Nature (IUCN). ➤ As per the 2021 report of the IUCN, they are on the verge of extinction with hardly 50 to 249 of them alive. ➤ GIBs' historic range included much of the Indian sub-continent but it has now shrunk to just 10 percent of it. ➤ Among the heaviest birds with flight, GIBs prefer grasslands as their habitats.	Habitat and Status: ➤ The bird is currently listed as Critically Endangered on the IUCN Red List. ➤ Though it prefers open, grassy landscapes, the lesser florican is generally seen resting within thick bushes during the day. ➤ In non-breeding months, it can inhabit wooded lands and scrublands, along with grasslands. ➤ Being omnivorous, their diet ranges from small insects and critters to herbs and shoots. ➤ It inhabits the states of Rajasthan, Gujarat, Madhya Pradesh, and parts of Andhra Pradesh, Maharashtra, and Karnataka.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements regarding the Great Indian Bustard.

1. Great Indian Bustard is considered the flagship grassland species, representing the health of the grassland ecology.

2. It is one of the heaviest flying birds.
3. In India, Rajasthan is home to a greater number of Great Indian Bustard.
4. It is critically endangered according to IUCN.

Which of the above statements is/are correct?

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

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

Answer: d

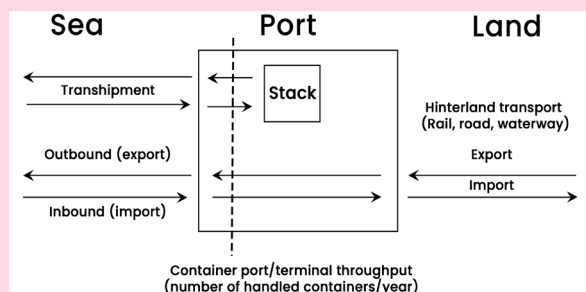
VIZHINJAM PORT

Why in News: Recently, Vizhinjam, India's **first transshipment port** and the **largest deep-water port**, received its first container ship.

Key Details

- **Location:** It is located at Vizhinjam, a coastal town in Thiruvananthapuram District, Kerala.
- **Construction:** It is developed in a **landlord model** with a **public-private partnership** component on a design, build, finance, operate, and transfer ("DBFOT") basis. It is being built by Adani Vizhinjam Ports Private Ltd., a subsidiary of Adani Ports and SEZ Ltd. (APSEZ), India's largest private-sector port operator.
- **Significance:**
 - **Operational:** The proposed site is endowed with a natural depth of **24 m** (which is by far the best compared to other ports in the world) as close as one Nautical Mile from the sea coast. There is no littoral sedimentation and due to natural depth availability, the site needs **no dredging** or minimal capital dredging requirements and thus low costs.
 - **Cargo Handling Capacity:** At present, India's port capacity (12 major Indian ports) is a meager 4.61 million twenty-foot equivalent containers (TEUs)/ annum, Vizhinjam Port alone will have the capacity of 4.10 million TEU/ annum.
 - **Strategic Importance:** It is located around 10 nautical miles from the international shipping route connecting Europe and the Persian Gulf with East Asia, through which around **30 percent** of global maritime cargo passes.
 - **Financial:** Currently, 25% of India's container traffic is trans-shipped en route to the destination. Once the port is up, Indian exporters will not have to travel to Dubai or Singapore for trans-shipment of cargo. It is expected to save Rs 1000 crores in expenditure.

1. **Transshipment Port** – Transshipment, is the shipment of goods or containers to an intermediate destination, then to another destination.



2. **Landlord port Model:** In the landlord port model, the publicly governed port authority acts as a regulatory body and as landlord while private companies carry out port operations like cargo-handling activities using their own superstructure and equipment.

3. Deepwater port:

- Deepwater Ports have a minimum depth of 45 feet or 13.7 m while regular ports can be shallower.
- Deepwater Ports can accommodate post-panamax ships, ultra-large container vessels, the biggest bulk carriers, oil tankers and LNG ships.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. With reference to the Vizhinjam port consider the following statements:

1. It is located at vizhinjam, a coastal town in Kanyakumari District, Tamil Nadu.
2. It is India's first transshipment port and the largest deep-water port
3. It is a port which will be built and operated by Government of India.

Which of the above given statements are correct?

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

Answer: d

WHITE CATEGORY INDUSTRIES

Why in News: Recently, the Environment Ministry proposes to do away with pollution control permits from state pollution control boards for 'white category' industries.

Key Details

- The '**consent to establish**' (CTE) and '**consent to operate**' (CTO) are granted to regulate industries that discharge effluents or emit pollutants into the environment.
- The Environment ministry has proposed to eliminate '**consent to establish**' (CTE) and '**consent to operate**' (CTO) for industries classified under the non-polluting '**white category**' that require prior Environmental Clearance (EC).
- The CTE is granted by the state pollution control board concerned carrying either standard or specific conditions to be adhered to for complying with pollution norms.
- Non-polluting '**white category**' industries may not require prior permissions of the state pollution control boards to establish and operate under the **Air Act, 1981**, and the **Water Act, 1974**, as per draft notifications of the environment ministry.

- Industries classified under the “white category”, which are exempt from the CTO and CTE permit requirements, must notify state pollution control boards of their operations through self-declarations, according to the draft notifications.
- The draft notification is inviting comments and objections on these notifications within a 60-day period.
- The draft notifications propose exemptions aimed at implementing the Water (Prevention and Control of Pollution) Amendment Act, 2024, which was enacted in February, as well as the Jan Vishwas (Amendment of Provisions) Act, 2023, from last year.

The following criteria on ‘Range of Pollution Index’ for the purpose of categorization of industrial sectors is used. The Industrial Sectors having Pollution Index score of

- 60 and above - **Red** category.
- 41 to 59 - **Orange** category.
- 21 to 40 - **Green** category.
- Including & upto 20 - **White** category.

About White Category industries

- Those industries which are practically **non-polluting** are categorised under the ‘white category’ by the Central Pollution Control Board(CPCB).
- Wind and solar power projects, assembly of air coolers, bicycle assembly are some of the projects and activities that come under the white category and are exempted from CTE and CTO permits.

- After recategorisation by CPCB in 2016, industrial sectors with a **Pollution Index score** including and **up to 20** come under the category. The PI of any industrial sector is a number from 0-100.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Which among the following pairs about types of Industrial Sectors are correctly matched:

Pollution Index score	Category
1. 60 and above	- Red category.
2. 41 to 59	- Orange category.
3. 21 to 40	- Green category.
4. Including & up to 20	- White category.

How many of the above pairs are correctly matched?

- (a) Only One (b) Only Two
(c) Only three (d) All four

Answer: d

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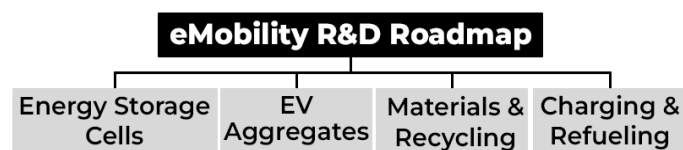


e-MOBILITY ROADMAP FOR INDIA

Why in News: Principal Scientific Adviser to the Government of India recently launched a report on e-mobility Research & Development roadmap for India to achieve net-zero targets.

e-Mobility R&D Roadmap for India

- The **e-Mobility R&D roadmap** focuses on four key areas: **energy storage cells, EV aggregates, materials and recycling, and charging and refueling.**
- It aims to achieve self-reliance in these crucial sectors within the next five years cut emission intensity by 45% by 2030, aligning with India's goals of energy independence by 2047 and net-zero emissions by 2070.



Indian R&D initiatives for eMobility

- Rapid absorption of existing technologies from abroad, adaptation to the Indian context and market-driven ramp up of production.
- Independent rediscovery of certain technologies that were already available abroad- but with minor modifications to suit the Indian context.
- Faster and simpler clean slate R&D in technologies by the Start Ups, who have been able to make a significant impact on the eMobility technology landscape in India.
- Consultative Group on eMobility (CGeM): A team of experts from government, academia, and industries to speed up the shift to electric mobility.

Critical areas need higher attention

1. Energy Storage Cells

- Energy storage cells, commonly known as batteries, are a foundation of modern technology, offering versatile and efficient electrical energy storage and delivery.
- Various battery chemistries cater to diverse applications
 - **Lithium-ion batteries** power smartphones and electric vehicles
 - **Lead-acid batteries** serve automotive starting systems and backup power

- **Nickel-based batteries** contribute to portable electronics and hybrids

• Current Scenario in India

- For the last two years, because of localization FAME-2 subsidy, Original Equipment Manufacturer (OEMs) have been importing the cells from other countries and manufacturing and integrating the battery packs in India.
- To reduce the import of lithium, the Geological Survey of India (GSI) initiated numerous lithium-focused projects in various regions.
- Many research institutes and organisations in India are currently exploring novel cell chemistries such as Sodium-ion, Lithium-air, Aluminium-air, Lithium-sulphur, Sodium-air, and Zinc-air etc. which may act as potential replacements for lithium-ion batteries.

- Way Forward: In order to meet the rising demand for lithium and remove the dependence on imports, there is a need to discover more lithium reserves in India.

2. EV Aggregates

- Electric Vehicle (EV) aggregates comprise mainly three fundamental components: **batteries, electric motors, and controllers.**
 - The electric motor plays an important role as it acts as a primary power source by converting battery electrical energy into mechanical propulsion.
 - All the operations are controlled by the controller of the vehicle which optimises the vehicle performance using modern software and sensors.

• Current Scenario in India

- The Indian Government's FAME II scheme is aimed at reducing dependence on imports and stimulating the domestic EV industry by supporting electric mobility. This scheme is beneficial for manufacturers of EV components.
- Several Indian startups are actively engaged in developing innovative motors and drivetrain designs to enhance the efficiency and overall performance of EVs.
- However, the localization of EVs has been particularly challenging due to the nature of components/assemblies and the available ecosystem in India.

3. Materials and Recycling

- Recycling is the process of transforming used or discarded materials into new products, aiming to utilise less energy, reduce the consumption of fresh raw materials, and protect the environment.
- It plays a crucial role in sustainable waste management by reducing landfill waste, cutting greenhouse gas emissions, and conserving natural resources.
- Recycling can be categorised into three categories viz reduce, reuse, and recycle.
- Current scenario of Domestic Materials and Recycling of Materials used in various systems for eMobility
 - In India, approximately 90% of used batteries are either processed by the unorganised industry or end up in landfills and garbage dumps. This poses a risk to human safety in addition to being an environmental issue.
 - The Government of India (GoI) released the draft regulations for battery recycling called Battery Waste Management Rules 2022. This management rule outlines a minimum of 90% materials recovery by 2027.
 - NITI-Aayog predicts that India's EV battery recycling market is set to expand to 128 GWh by 2030.

4. Charging and Refuelling

- The charging of EVs has sparked a surge in innovation, with advancements aiming to enhance charging efficiency and convenience.
- The development of chargers requires factors like charger capacity, compatibility with different EV models, and integration of smart grid technology for load management and demand response.
- Electric vehicles can be charged using three primary methods i.e., conductive charging, inductive charging, and the battery swapping technique.
 - In India, the most common charging technology is conductive charging, often known as plug-in (wired) charging. The specifications for conductive charging rely on various elements, including the type of vehicle, battery capacity, charging strategies, and power ratings.
 - Inductive charging involves wireless electric transmission, requiring auxiliary devices like high frequency transformers, supervisory control, data acquisition, and vehicle alignment monitoring systems, resulting in high overall costs.
 - Battery swapping stations facilitate the exchange of depleted batteries with fully charged ones, involving the collection, storage, and provision of voltage support and regulation during peak load periods.

• Current Scenario in India

- India aims to achieve 30% electric vehicle usage by 2030, with a target of 4 lakh charging stations by 2026. According to NITI-Aayog 2021 reports, there are 2000 charging stations in India currently.
- There is a plan to install stations every 3 km in cities and every 25 km on highways.
- In 2017, the Ministry of Heavy Industries (MHI) launched two chargers named Bharat AC 001 & Bharat DC 001 with modifications relevant to Indian climate conditions.
 - ◆ The AC 001 is essentially for low power usage and lacks communication protocols between EV and charger.
 - ◆ The DC 001 utilises the Controller Area Network (CAN) protocol for communication between Charger and the EV battery management system.

Steps to Boost e-Mobility R&D in India

- The transition to eMobility necessitates a comprehensive approach to ensure successful implementation.
- Enhance research and development focusing on next generation energy storage, advanced EV aggregates, and sustainable materials and recycling methods.
- Concurrently, robust infrastructure development is critical, including a widespread and reliable charging network and smart grid integration to optimise energy usage.
- Policy support in the form of incentives, subsidies and regulatory frameworks will accelerate market adoption, while public private partnerships can allocate resources and drive domestic innovation and less reliance on foreign imports.
- Establishing mechanisms for monitoring progress and incorporating feedback will ensure the roadmap's dynamic adoption to evolving technological and market conditions.
- Engaging consumers through awareness campaigns and incentives alongside developing educational programs and workforce training, will further promote adoption.
- By following these steps, India can lead in the global eMobility revolution, driving economic growth, and reducing environmental impact.

Way Forward

- Continued monitoring of the development of imported systems such as batteries with advanced chemistry, electric motors, power electronics, and semiconductors.
- Creating an enabling local ecosystem coupled with the need for EV OEMs to stabilise and control the ever-growing spend on EV components.

EXPECTED QUESTIONS FOR UPSC CSE

Descriptive Question

- Q. Examine the development of eMobility in India. Highlight the steps that can be taken to make India a leading player in the eMobility sector. [15 Marks] [250 Words]

THORIUM MOLTEN SALT BASED NUCLEAR STATION

Why in News: China plans to create the world's first nuclear power plant based on molten thorium salt in the Gobi Desert by 2025.

Key Detail

- China's molten thorium salt nuclear power plant will be the first and only molten salt nuclear reactor since the United States shut down its test reactor in 1969.

Advantages of Molten Salt Reactor

- The reactor does not need water for cooling because it uses liquid salt and carbon dioxide to transfer heat and generate electricity.
- It uses thorium as its primary fuel, which means worries over a potential shortage of uranium, the usual fuel used in nuclear reactors are reduced, as thorium is more abundant than uranium.

Advantages of using Thorium

- Thorium boasts several advantages over the conventional nuclear fuel, uranium-235.
- Thorium can generate more fissile material (uranium-233) than it consumes while fuelling a water cooled or molten salt reactor.
- It generates fewer long-lived minor actinides than plutonium fuels.
- Because of its abundance and its fissile material breeding capability, thorium could potentially offer a long-term solution to humanity's energy needs.
 - It is estimated that the Earth's upper crust contains an average of 10.5 parts per million (ppm) of thorium, compared with about 3 ppm of uranium.
- Thorium-fuelled reactors produce less long-lived nuclear waste than present-day uranium-fuelled reactors.
- Like other nuclear reactors, they do not emit greenhouse gases in operation.

Challenges associated with Thorium based Nuclear Power Plant.

- Historically Thorium has found little use in industry or power generation. This is partly because thorium itself is not a nuclear fuel, although it can be used to create such a fuel.

- Thorium-232, the only naturally occurring isotope of thorium, is considered 'fertile' for fission. This means that it needs a driver, such as uranium or plutonium, to trigger and maintain a chain reaction.
- Despite its abundance, the metal is currently expensive to extract. This could change if there was a higher demand for thorium and its application in nuclear power.
- Another hurdle for thorium is that it is difficult to handle after irradiation.
- Thorium fuel requires more expensive remote fuel fabrication processes compared with uranium fuel, due to the presence of daughter products in thorium that are strongly gamma emitting.
- Spent thorium fuel reprocessing is challenging. There are difficulties in dissolving thorium dioxide and in handling gaseous products, and it needs maturity at the industrial scale.

Indian Nuclear Power Program

- The Indian nuclear programme was conceived based on, unique sequential three-stages and associated technologies essentially to aim at optimum utilisation of the indigenous nuclear resource profile of modest Uranium and abundant Thorium resources.
- This sequential three-stage program is based on a closed fuel cycle, where the spent fuel of one stage is reprocessed to produce fuel for the next stage.
- The closed fuel cycle thus multiplies manifold the energy potential of the fuel and greatly reduces the quantity of waste generated.

First Stage

- It comprises of Pressurized Heavy Water Reactors (PHWR) fuelled by natural uranium.
- Natural uranium contains only 0.7% of Uranium235, which undergoes fission to release energy.
- The remaining 99.3% comprises Uranium238 which is not fissile however it is converted in the nuclear reactor, to fissile element Pu 239.
- In the fission process, among other fission products, a small quantity of Plutonium239 is formed by transmutation of Uranium238.

Second Stage

- In this stage Fast Breeder Reactors (FBRs) are fuelled by mixed oxide of Uranium238 and Plutonium239, recovered by reprocessing of the first stage spent fuel.
- In FBRs, Plutonium239 undergoes fission producing energy, and produces Plutonium239 by transmutation of Uranium238.
- Thus the FBRs produce energy and fuel, hence termed Breeders. FBRs produce more fuel than they consume. Over a period of time, Plutonium inventory can be built up by feeding Uranium238.
- Thorium232 is not fissile therefore needs to be converted to a fissile material, Uranium233, by transmutation in a fast

breeder reactor. This is to be achieved through the second stage of the program.

- Once sufficient inventory of Plutonium239 is built up, Thorium232 will be introduced as a blanket material to be converted to Uranium233.

Third Stage

- Advanced self sustaining series of Thorium232-Uranium233 fuelled reactors.
- Advanced Heavy Water Reactor (AHWR) is another innovative concept, which will act as a bridge between the first and third stage essentially to advance thorium utilisation without undergoing second stage of the three stage program.
 - It uses light water as coolant and heavy water as moderator. It is fuelled by a mixture of Plutonium239 and Thorium232, with a sizable amount of power coming from Thorium232.

Current Status

- The first stage consisting of pressurised Heavy Water Reactors (pHWR) has reached a state of commercial maturity and the second stage of Fast Breeder Reactors (FBRs) has been commercially launched with the construction of 500 Mwe Fast Breeder Reactor (FBR) at Kalpakkam.
- The third stage systems (using U233 – Thorium232 obtained from spent fuel of the second stage) have been developed at pilot scale.
- The development of commercial technology of third stage is under way currently.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following:

1. Thorium232 is the only known fissile isotope of Thorium.
2. Thorium-fuelled reactors produce less long-lived nuclear waste than present-day uranium-fuelled reactors.
3. India has one of the largest reserves of Thorium in the world.

How many of the above statements are incorrect?

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

Answer: (a) (1 only)

Descriptive Question

Q. Critically analyse thorium as a nuclear fuel for the future. Write a note on the potential of thorium as a fuel for India. [15 Marks] [250 words]

ARTIFICIAL INTELLIGENCE WASHING

Why in News: The Global Partnership on Artificial Intelligence (GPAI) Ministerial Council meeting was recently held at Bharat Mandapam, New Delhi in a hybrid mode.

Key Details

- The meeting was chaired by the Minister of State Electronics and Information Technology and Commerce & Industry and attended by Jerry Sheehan, Director, Science Technology & Innovation from OECD and Dr Tawfik Jelassi, Assistant Director General from UNESCO.
- A common consensus was reached during the meeting about the future vision of Global Partnership on Artificial Intelligence (GPAI).

Global Partnership on Artificial Intelligence (GPAI)

- It is a multi-stakeholder initiative which aims to bridge the gap between theory and practice on AI by supporting cutting-edge research and applied activities on AI-related priorities.
- Built around a shared commitment to the OECD Recommendation on Artificial Intelligence, GPAI brings together engaged minds and expertise from science, industry, civil society, governments, international organisations and academia to foster international cooperation.
- **Secretariat:** Hosted at OECD
- The 6th meeting of the **GPAI Ministerial Council** was held on 3rd July 2024.
 - GPAI members come to a consensus about the future vision of GPAI
 - To pave way for renewed integrated partnership for harnessing the potential of AI for Good and for All

AI Washing

- It is a phenomenon in which the tech companies and corporations make over-inflated claims about their use of Artificial Intelligence (AI) but in reality are using less sophisticated technology.
- **Types of AI washing**
 - Companies claiming use of AI when they're actually using less-sophisticated computing.
 - Companies overstating the efficacy of their AI over existing techniques.
 - Companies suggest that their AI solutions are fully operational when they are not.
 - Companies bolting an AI chatbot into their existing non-AI operating software.

- **Example:** Just Walk Out technology of Amazon, which claimed to use AI and sensors to detect what was in a customer's shopping cart, actually relied on employees in India to review the transactions.
- **Reason:** No single universally accepted definition of AI. The term is used very broadly and loosely, without any clear point of reference. It is this ambiguity that is allowing AI washing to emerge.

Issues Associated with AI washing

- For investors it can make it harder to identify genuinely innovative companies.
- AI washing diverts management attention and resources away from practical AI innovation.
- AI washing can complicate decision making for businesses that are genuinely looking for valuable AI solutions.
- If consumers have unmet expectations from products that claim to offer advanced AI-driven solutions, this can erode trust in start-ups that are doing genuinely ground-breaking work.
- Subpar AI technology could pose data security and privacy risks for consumers. This could push consumers away from using the technology.

How to spot AI washing?

- Seek out mentions of 'transparent' AI, where companies are open about the types of data and algorithms that are involved.
- Beware of companies that seem unwilling or unable to describe how their technology works.
- Ask the sales representative to explain what steps are taken to avoid bias in their data and algorithms, or AI hallucinations.
- Such skepticism is critical for making better and informed decisions regarding the adoption of AI.

Artificial Intelligence Appreciation Day - 16 July

As India embraces the technological revolution, Artificial Intelligence Appreciation Day on July 16, 2024, marks a pivotal moment to reflect on AI's transformative impact across the nation.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

- Q. Which one of the following best describes the term "AI washing"?
- Exaggerating the capabilities of a product or service that is sold as 'AI' in order to make it look more sophisticated, innovative or intelligent than it actually is.
 - Making use of AI technologies for cleanliness and hygiene.
 - The process of cleaning data sets to remove biases and inaccuracies in the AI algorithm.

- (d) Recycling outdated AI models for new applications.

Answer: (a) [100 L]

Descriptive Question

- Q. What is Artificial Intelligence washing? Describe the challenges associated with AI washing and ways to spot AI washing. [10 Marks] [150 Words]

DEEP BRAIN STIMULATION (DBS) DEVICE

Why in News: Recently, a UK-based teenager, Oran Knowlson, has become the first person in the world to be fitted with a brain implant to help bring his epileptic seizures under control.

About Epilepsy

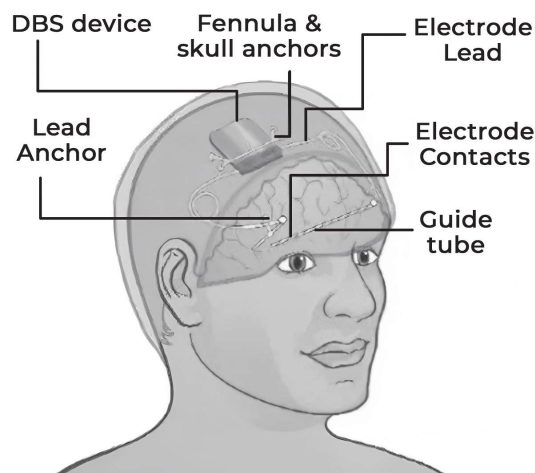
- **Definition:** Epilepsy is a neurological condition characterized by recurrent seizures caused by abnormal brain activity.
- It has been recognised by the World Health Organisation as a neurological disorder.
- **Symptoms:** Seizures vary but can include jerking, confusion, staring spells, or muscle stiffness.
- **Causes:** Often unknown (50% of cases); but can be triggered by head trauma, brain tumors, infections, or genetics.
- **Impact:** Increases risk of accidents, drownings, and falls.
- **Prevalence in India:** Between 3 and 11.9 per 1,000 people.
- **Treatment:** Anti-seizure medications available, but 30% of cases remain resistant.
- The deep brain stimulation (DBS) device, which sends electrical signals deep into the brain, has shown reduction of daytime seizures by 80%.
- **Alternative Treatments:** Considered after medications, diet (ketogenic), and other surgeries like corpus callosotomy fail to control seizures.
- **Effectiveness:** Reduces seizures by around 40%, less effective than surgical removal of seizure focus (which can reduce seizures by up to 90%).

About Deep Brain Stimulation (DBS) Device

- **Components of the DBS System**
 - **Implantation:** A neurosurgeon implants thin, insulated wires (called leads or electrodes) into the targeted area of the brain.
 - **Pulse Generator:** A small, battery-powered device (similar to a pacemaker) is placed under the collarbone. Rechargeable via a wireless headphone.
 - **Connection:** A wire connects the pulse generator to the implanted electrodes.
- **Function:** The neurostimulator delivers constant electrical impulses to the brain.

- **Purpose:** Treats movement disorders like Parkinson's disease, essential tremor, and, in some cases, epilepsy.
- **Implant Size:** Measures 3.5 cm square and 0.6 cm in thickness. Surgically implanted in the skull and anchored with screws.
- **Electrode Placement:** Two electrodes inserted deep into the brain until reaching the thalamus. Ends of the electrodes are connected to the neurostimulator.
- **Activation:** The device is activated post-surgery recovery.

DBS BRAIN IMPLANT



- **Significance of the Advancement:**
 - Deep brain stimulation's hope for stopping seizures in challenging cases.
 - Aims to establish deep brain stimulation as a standard treatment for pediatric epilepsy.
 - Treatment success offers hope to many affected by severe epilepsy.
 - Beyond epilepsy, neurostimulator shows promise for treating other neurological disorders.
 - Early applications observed in patients with Parkinson's disease, hinting at wider therapeutic potential.

Conclusion

The world's first brain implant to control epileptic seizures marks a historic advancement in medical technology, heralding a new era of hope and improved treatment outcomes for epilepsy patients worldwide.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements regarding Epilepsy:

1. It is a neurological disorder characterised by recurrent seizures caused by abnormal brain activity.
2. The underlying causes of Epilepsy are not fully known.

Which of the statements above is/are incorrect?

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

Answer: (d)

ASTEROID APOPHIS

Why in News: ISRO has shown interest to be part of global planetary defence efforts ahead of Earth's 2029 close encounter with asteroid Apophis.

About Asteroid Apophis

- Asteroid 99942 Apophis is a near-Earth object (NEO) estimated to be about 1,100 feet (335 metres) across.
- When it was **discovered in 2004**, Apophis was identified as one of the most hazardous asteroids that could impact Earth. But that impact assessment changed after astronomers tracked Apophis, and its orbit became better determined.
- **Orbit and Rotation**
 - The orbit of Apophis crosses the orbit of Earth.
 - It completes an orbit around the Sun in a little less than one Earth year (about 0.9 years). This places it in the group of Earth-crossing asteroids known as "Atens," those with orbits smaller in width than the width of Earth's orbit, or 1 AU (distance between Sun and Earth).
 - The asteroid "wobbles" as it spins about its short axis, typically rotating about once every 30 hours.
- **Structure**
 - Apophis is classified as an S-type, or stony-type asteroid made up of silicate (or rocky) materials and a mixture of metallic nickel and iron.
- **Formation**
 - Like all asteroids, Apophis is a remnant from the early formation of our solar system about 4.6 billion years ago.
 - It originated in the main asteroid belt between Mars and Jupiter.
 - Over millions of years, its orbit was changed primarily by the gravitational influence of large planets like Jupiter so that it now orbits the Sun closer to Earth.

2029 Earth flyby

- On April 13, 2029, Apophis will pass less than 32,000 km from Earth's surface – closer than the distance of geosynchronous satellites.
- During this 2029 close approach, Apophis will be visible to observers on the ground in the Eastern Hemisphere without the aid of a telescope or binoculars.

- As a result of its close encounter with Earth in 2029, the asteroid's orbit will be widened to become slightly larger than the width of Earth's orbit. At this point, it will be reclassified from the Aten group to the "Apollo" group (the group of Earth-crossing asteroids with orbits wider than 1 AU).

Exploration Missions

- OSIRIS-APophis EXplorer (OSIRIS-APEX) by NASA**
 - NASA has redirected a spacecraft to study the asteroid.
 - After successfully completing its mission to gather a sample of asteroid Bennu in September 2023, OSIRIS-REx was renamed OSIRIS-APophis EXplorer (OSIRIS-APEX).
 - The spacecraft was sent to study Apophis during the asteroid's 2029 Earth flyby. OSIRIS-APEX will fly-by Apophis on April 23, 2029, at a distance of about 4,000 km.
 - It will then rendezvous with Apophis in June for an 18-month campaign to map the asteroid's surface and analyse its chemical makeup.
- Rapid Apophis Mission for Space Safety (Ramses) by European Space Agency**
 - It will rendezvous with Apophis before it passes Earth and accompany the asteroid during the flyby to observe how it is warped and changed by our planet's gravity.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements regarding Asteroid Apophis:

- It is located in the Kupier Belt of the Solar System.
- It is included in the 'Risk List' maintained by the European Space Agency's Planetary Defence Office.

Which of the above statement(s) is/are correct?

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

Answer: (d)

STEEL SLAG ROAD

Why in News: First International Conference on Steel Slag Road was recently jointly organised by CSIR-Central Road Research Institute (CSIR-CRRI) and PHD Chamber of Commerce and Industry (PHDCCI) at New-Delhi.

Key Detail

The **Guidelines for Utilisation and Processing of Steel Slag as Processed Steel Slag Aggregates in Road Construction** was released during the First International Conference on Steel Slag Road jointly organised by CSIR-CRRI and PHDCCI at New-Delhi.

Steel Slag

- Steel slag is one of the major solid wastes generated during the steel making process.
- For every tonne of steel production around 200-300 kg steel slag is generated as solid waste in an integrated steel plant.
- Around 19 million tons of solid steel slag is generated annually in India from various integrated steel plants and this quantity is expected to reach 60 million tons by 2030.
- Traditionally it has been viewed as a waste material requiring disposal.
- Use in Road Construction:** CSIR-CRRI under a major research project sponsored by the Ministry of Steel has developed the potential utilisation of steel slag as substitute of natural aggregates in the form of Steel Slag Road to facilitate large scale utilisation of steel slag in road construction.
- It provides a superior cost effective alternative to natural aggregates for road construction.

Key benefits of steel slag road technology

- Technical Benefits**
 - Improved durability of road with better service life
 - Higher load resistance capacity
 - Reduced road thickness
 - Improved skid resistance
 - Economical than conventional bituminous and cement concrete roads
- Environmental Benefits**
 - Eco-friendly sustainable utilisation of millions of tons of steel slag waste.
 - Saving of natural aggregates thereby reducing unsustainable quarrying and mining.
 - Reduction of greenhouse gas emissions and carbon footprint in road construction.
 - Prevention of potential land, air and water pollution due to unscientific disposal of steel slag as solid waste.
- Steel Slag Road technology is playing an important role in realising the government's mission of **Waste to Wealth**.

Intrinsic challenges with steel slag utilisation as road construction material

- Vesicular structure of steel slag
- Volumetric expansion
- Corrosion potential due to metallic iron content

- Possibility of heavy metal & high pH Leachates and TUFAs (Calcium carbonate precipitates) formation.

Way Forward

- As India continues to invest in expanding its National Highways network, incorporating steel slag road technology can play a vital role in enhancing the sustainability and efficiency of road construction practices.
- By establishing a connection with the market and actively promoting the usage of steel slag, the industry can effectively contribute to the growth and maintenance of the highway network.
- Such efforts will undoubtedly pave the way for a more robust and modern transportation infrastructure in the country.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following:

1. Improved durability of road with better service life
2. Higher load resistance capacity
3. Reduced road thickness
4. Improved skid resistance

How many of the above are potential benefits of steel slag road technology?

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

Answer: (d)

Descriptive Question

Q. Discuss the significance and scope of using steel slag for road construction in India. [10 Marks] [150 Words]

KAVACH

Why in News: The Kavach 4.0 recently received certification by the Research Designs and Standards Organisation (RDSO).

About Kavach

- Railway Ministry allocates Rs 1,112.57 cr for Kavach in 2024-25.
- Kavach is an indigenously developed Automatic Train Protection (ATP) system and a highly technology intensive system, which requires safety certification of highest order.
- Developed by Research Design and Standards Organisation (RDSO) in collaboration with the Indian industry.

- Kavach aids the loco pilot in train running within specified speed limits by automatic application of brakes in case Loco Pilot fails to do so and also helps the train safely run during inclement weather.
- Kavach has been certified for highest level of Safety Integrity Level - SIL4 by Independent Safety Assessor and reduces the probability of train collisions in block sections and on running lines at stations through its non-SIL features.
- **Present status:** Kavach has so far been deployed on 1465 Route km and 144 locomotives (including Electric Multiple Unit rakes) on South Central Railway.

Implementation of Kavach involves execution of following activities

- Installation of Station Kavach at each and every station.
- Installation of RFID tags throughout the track length.
- Installation of Telecom Towers throughout the section.
- Laying of optical Fibre cable along the track.
- Provision of Loco Kavach on each and every Locomotive running on Indian Railways.

Main Features of Kavach

- Prevention of Trains / Locomotives Passing Signal at Danger (SPAD)
- Continuous update of Movement Authority with display of signal aspects in Driver Machine Interface (DMI) / Loco Pilot operation cum Indication Panel (LPOCIP)
- Automatic Braking for Prevention of Over Speeding
- Auto-Whistling while approaching Level Crossing Gates
- Prevention of collision between two Locomotives equipped with functional KAVACH
- SoS Messages during emergency situations
- Centralised live monitoring of Train movements through Network Monitor

How does Kavach work on Railway Systems?

- The Traffic collision avoidance system (TCAS), with the help of equipment on board the locomotive and transmission towers at stations connected with Radio Frequency Identification (RFID) tags, helps in two-way communication between the station master and loco-pilot to convey any emergency message.
- The instrument panel inside the cabin helps the loco-pilot know about the signal in advance without visual sighting, and the permissible speeds to be maintained.
- If a red signal is jumped and two trains come face to face on the same line, the technology automatically takes over and applies sudden brakes.
- Additionally, the hooter activates by itself when approaching a level crossing which serves as a big boon to loco-pilots during fog conditions when visibility is low.

Kavach 4.0

- It is the fourth and final version of the automatic train protection system Kavach.
- It has been approved by the Research Design and Standards Organisation (RDSO).
- This version covers all the major features required for the diverse railway network.

Operational Limitations of Kavach System

- It is fully functional and advantageous only when the entire railway network is enhanced, with all locos equipped with Kavach.
- It cannot prevent derailment.
- Brake activation is not triggered if the trains are running within permissible speed limits.
- Kavach is not designed to detect and act on interlock malfunctions or changes in track alignment.
- **Slow implementation:** As of July 2024, Kavach stands implemented only on 1,465 km of the total route length of 68,000 km, a progress of just over 300 km in two years and still limited to the South Central Railway. Similarly, from 90 engines, Kavach is present in 144 engines now, less than 1% of the total 15,200 engines.
- **Vendor Limitations:** Currently, there are only three companies supplying the components of Kavach.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements regarding Kavach system of Indian Railways:

1. It has been deployed in all the diesel locomotives in the country.
2. It deploys automatic braking for prevention of over speeding and collision.
3. RFID technology is involved in the functioning of this system.

Which of the statement(s) above is/are correct?

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

Answer: (c)

ADITYA-L1 SPACECRAFT COMPLETED ITS FIRST HALO ORBIT

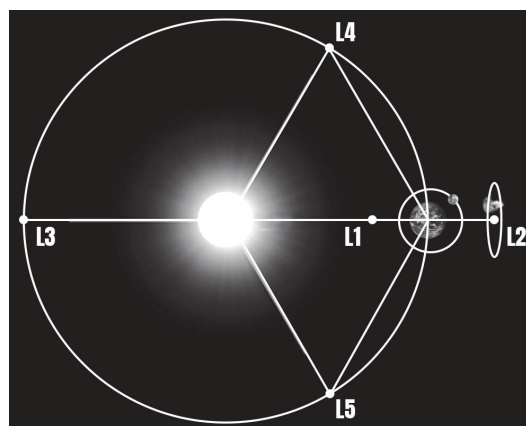
Why in News: India's first solar mission Aditya-L1 spacecraft completed its first halo orbit around the Sun-Earth Lagrangian point L1 point on 2 July 2024.

About Aditya L-1

- The Aditya-L1 mission is an Indian solar observatory at **Lagrangian point L1**, launched by **PSLV-C57** on September 2, 2023 and was inserted in its targeted halo orbit on January 6, 2024 which is about 1.5 million km from the Earth.
- According to ISRO, Aditya-L1 spacecraft in the halo orbit took 178 days to complete a revolution around the L1 point

What is a Lagrange Point?

- Lagrange points are positions in space where objects sent there tend to stay put.
- At Lagrange points, the gravitational pull of two large masses precisely equals the centripetal force required for a small object to move with them.
- These points in space can be used by spacecraft to reduce fuel consumption needed to remain in position.
- There are five special points where a small mass can orbit in a constant pattern with two larger masses. Of the five Lagrange points, three are unstable and two are stable.
 - Unstable Lagrange points - labeled L1, L2 and L3 - lie along the line connecting the two large masses.
 - Stable Lagrange points - labeled L4 and L5 - form the apex of two equilateral triangles that have the large masses at their vertices. L4 leads the orbit of earth and L5 follows.
- L1 point of the Earth-Sun system affords an uninterrupted view of the sun.



Halo Orbit

- Halo orbit is a periodic, three-dimensional orbit at L1, L2 or L3 Lagrange points in a 3-body system
- Halo Orbits can be thought of as resulting from an interaction between the gravitational pull of the two planetary bodies and the Coriolis and centrifugal force on a spacecraft.
- Halo orbits exist in any 3-body system, e.g., an Earth-Moon orbiting satellite system.

Advantages of placing Aditya L-1 in Halo Orbit

Placing the Aditya-L1 in a halo orbit around L1 point has advantages as compared to placing in a Low Earth Orbit (LEO):

- It provides a smooth Sun-spacecraft velocity change throughout the orbit, appropriate for helioseismology.
- It is outside of the magnetosphere of Earth, thus suitable for the “in situ” sampling of the solar wind and particles.
- It allows unobstructed, continuous observation of the Sun, and view of earth for enabling continuous communication to ground stations.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. The term ‘Halo Orbit’ recently seen in the news in the context of:

- Search for meteorites containing precious metals.
- Search for the Earth-like planets in outer space.
- Interaction between the gravitational pull of the two planetary bodies and the coriolis and centrifugal force on a spacecraft.
- Positions in space where objects sent there tend to stay put.

Answer: (c)

AXIOM-4 MISSION (AX-4)

Why in News: ISRO has recently shortlisted two of its four trained Gaganyaan astronauts for a mission to the International Space Station (ISS) in collaboration with NASA.

Axiom-4 Mission (Ax-4)

- It is the fourth private astronaut mission to the International Space Station (ISS).
- Collaborators: NASA + Axiom Space
- It will be the fourth mission of Axiom Space after Ax-1 (2022), Ax-2 (2023) and Ax-3 (2024). Axiom is the first company to conduct privately-crewed missions to the ISS.
- This is a major shift in NASA’s approach to low-earth orbit research.
- **Objective:** Axiom Space in collaboration with NASA aims to facilitate transition beyond ISS operations and to maintain US presence in low-earth orbit after the retirement of ISS.
- Axiom Space has contracted SpaceX as launch provider for transportation to and from the space station.

- This mission will be instrumental in expanding commercial space activities and access to space for individuals and nations around the world.

Axiom Space

- It is an American privately funded space infrastructure developer company.
- It provides human spaceflight services and develops human-rated space infrastructure.
- It operates end-to-end missions to the ISS while developing its successor, Axiom Station.

International Space Station (ISS)

- The International Space Station (ISS) is a research laboratory that orbits the Earth in Low Earth Orbit at an average altitude of 400 km.
- Five space agencies have contributed to the station’s assembly:
 - NASA (USA)
 - Roscosmos (Russia)
 - European Space Agency (ESA)
 - Japan Aerospace Exploration Agency (JAXA)
 - Canadian Space Agency (CSA)
- The first module of the ISS was launched on November 20, 1998.
- The most recent module installed on the station is the Prichal docking module added on 26 November 2021.
- It takes about 90 minutes for the ISS to circle Earth one time. Therefore, the ISS orbits the Earth 16 times per day. Every 3 days, the ISS passes over the same place on Earth.
- The ISS is divided into two sections: the Russian Orbital Segment operated by Russia and the United States Orbital Segment run by the U.S.
- It is the second brightest object in the night sky after the Moon.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Axiom-4 Mission recently seen in news is:

- Moon exploration programme of NASA
- ISRO’s programme to test launch Gaganyaan modules
- Private Mars exploration programme of SpaceX
- Private astronaut mission to the International Space Station (ISS).

Answer: (d)

EARTH OBSERVATION SATELLITE SYSTEMS

Why in News: Indian National Space Promotion and Authorization Centre (IN-SPACe) invites the private sector to build Earth observation satellite systems.

Key Details

- IN-SPACe released an expression of interest (EOI) inviting private Indian entities to build and manage a space-based Earth Observation (EO) satellite system under a public-private partnership (PPP) model.
- **Objective:** It aims to create a self-reliant, robust, and sustainable Earth Observation System catering to the growing demand for EO data.
- **Significance**
 - It opens the doors for private sector participation in designing, building, and launching a constellation of satellites equipped with advanced imaging technologies.
 - The upstream infrastructure of the satellite constellation with advanced imaging technology is expected to create significant downstream commercial potential, resulting in more competitive products.
 - It presents an opportunity for Indian entities to engage in all aspects of the space industry.
- The proposal outlines a comprehensive scope for non government entities (NGEs), including designing and building a constellation of satellites in Low Earth Orbit, equipping them with various sensors, launching satellites using Indian Satellite Launch Vehicles, monitoring spacecraft health, managing payload data download, and processing payload data to generate analysis ready data (ARD).

IN-SPACe

- A single-window, independent, nodal agency which functions as an autonomous agency in the Department of Space (DOS).
- It was created to facilitate private sector participation in the space sector.
- Established as a single window agency for all space sector activities of private entities, IN-SPACe plays an important role in boosting the private space sector economy in India.
- It is responsible to promote, enable authorise and supervise various space activities of the NGEs that include, among others, the building of launch vehicles & satellites and providing space-based services; sharing of space infrastructure and premises under the control of DOS/ISRO; and establishment of new space infrastructure and facilities.

Functions of IN-SPACe

- Promote and develop the Indian space ecosystem accelerating space economy.
- Enable and nurture NGEs to accomplish their ventures in the space sector.
- Authorise space operations and services in the country through a well defined framework.
- Supervise the space activities of NGEs in the country.

Earth Observation

- Earth Observation (EO) is the process of gathering information about the Earth's surface, waters and atmosphere via ground-based, airborne and/or satellite remote sensing platforms.
- The acquired data are processed and analysed to extract different types of information that can be used to monitor and assess the status of and changes in – both the natural and human-made environments.
- EO data serves a very wide range of **applications** and industries, including: environmental protection, energy, managing urban areas, regional and local planning, agriculture, forestry, fisheries, health, transport, climate change, sustainable development, civil protection, tourism etc.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements regarding IN-SPACe:

1. It is a single-window, independent, nodal agency which functions as an autonomous agency within ISRO.
2. It was created to facilitate private sector participation and boost the private space sector economy in India.

Which of the statements above is/are incorrect?

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

Answer: (a)

JUMPING GENES

Why in News: Nature recently published a paper by researchers at the University of California, Berkeley, and the Arc Institute in the U.S. describing a new RNA-guided gene editing system.

Key Details

- These are genes that are able to move around within the genome.

- Depending on where the mobile elements are inserted, they have the ability to reversibly alter gene expression.
- Between 1948 and 1983, researchers found transposons in an array of life-forms, including bacteriophages, bacteria, plants, worms, fruit flies, mosquitos, mice, and humans. They were nicknamed **jumping genes**.
- There are two classes of jumping genes, called class I transposons and class II transposons.
 - Class I transposons are also called retrotransposons because when they undergo the process of replication, they first copy their DNA into RNA
 - Class II transposons are DNA sequences that move from one location to another in a genome using a "cut-and-paste" mechanism.

Significance of Transposons

- The discovery of transposons revolutionised our understanding of genetics.
- Transposons influence the effects of genes by turning 'on' or 'off' their expression using a variety of epigenetic mechanisms.
- They are rightly called the **tools of evolution**, for their ability to rearrange the genome and introduce changes.
- More than 45% of the human genome consists of transposable elements.
- They also create mutations in genes and lead to diseases.

RNA-guided transposons

- Researchers in USA found a new RNA-guided gene editing system. It builds on an older discovery, that one of the genes in the IS110 family of bacterial transposons contains the instructions for cells to make an RNA molecule with two loops.
- This RNA could bind to two pieces of DNA, rather than the usual one piece, and form a **bridge** between them. This is a very useful ability.
- The two loops of the RNA can independently bind to two separate pieces of DNA.
- One of the loops identifies the target site in the genome that needs to be altered. The other loop specifies the DNA to be inserted in its place. Each loop is independently programmable, which means researchers can mix and match any target and donor DNA sequences of interest.

Significance of Bridge RNA

- Bridge RNA serves as an alternative form of genome-editing. It has several advantages.
- CRISPR-mediated editing sometimes leaves small bits of nucleotides added/deleted during the repair process.
- DNA recombination mediated by bridge RNA on the other hand makes a clean cut, making the edit specific and tidy.
- It can facilitate the addition, deletion or inversion of DNA sequences of virtually any length.

Application in Synthetic Biology

- Bridge RNA spells a big boon for synthetic biology, where entire sets of genes need to be inserted or removed from organisms.
- It can be used to manage, or even treat, a wide variety of genetic diseases - a functional copy of a gene can be replaced in a given genomic location.
- It may enable us to treat chromosomal inversions or deletions, which are currently beyond the reach of any of the editing tools we have.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements regarding jumping genes:

- These are genes that are able to move around within the genome.
- They have the ability to reversibly alter gene expression.
- They are called the tools of evolution, for their ability to rearrange the genome and introduce changes.

How many of the above statements are correct?

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

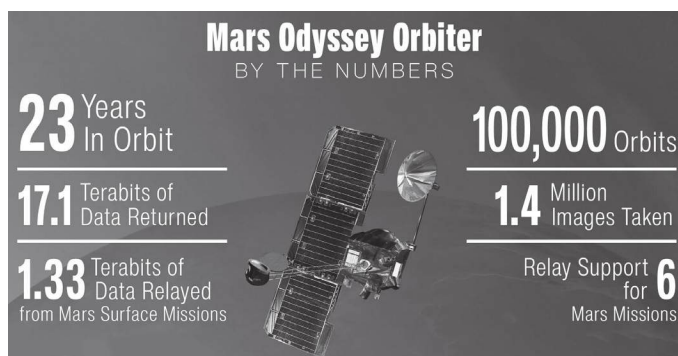
Answer: (c)

THE LONGEST-RUNNING MISSION ON MARS

Why in News: NASA's Odyssey spacecraft, the longest-running mission on Mars, circled the Red Planet for the 100,000th time, the mission team announced in a statement.

Mars Odyssey

- Mission Type:** Orbiter
- Launch:** 7 April 2001
- Objective:** Mapping the chemical elements and minerals that make up the Martian surface.
- Odyssey was NASA's first successful mission to Mars after the failures of the Mars Climate Orbiter and Mars Polar Lander.



- It is the first spacecraft to make a global map of the chemical elements and minerals that make up the Martian surface.
- The spacecraft also holds the record for the longest continually active mission in orbit around a planet other than Earth.
- It successfully completed its primary science mission from February 2002 through August 2004.
- Odyssey continues its work today, studying clouds, fog, and frost, and mapping surface rocks to make future Mars landings safer, as the orbiter nears its 100,000th trip around the Red Planet.
- **Interplanetary Internet:** The Mars Odyssey orbiter's telecommunications systems provide a crucial service for Martian spacecraft, serving as the first link in a communications bridge back to Earth – an “interplanetary Internet” that can be used by numerous international spacecraft in coming years.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. It is NASA's first spacecraft to make a global map of the chemical elements and minerals that make up the Martian surface. It holds the record for the longest continually active mission in Mars orbit.

The above lines describe which of the following space mission:

- (a) Mars Climate Orbiter (b) Mars Polar Lander
(c) Mars Odyssey (d) Mars Express

Answer: (c)

3D HOLOGRAM TECHNOLOGY

Why in News: Japan has recently issued a new yen banknotes packed with 3D hologram technology to fight counterfeiting.

Key Details

- Japan issued new 1,000 yen, 5,000 yen and 10,000 yen banknotes packed with 3D hologram technology to fight counterfeiting.
- The people featured on the bills celebrate Japanese capitalism, women's equality and scientific innovation.

About 3D Holograms

- Holograms are 3D images created with the science of holography, offering realistic visuals.
- They provide a realistic visual experience that captures three-dimensional images without the need for special tools, like 3D glasses.

Applications: Hologram technology is revolutionising healthcare, education and entertainment by providing vivid 3D views and immersive experiences.

- **Healthcare:** Medical imaging - 3D visualisation & representation of the human body helps in diagnosis.
- **Education:** Lifelike 3D visuals enrich the learning experience by enabling students to better comprehend challenging concepts.
- **Entertainment:** Holograms give vivid and captivating experiences for global audiences by creating a space between real and illusory.
- **Emerging applications** in fields like - Telecommunications, Retail & Marketing, Military & Defence etc.

Holography

- Holography is a process in which light from an object can be reflected and projected into a 3D image. This procedure requires two coherent laser beams – the reference beam and the object beam, which interact on a recording medium to create an interference pattern when exposed to illumination.
- Principle: It utilises the wave nature of light, involving diffraction and interference phenomena.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following sectors:

1. Entertainment 2. Healthcare
3. Telecommunications 4. Military

In how many of the above sectors Hologram Technology can be used ?

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

Answer: (d)

TOKAMAK DEVICE

Why in News: China-based fusion energy company 'Energy Singularity' has made the world's first high-temperature superconducting tokamak device.

Key Details

- China witnessed completion and operation of the world's first fully high-temperature superconducting tokamak device, named HH70, in its eastern Municipality of Shanghai.

- It marks a significant leap forward in global fusion technology development for clean energy.
- It boasts a magnetic system constructed from high-temperature superconducting materials, a global first.
- It is relatively smaller and is cheaper to produce, paving the way for more commercially viable fusion reactors in the future.

What is a tokamak?

- The term “tokamak” comes to us from a Russian acronym that stands for “toroidal chamber with magnetic coils”, which is an experimental machine designed to harness the energy of fusion.
- Inside a tokamak, the energy produced through the fusion of atoms is absorbed as heat in the walls of the vessel. Just like a conventional power plant, a fusion power plant will use this heat to produce steam and then electricity by way of turbines and generators.
- A tokamak is often called ‘artificial sun’ because it works on the principle of the nuclear fusion of hydrogen atoms that occurs in the sun.
- The amount of fusion energy a tokamak is capable of producing is a direct result of the number of fusion reactions taking place in its core.

Nuclear Fusion

- Fusion is the energy source of the Sun and stars. In the tremendous heat and gravity at the core of these stellar bodies, hydrogen nuclei collide, fuse into heavier helium atoms and release tremendous amounts of energy in the process.
- Three conditions must be fulfilled to achieve fusion in a laboratory:
 - Very high temperature - On the order of 150,000,000 °C
 - Sufficient plasma particle density - To increase the likelihood that collisions do occur.
 - Sufficient confinement time - To hold the plasma, which has a propensity to expand, within a defined volume.
- At extreme temperatures, electrons are separated from nuclei and a gas becomes a plasma (the fourth state of matter). Fusion plasmas provide the environment in which light elements can fuse and yield energy.
- In a tokamak device, powerful magnetic fields are used to confine and control the plasma.

Advantages of Nuclear Fusion Energy

- **Abundant Energy:** Fusing atoms together in a controlled way releases nearly four million times more energy than a chemical reaction such as the burning of coal, oil or gas and four times as much as nuclear fission reactions (at equal mass).
- **No CO₂:** Fusion doesn’t emit harmful substances like carbon dioxide or other greenhouse gases into the

atmosphere. Its major by-product is helium: an inert, non-toxic gas.

- **No long-lived radioactive waste:** Nuclear fusion reactors produce no high activity, long-lived nuclear waste.
- **Limited risk of proliferation:** Fusion doesn’t employ fissile materials like uranium and plutonium. (Radioactive tritium is neither a fissile nor a fissionable material.)
- **No risk of meltdown:** A Fukushima-type nuclear accident is not possible in a tokamak fusion device as it is difficult enough to reach and maintain the precise conditions necessary for fusion. In case of a disturbance, plasma cools within seconds and the reaction stops.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. A tokamak is based on the principle of:

- (a) Nuclear Fission (b) Nuclear Fusion
(c) Radioactive Disintegration (d) Rapid Combustion

Answer: (b)

AIR BREATHING PROPULSION TECHNOLOGY

Why in News: ISRO has recently successfully carried out the second experimental flight for the demonstration of Air Breathing Propulsion Technology.

Key Details - Experimental Flight

- The Propulsion systems were symmetrically mounted on either side of a RH-560 Sounding rocket and launched from Satish Dhawan Space Centre, Sriharikota.
- The flight test achieved satisfactory performance of the Sounding Rocket along with successful ignition of the Air Breathing propulsion systems.
- Nearly 110 parameters were monitored during the flight to assess its performance.

Air Breathing Propulsion

- It makes use of the atmospheric air thereby eliminating the use of carrying the oxidizer and significantly improving the payload fraction.
- Thus, air Breathing Propulsion provides a technological key for low cost space transportation system.
- RAMJET and SCRAMJET are types of air breathing engines that use the forward motion of the vehicle to compress air for combustion.

Sounding Rockets

- Sounding rockets are one or two stage solid propellant rockets used for probing the upper atmospheric regions and for space research.
- They serve as easily affordable platforms to test or prove prototypes of new components or subsystems intended for use in launch vehicles and satellites.

- In 1975, all sounding rocket activities were consolidated under the Rohini Sounding Rocket (RSR) Programme. It was the bedrock on which the edifice of launch vehicle technology in ISRO could be built.

Operational Sounding Rockets of ISRO

Currently, three versions are offered as operational sounding rockets.

Vehicle	Payload (kg)	Altitude (km)	Purpose	Launch Pad
RH-200	10	80	Meteorology	Thumba
RH-300-Mk-II	60	160	Aeronomy	SDSC-SHAR
RH-560-Mk-II	100	470	Aeronomy	SDSC-SHAR

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements regarding air-breathing propulsion:

Statement-I: The use of air-breathing propulsion for launch vehicles can result in significant weight savings.

Statement-II: Oxygen from the atmosphere is utilized to reduce the amount of oxidizer that the vehicle must carry.

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 explains Statement-I
- (b) Both Statement-I and Statement-II are correct and Statement-II does not explain Statement-I
- (c) Statement-I is correct, but statement-II is incorrect
- (d) Statement-I is incorrect, but Statement-II is correct

Answer: (a)

like mineral rocks, called polymetallic nodules, which typically contain manganese and iron. Scientists have found that these nodules produce oxygen without the process of photosynthesis.

- In this case researchers discovered that oxygen levels increased at the ocean bed.
- It was discovered that manganese nodules were the source of oxygen production. The nodules have electric charge. Seawater electrolysis allows a charge to split seawater into hydrogen and oxygen.

Significance of the discovery

- It suggests that some minerals do produce oxygen while not using sunlight.
- This discovery also highlights the need to protect environments that self-produce oxygen
- The implications of discovering another deep ocean source of oxygen production open the doors to revisiting how life began on Earth. It potentially sheds light on where life began on the planet.

DARK OXYGEN

Why in News: Scientists recently discovered “dark” oxygen being produced by metallic nodules on the ocean floor in the Pacific Ocean’s Clarion-Clipperton Zone (CCZ) at depths of 13,000 feet.

Key Observations

- A recent study published in Nature Geoscience shows that there’s an additional oxygen source on the planet apart from the oxygen produced from photosynthesis.

Dark Oxygen

- On the Clarion-Clipperton Zone (CCZ), which spans 4.5 million km² in the Pacific Ocean, there are coal-

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Which of the following statements describe Dark Oxygen ?

- (a) A rare isotope of oxygen found in the Earth’s atmosphere.
- (b) A form of oxygen proposed to exist in dark matter.
- (c) A radioactive isotope of oxygen.
- (d) Oxygen generated and present at sea bed by polymetallic nodules.

Answer: (d)

ENHANCED GENOME-EDITING SYSTEM

Why in News: Researchers at CSIR-IGIB and the L.V. Prasad Eye Institute have engineered new versions of an enzyme that can make Clustered Regularly Interspaced Short Palindromic Repeats (CRISPR) more precise.

CRISPR

- CRISPR occurs naturally in some bacteria, as a part of their immune system that limits infections by recognising and destroying viral DNA.
- In Nobel-prize winning work, scientists repurposed this bacterial defence mechanism to develop a novel approach for editing the genomes of higher-order organisms.

Working of CRISPR-Cas9

- The CRISPR-Cas9 gene editing tool uses a guide-RNA (gRNA) designed to find and bind to a specific part of the target genome.
- The gRNA directs an enzyme, Cas9, to the target site, which is followed by a short DNA sequence called protospacer adjacent motif (PAM).
- Cas9 recognises and binds to the PAM sequence, and acts as a molecular scissor that snips some damaged DNA.
- This automatically triggers the cell's DNA repair system, which repairs the snipped part to insert the correct DNA sequence.
- **Limitations of CRISPR-Cas9**
 - The CRISPR-Cas9 system can also recognise and cut parts of the genome other than the intended portion.
 - Such "off-target" effects are more common when using the SpCas9 enzyme derived from *Streptococcus pyogenes* bacteria.
 - Scientists have been able to engineer versions of SpCas9 with higher fidelity but only at the cost of editing efficiency.

Switching SpCas9 with FnCas9

- To overcome these issues, researchers are exploring Cas9 enzymes from *Francisella novicida* bacteria. While this Cas9, called FnCas9, is highly precise, it has a low efficiency.
- To enhance it without compromising its specificity, researchers at CSIR-IGIB modified and engineered new versions of FnCas9.
- The researchers tinkered with amino acids in FnCas9 that recognise and interact with the PAM sequence on the host genome.
- **Significance**
 - By doing this researchers increased the binding affinity of Cas protein with the PAM sequence. The Cas9 can

now sit on the DNA in a stronger configuration, and the gene editing becomes much more effective.

- The researchers also engineered the enhanced FnCas9 to be more flexible and edit regions of the genome that are otherwise harder to access. This opens up more avenues for gene editing.
- Experiments to measure enzyme activity showed that enhanced FnCas9 cut target DNA at a higher rate compared to unmodified FnCas9.
- Enhanced FnCas9 outperformed unmodified FnCas9.

Way Forward

- The team is working on adapting the system to different delivery methods as well as reducing the size of the enFnCas9.
- The team is also in contact with some Indian companies to scale up and manufacture therapeutic solutions for multiple genetic disorders.

Conclusion

With indigenous intellectual property for such a high precision editor, India is now in a better position to develop newer therapeutics at affordable costs for people in low- and middle-income countries like ours.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements regarding FnCas9:

1. It is Cas9 enzyme derived from the bacteria *Francisella novicida*.
2. It has high precision and high efficiency.

Which of the statements above is/are correct?

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

Answer: (a) (1 only)

PERSEVERANCE ROVER

Why in News: NASA's Perseverance rover recently discovered "leopard spots" on a reddish rock nicknamed "Cheyava Falls" in Mars' Jezero Crater

Key Details

- The six-wheeled Perseverance found a rock that has some indications it may have hosted microbial life billions of years ago, but further research is needed.
- Analysis by instruments aboard the rover indicates the rock possesses qualities that fit the definition of a possible indicator of ancient life.
- The rock exhibits chemical signatures and structures that could possibly have been formed by life billions of years ago when the area being explored by the rover contained running water.

Key Findings

- In its search for signs of ancient microbial life, the Perseverance mission has focused on rocks that may have been created or modified long ago by the presence of water.
- Running the length of the rock are large white calcium sulfate veins. Between those veins are bands of material whose reddish color suggests the presence of hematite, one of the minerals that gives Mars its distinctive rusty hue.
- When Perseverance took a closer look at these red regions, it found dozens of irregularly shaped, millimeter-size off-white splotches, each ringed with black material, akin to **leopard spots**.

Mars 2020: Perseverance Rover

- The Mars 2020 Perseverance Rover searches for signs of ancient microbial life, to advance NASA's quest to explore the past habitability of Mars. The rover is collecting core samples of Martian rock and soil (broken rock and soil), for potential pickup by a future mission that would bring them to Earth for detailed study.
- **Type:** Rover
- **Launch Date:** 30 July 2020
- **Landing Date:** 18 Feb 2021
- **Target:** Jezero Crater, Mars

- **Objective:** Seek signs of ancient life and collect samples of rock and regolith for possible Earth return.
- The Mars 2020 Perseverance mission is part of NASA's Moon to Mars exploration approach, which includes Artemis missions to the Moon that will help prepare for human exploration of the Red Planet.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements regarding Perseverance Mission:

1. It is NASA's moon exploration rover mission launched in 2020.
2. The mission seeks signs of ancient life and collects samples of rock and regolith for possible Earth return.
3. Recently the mission discovered leopard-like spots on a reddish rock called Cheyava Falls.

How many of the above statements are correct?

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

Answer: (c) and (b) (2 and 3)

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BALLISTIC MISSILE DEFENCE (BMD) SYSTEM

Why in News: Defence Research & Development Organisation (DRDO) recently successfully tests Phase-II ballistic missile defence system.

Key Details

- DRDO has demonstrated **Phase II BMD**, indigenous capability to defend against ballistic missiles of 5,000 km class.
- It is a two stage solid propelled ground launched missile system meant for neutralising many types of enemy ballistic missile threats in the altitude bracket of endo to low exo-atmospheric regions.
- The Phase-II AD Endo-atmospheric missile was launched from LC-III at ITR, Chandipurat.
- **Phase 1 of the BMD**, which can intercept ballistic missiles with a range of 2,000 km, has already been deployed.
- The maiden test of the **Phase-II BMD** that can intercept ballistic missiles of 5,000 km class was conducted in November 2022.
- The flight test fully met all the trial objectives validating a complete network centric warfare weapon system consisting of Long Range Sensors, low latency communication system and MCC and Advance Interceptor missiles.

Indian Ballistic Missile Defence (BMD) System

In late 1980s and 1990s India's strategic rivals, China and Pakistan developed their own nuclear and missile programs. Thus, it became imperative for India to develop its own BMD capabilities to safeguard its territory against potential incoming enemy missiles and other aerial threats.

Origin of BMD Program in India

- In the year 2000, the Indian government sanctioned the development of India's BMD program.
- In 2002, the United States (US) put diplomatic pressure on Israel which prevented the latter from selling its Arrow air-defence missile system to India. The American officials argued that the sale was violative of the Missile Technology Control Regime (MTCR) guidelines.
- This boosted the political resolve in India to develop a fully indigenous BMD capability.
- By 2009 India had developed its short-range air-defence

missile system that was named Akash, deployed by the Indian Air Force.

Components of India's BMD Program

- Introduced in light of the ballistic missile threat from Pakistan and the People's Republic of China (PRC), India's BMD was planned as a double layered system consisting of land and sea-based interceptor missiles:
 - **First layer - Land based Prithvi Air Defence (PAD)**
 - ◆ Used for high-altitude interception (50-80 km)
 - ◆ It can destroy enemy missiles outside the earth's atmosphere, which is known as an 'exo-atmospheric kill'.
 - **Second Layer - Advanced Air Defence (AAD)**
 - ◆ Used for low-altitude interceptions (15-50 km)
 - ◆ It can intercept enemy missiles within the earth's atmosphere, which is known as an 'endo-atmospheric kill'.
- Both layers are supported by a range of tracking stations, radars, command and control posts etc.
- As India has established a nuclear triad: land, air and sea based nuclear weapon delivery capabilities, the acquisition of a well-developed BMD system complements the nuclear triad and has established India as a force to be reckoned with globally.

Capabilities and Status of India's BMD Program

- India's BMD set-up is basically a two-layered system that takes care of incoming hostile enemy aerial targets from a range of around 30 km till around 5,000 km.
- In case of incoming ballistic missiles, this activity of interception can be conducted in any one of the three stages of the enemy missile's launch trajectory:
 - **Boost Phase** - when the hostile missile is climbing up in the atmosphere.
 - **Ballistic Phase** - during the main flight path of the missile.
 - **Terminal Phase** - when the hostile missile has re-entered the earth's atmosphere, and is closing in on its targets.
- India has the BMD systems needed to destroy incoming hostile missiles in the mid-course and the terminal phase. Indian scientists are working to further develop these systems to destroy the hostile missiles during the boost phase itself that requires long-range interception, tracking and sophisticated advanced warning capabilities

India's nuclear doctrine is entirely retaliatory. India's operational nuclear strategy, based on its nuclear doctrine, offers the least risky alternative in the presence of nuclear weapons.

This approach to nuclear deterrence relies on a modest arsenal that is less vulnerable to miscalculation or unintentional use.

The ideology prioritises no first use and punitive reprisal, aiming to reduce the likelihood of nuclear use. Following the 1998 nuclear test, India implemented a "No First Use" policy for nuclear weapons.

Challenges to India's BMD Program

The Indian BMD program does face some challenges, internally as well as externally, which impact its planning, deployment and usage:

- Threat of a **two-front conflict** and war scenario from Pakistan and China. While **Pakistan's** missile and nuclear program is India-centric, India has to develop its nuclear, missiles and BMD capabilities keeping in mind the Chinese threat as well.
- **China** may proliferate its advanced nuclear and missile technologies to rogue states like Pakistan thereby negating India's conventional advantage over Pakistan.
- **High cost and resources involved:** Securing adequate funding and allocating resources for research, development, testing, and deployment has always been a significant challenge in India, where most of the annual defence budget is spent on revenue expenditure.
- **Adaptation and Evolution:** Adaptation to ensure various components of the BMD system work together seamlessly and coordinate with existing defence infrastructure is a complex task. Moreover, as missile technology evolves, potential adversaries may develop more advanced and unpredictable missiles. India's BMD program must stay ahead of these developments to remain effective.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements regarding India's Ballistic Missile Defence Program:

1. It consists of a double layered system consisting of land and sea-based interceptor missiles.
2. First layer deploys Prithvi Air Defence missile for low-altitude endo-atmospheric kill.
3. Second layer deploys Advanced Air Defence missile for high-altitude exo-atmospheric kill.

How many of the statements above are correct?

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

Answer: (a) [1 only]

Descriptive Question

Q. Describe the Indian Ballistic Missile Defence (BMD) system along with current status. Highlight the challenges and way forward for BMD. [10 Marks] [150 Words]

CONVENTIONAL SUBMARINE UNDER PROJECT-76

Why in News: The Defence Research and Development Organisation (DRDO) has taken up a preliminary study on the design and development of an indigenous conventional submarine under Project-76.

Key Details

- An Air Independent Propulsion (AIP) module designed and developed by DRDO is now awaiting fitment on the Scorpene class submarines. This is being done in collaboration with Naval Group (France), the original manufacturer of Scorpene.
- The DRDO-developed AIP module is phosphoric acid based which is widely available.
- AIP technology allows non-nuclear submarines to operate without access to external air (atmospheric air) to run the diesel generator. Example: Fuel cell AIP
- An AIP module acts as a force multiplier as it enables conventional submarines to remain submerged for longer duration thereby increasing their endurance and reducing chances of detection.
- The AIP is currently being continuously run on shore, and as there is no submarine, a simulated hull has been created to have near-sea conditions.
- This will be a continuation of the Advanced Technology Vessel (ATV) project, to build a conventional submarine, under which the Arihant series of nuclear ballistic missile submarines (SSBN) are being built and another project for building nuclear-powered submarines (SSN) is currently underway.

Submarines are classified into two types, i.e. Conventional and Nuclear submarines, as per their mode of propulsion. A **Conventional Submarine** is propelled by diesel electric engines on the surface and by electric motors powered by batteries whilst submerged. For example, Kalvari, Shishumar and Sindhuoghosh. Whereas, a **nuclear submarine** is powered by a nuclear reactor, but not necessarily nuclear armed. A diesel electric submarines' biggest advantage is that it is smaller hull that is easier to maneuver in shallow waters and harder to detect.

Project 76

- **Aim:** To design and develop new generation of indigenous conventional submarines for Indian Navy.
- India has managed to design and build its own nuclear submarine with help from the Russians, the country has never designed or manufactured a conventional submarine.

- The Naval Design Bureau is working on a conventional diesel-electric submarine with AIP technology that will be the future of India's submarine plans.
- It will be an in-house project and the Navy is already focusing on systems and technology the submarine will have and designing the vessel around that.

Project 75

- Project – 75 includes indigenous construction of six submarines of Scorpene design.
- These submarines are being constructed at Mazagon Dock Shipbuilders Limited (MDL) Mumbai, under collaboration with M/s Naval Group, France.
- The Kalvari is the first of India's six submarines based on the Scorpene-class being built under the Project 75.

Project 75 I (India)

- Project-75 (India), also known as P-75(I), is a military acquisition initiative by the Ministry of Defence (MoD).
- Project 75I is a follow-up to Project 75 and improves upon the design and technology of its predecessor.
- **Aim:** To procure diesel-electric attack submarines with fuel cells and Air-Independent Propulsion System (AIP) for the Indian Navy to build India's naval strength and develop indigenous submarine-building capabilities.

Project 75 vs Project 75 (India)

- The conventional diesel-electric submarines such as the Scorpene, under Project 75, come with improved stealth features such as advanced acoustic absorption techniques, low radiated noise levels, long-range guided torpedoes, tube-launched anti-ship missiles, sonars and sensor suites.
- However, as electrical batteries power them, they need to surface every 48 hours to be recharged.
- The AIP technology will improve on this in Project 75I building six submarines that can stay submerged for up to two weeks.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following pairs:

1.	Project 75	Procure diesel electric attack submarines with fuel cells and AIP system.
2.	Project 75 (I)	Indigenous construction of six submarines of Scorpene design
3.	Project 75 Alpha	Procuring nuclear powered attack submarines
4.	Project 76	Indigenous design and development of next generation conventional submarines.

Which of the above pair(s) is/are correct?

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

Answer: (c)

HIGH ALTITUDE LONG ENDURANCE (HALE)

Why in News: India is planning to procure the long-endurance drones to bolster the surveillance capabilities of its armed forces.

Key Details

- Defence Acquisitions Council (DAC) reviewed and approved amendments to the deal for 31 MQ-9B High Altitude Long Endurance (HALE) Unmanned Aerial Vehicles (UAV) from **General Atomics of the US**.
- The amendments approved are within the scope of the Acceptance of Necessity (AoN) that was granted for the MQ-9B deal.
- India is looking to procure 31 MQ-9B UAVs, 15 Sea Guardians for the Indian Navy and 16 Sky Guardians – eight each for the Indian Army and Air Force,
- As part of the deal, General Atomics is scheduled to establish a Global Maintenance, Repair and Overhaul (MRO) facility in India which would count towards offset obligations.

High altitude platforms, or Pseudo-satellites (HAPS), are unmanned vehicles (UAVs) that take advantage of weak stratospheric winds and solar energy to operate without interfering with current commercial aviation and with enough endurance to provide long-term services as satellites do.

High-altitude long-endurance (HALE) unmanned aerial vehicle (UAV) refers to UAVs flying at an altitude of 15–20 km with a low speed. There are many ways to achieve long endurance, such as using sustainable energy sources (e.g. solar energy), increasing the energy density of energy storage (e.g., solid hydrogen), and improving power conversion efficiency.

Defence Acquisitions Council (DAC)

- Created as an overarching structure in the defence procurement organisation.
- **Composition:**
 - **Chairman:** Raksha Mantri (RM)
 - **Members:** Raksha Rajya Mantris (RRMs)
 - Chief of Defence Staff (CDS) (when appointed)
 - Chief of Army Staff (COAS)
 - Chief of Naval Staff (CNS)
 - Chief of Air Staff (CAS)
 - Defence Secretary

- Secretary Dept. of Defence Production and Supplies
- Secretary, Defence Research and Development
- Secretary, Defence Finance
- Vice Chief of Defence Staff
- Function
 - Give 'in principle' approval to Capital acquisitions for armed forces.
 - Monitor the progress of major projects on feedback from the Defence Procurement Board.
- The DAC meets as and when required.
- The approval in principle should be seen as the first step in the process of 'acceptance of necessity' by the concerned Administrative Wing in the Ministry of Defence.
- The decision of RM based on DAC deliberations flows down from implementation to Defence Procurement Board, Defence Production Board and Defence R&D Board.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following:

1. Defence Acquisitions Council
2. Defence Procurement Board
3. Defence Production Board
4. Defence Research & Development Board

How many of the above bodies are constituents of Defence Procurement Organisation structure in India?

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

Answer: (d)

LIGHT FIDELITY (LI-FI) TECHNOLOGY

Why in News: Velmenni Li-Fi technology has been recently awarded a grant from the Ministry of Defence (MoD).

Key Details

- Velmenni, a trailblazer in light communication technology, has recently received a significant grant from the Ministry of Defence (MoD) under the iDEX initiative for its Light Fidelity (Li-Fi) technology.
- This funding aims to bolster secure wireless communication for the Indian Defence sector, particularly focusing on the Navy and the unique communication challenges it faces in modern warfare.

Light Fidelity (LiFi)

- LiFi is one of the newest communication technologies that aim to improve upon current technology by making use of visible light communication as opposed to the radio waves used by WiFi.
- It serves a dual purpose as it aims to provide overhead illumination to households as well as facilitate the transfer of data.
- By harnessing the vast bandwidth of the light spectrum, LiFi promises speeds that can eclipse conventional Wi-Fi by up to 100 times. But it's not just about speed. With LiFi, connecting to the internet could be as straightforward as turning on a light.
- Utilising LED-based light to convey data, this technological shift guarantees rapid data transfer, while also excelling in environments where electromagnetic interference is a concern, such as hospitals or aeroplanes.

Working of LiFi

- LiFi makes use of visible light through overhead lighting for the transmission of data. This is possible through the use of a Visible Light Communications (VLC) system for data transmission. A VLC system has two qualifying components:
 - At least one device containing a photodiode in order to receive light signals; and
 - A light source equipped with a signal processing unit for the transmission of signals.
- The VLC light source can be in the form of a fluorescent bulb or a light emitting diode (LED).
- LED light bulbs are the most optimum VLC light source, however, since a robust LiFi system requires extremely high rates of light output. Fluorescent bulbs emit light in a much wider band of wavelengths, which makes it a relatively less efficient light source than LED. LED, on the other hand, is a light source that emits light in a very narrow band of wavelengths, making it a more efficient light source.
- LED is also a semiconductor, which implies that it can amplify light intensity and switch rapidly.

Pros of LiFi

- **Speed**
 - Light waves are able to carry far more information than radio waves used in Wi-Fi technology since the visible light spectrum is almost 10,000 times larger than the spectrum occupied by radio waves.
 - This is why data transmission using LiFi is 100 times faster than data transmission using Wi-Fi. LiFi connection can transmit data at the rate of 224 GB per second.
- **Efficiency**
 - LiFi holds the potential to be more energy efficient and cheaper due to the nature of LED bulbs which are

already efficient on their own. LiFi technology gives them another purpose, connectivity.

- This will save costs in homes and workplaces because it could do without electronic devices such as routers, modems, signal repeaters, wave amplifiers, and antennas.
- **Security**
 - Radio waves can be intercepted by people outside one's network since they can pass through walls compromising the security of your data. But light is stopped by opaque objects making LiFi significantly more secure than other wireless technologies.
- **Availability**
 - With LiFi, every source of light can connect you to the internet. In the near future when the technology is already available to the general public, street lights, building lights, and transportation lighting can all communicate wirelessly and one can access the internet wherever he/she may be.

Cons of LiFi

- **Limited Range**
 - The fact that light can't penetrate through walls might be a good thing when it comes to security but this also means that LiFi has a very limited range. That means you can only use it effectively in closed spaces.
- **Limited Compatibility**
 - Since LiFi is a new technology, not many devices are compatible with it. Most devices that are used now still use hardware for Wi-Fi networking.
- **Not the answer to slow internet speeds**
 - LiFi does have a faster data transfer rate but if the Internet speed from service providers is still slow, the best aspect of this technology remains insignificant. In countries that have slower internet speeds, deploying a LiFi network would be meaningless.

Applications of LiFi

- **Education:** Empowers schools and universities with faster, more secure connectivity.
- **Offices:** Boosts productivity with secure, high-bandwidth networking.
- **Government & Defence:** Strengthens national security with unhackable data transmission.
- **Industry & Transportation:** Optimises operations with uninterrupted, high-speed communication.
- **Healthcare:** Advance patient care with secure, interference-free LiFi technology.
- **Aerospace:** Elevates aerospace capabilities with fast, secure data links.

- **Gaming:** Ultra-responsive gaming with zero-lag LiFi technology.
- **EMF-sensitive environments:** Safer connectivity with minimal EMF exposure.
- **Smart Home:** Creates a smarter, more connected home environment with LiFi technology.
- **Finance:** Secure instant data transfer for dynamic financial operations.

How Velmenni's Li-Fi technology can help the Indian Navy?

- With LiFi, the Navy can establish high-speed connections in areas where radio frequency communication may be challenging or compromised.
- Li-Fi can enhance data transmission for the Indian Navy and other defence applications. It offers enhanced security and performance, making it ideally suited for the Indian Navy's real-time communication needs.
- In highly secure areas, such as underground facilities or shielded rooms, where RF signals cannot penetrate, LiFi can ensure uninterrupted connectivity, enabling seamless communication and coordination during mission-critical operations.

Innovations For Defence Excellence (iDEX)

- The iDEX initiative was launched in April 2018. It aims to achieve self-reliance and foster innovation and technology development in Defence and Aerospace by engaging Industries including MSMEs, start-ups, individual innovators, R&D institutes and academia.
- iDEX is funded and managed by a '**Defence Innovation Organization (DIO)**' which has been formed as a 'not for profit' company as per Section 8 of the Companies Act 2013 for this purpose, by the two founder members i.e. Defence Public Sector Undertakings (DPSUs) - HAL & BEL.
- iDEX functions as the executive arm of DIO, carrying out all the required activities while DIO provides high level policy guidance to iDEX.
- It comes under the Department of Defence Production, Ministry of Defence.
- **Objectives**
 - **Facilitate rapid development of new**, indigenized, and innovative technologies for the Indian defence and aerospace sector, to meet needs for these sectors in shorter timelines.
 - **Create a culture of engagement with innovative** startups, to encourage co-creation for defence and aerospace sectors
 - **Empower a culture of technology** co-creation and co-innovation within the defence and aerospace sectors.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

- Q. With reference to 'Li-Fi', frequently seen in news, which of the following statements is/are correct?
1. It uses light as the medium for high-speed data transmission.

2. It is a wireless technology and is several times faster than 'WiFi'.

Select the correct answer using the code given below:

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

(c) :Answer

Descriptive Question

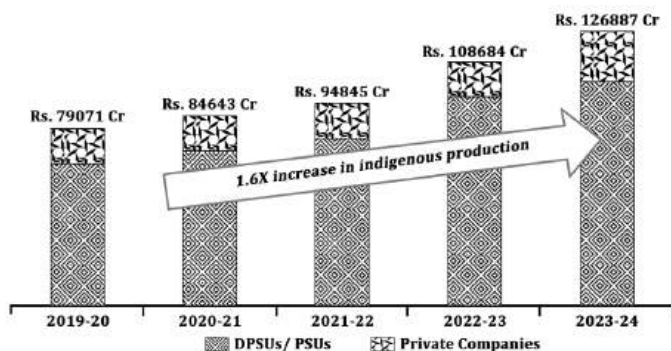
Q. Discuss the advantages of Light Fidelity (LiFi) over Wireless Fidelity (WiFi). Highlight the applications of LiFi in everyday life. [10 Marks] [150 Words]

DEFENCE INDUSTRY PRODUCTION IN INDIA

Why in News: Ministry of Defence has achieved the highest-ever growth in indigenous defence production in value terms during Financial Year (FY) 2023-24.

Key Details

- India's indigenous defence production rose to a record high value of Rs 1.27 lakh crore in 2023-24. The sector witnessed a growth of 16.7%.
- Of the total value of production (VoP) in 2023-24, about 79.2% came from DPSUs and other PSUs, and 20.8% percent by the private sector.
- In terms of absolute value, both Defence Public Sector undertakings (DPSUs)/PSUs and the private sector recorded a steady growth in defence production.
- Increasing defence exports contributed to the overall growth in the indigenous production.
- In FY 2023-24, defence exports worth Rs 21,083 crore were registered, up 32.5% over Rs 15,920 crore in the previous fiscal.
- In the last five years (since 2019-20), the value of defence production has been increasing steadily, and grown by over 60%.



Key Players in Indian Defence Industry

- In India the public sector has dominated defence production and research and development (R&D).

- The major entities in the production domain are the 16 defence public sector undertakings (DPSUs), seven of which were converted out of the erstwhile ordnance factories (OFs), effective October 2021.
- The DPSUs function under the administrative control of the Ministry of Defence (MoD).

Older DPSUs	
Defence PSU	Domain
Mazagon Dock Shipbuilders Limited	Construction of various types of warships for the Indian Navy and Coast Guard
Garden Reach Shipbuilders and Engineers	
Goa Shipyard Limited	
Hindustan Shipyard Limited	
Hindustan Aeronautics Limited	Aircraft
Bharat Electronics Limited	Electronics
Bharat Dynamics Limited	Missiles
Mishra Dhatu Nigam Limited	Special Alloys
BEML Limited	Vehicles and Earth Moving Equipment

- Apart from 16 DPSUs, the MoD also controls the key defence R&D agency, the Defence Research and Development Organisation (DRDO).
- Beyond the MoD's direct control are several government-owned entities that are primarily commercial-oriented but also produce a few items for defence.
 - Example:** Cochin Shipyard Ltd (CSL), a public sector undertaking (PSU) functioning under the administrative control of the Ministry of Ports, Shipping and Waterways.
- Apart from the DPSUs and PSUs, there are several **defence-specific joint ventures (JVs)** between the MoD-controlled entities (DPSUs or DRDO) and foreign partners.
 - Example:** BrahMos Aerospace between DRDO and NPO Mashinostroyeniya (Russia).
- The defence industry opened up for the private sector in 2001.

Defence Industry Reforms under Make in India and Atmanirbhar Bharat Abhiyan

- Institutional Reforms**
 - Creation of the post Chief of Defence Staff (CDS) post and Department of Military Affairs (DMA). The CDS is assigned the task of promoting the use of indigenous equipment by the Services.
 - Corporatisation of Ordnance Factories (OFs):** It involved converting 41 OFs into seven distinct DPSUs. Corporatisation is the first step for additional

reforms—which can be carried through further consolidation into fewer DPSUs or by listing them in stock exchanges or by their privatisation.

- **Acquisition Reforms**

- Government has refined the arms procurement processes as codified in the Defence Acquisition Procedure (DAP).
- Further rationalising the procurement categories within DAP by prioritising domestic industry over foreign companies.
- Mandating higher indigenous content in various domestic industry-friendly procurement categories.
- Launch of two innovation-oriented schemes: innovation for Defence Excellence (iDEX) and Technology Development Fund (TDF).

- **Ease of Doing Business Reforms**

- The government streamlined the industrial licensing process for the private sector so that the latter could easily obtain official permissions without bureaucratic hassles.
- This was followed by liberalising the defence foreign direct investment (FDI) regime by enhancing the earlier foreign equity cap from a maximum of 26 % under the automatic route, first to 49 % and subsequently to 74 %.
- Government has also brought out a standard operating procedure to formalise the process of defence export authorisation.

Challenges

- The foremost challenge is increasing production, at least to a level that meets India's procurement requirements.
 - Production has not grown significantly enough to meet the annual procurement requirements of the armed forces.
 - Domestic share in the armed forces' capital acquisition has hardly increased from 2014-15.
 - Despite registering a noticeable increase in international arms sales, the industry is way off the exports target set by the government.
 - DPSUs are slow in rising to the expectations.
- Despite having a large production and R&D base, the Indian defence industry lacks the technological depth to design/manufacture major systems and critical parts, components, and raw materials, which are eventually imported.
 - The lack of technological depth is also one of the reasons why the Indian government still prefers to licence manufacture many major systems.
 - Licensing manufacturing has an overwhelming share of 58% in India's defence procurement.

- Many of the reforms taken are yet to be implemented in full letter and spirit.
 - Given India's bureaucratic system, overcoming the delays in implementation will remain a key challenge in the foreseeable future.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements regarding Cochin Shipyard Ltd:

1. It is a defence public sector unit (DPSU) under the Ministry of Defence.
2. It constructed India's first indigenous aircraft carrier INS Vikrant.

Which of the statements above is / are incorrect?

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

Answer: (a)

Descriptive Question

Q. Discuss the evolution of the Indian defence industry since independence. Highlight the challenges associated with defence manufacture and exports in India. [250 Words] [15 Marks]

NATIONAL SECURITY COUNCIL

Why in News: Recently, Rajinder Khanna, Deputy NSA and former chief of India's external intelligence agency Research & Analysis Wing (R&AW), has been promoted as Additional NSA (ANSA).

Key Details

- The National Security Council Secretariat has seen a series of changes in July 2024 while also maintaining continuity.
- With these changes, effectively there will be an Additional NSA in addition to three Deputy NSAs under NSA Ajit Doval.
- This is the first time someone has been appointed additional NSA, a post that always existed but remained vacant.

National Security Council Secretariat (NSCS)

The National Security Council Secretariat (NSCS) is headed by Prime Minister Narendra Modi, with NSA Ajit Doval acting as its secretary, and it is the apex body on all internal and external security-related matters. There is also the post of Military Adviser in the NSCS.

Note: A position of National Maritime Security Coordinator in the NSCS, reporting to the NSA, was created in early 2022.

Expected Consequences/Outcomes of Changes

- The NSA now presides over a much bigger organisation, with an ANSA and three deputy NSAs, his new role appears more advisory and less operational.
- The NSA would deal with advisory outfits such as the National Security Advisory Board and the Strategic Policy Group.
- The ANSA would now be the gatekeeper in the communication chain between six mid-level unit heads (three Dy NSAs and three service officers) and the NSA.
- This means creation of an additional bureaucratic layer between the PM and those monitoring national security on a daily basis.

India's National Security Doctrine (NSD)

- At present, India does not have a formal National Security Doctrine. The NSCS initiated the first steps toward preparing the NSD late last year by seeking inputs from ministries, state governments, academia, and science and technology establishments.
- The idea was to have a public document outlining India's strategic intent and foundational security policy, along the lines of those established by countries such as the US, UK, France, Germany, Australia, China, and even Pakistan, among many others.

There are several **reasons** why such an NSD is not only of urgent importance, but also needs to be made available in the public domain.

- **Rising geopolitical tensions** in the world have given way to uncertainties. There is a need for NSD to deal with the complex nature of the various traditional and non-traditional threats arising out of such uncertainties.
- **Citizen's Right to Know:** The citizens of a democratic India need to know how the government plans to handle national security in all its dimensions.
- Absence of a publicly articulated NSD, could lead to a **lack of cohesion and common understanding**, and diverse interpretations of what may be in the interest of national security.
- **International Practice:** The powerful and relevant nations including US, UK, Russia & China have their National Security Strategy in place. Even Pakistan has promulgated its first National Security Policy (2022-26).
- **To serve as reference** for peer review by think tanks. It can reduce ambiguity and build meaningful accountability.
- **Prerequisite for major military reforms:** Major military reforms like theaterisation should ideally flow from a national security strategy. Without such a well-defined strategy, military reforms would be like 'putting the cart before the horse'.

Advantages of National Security Doctrine for India

- It would compel the government to undertake a **comprehensive strategic assessment** i.e. a review of the

country's threats and opportunities and an evaluation of India's short, medium, & long-term interests in the context of energy and food security needs.

- It would provide a **coherent framework** for long-term planning regarding our borders and coastline.
- It gives the government a **rationale for allocating resources** within the defence forces. The NSD would give the Integrated Defence Staff and future joint organisations a clearer top-down mandate to better align the work of the Indian Forces.
- It would **establish common goals and plans** so that various national security agencies, including the ministries of Defence, External Affairs, Home Affairs, and the intelligence agencies, could better coordinate daily at the working level rather than episodically at the Cabinet level.
- The NSD will **send clear signals** not just to nations but also to non-state actors engaged in terrorism, drug trafficking, cybercrime, and money laundering.
- It will ensure that India's bureaucratic, diplomatic, academic, corporate, and military leadership is fully aligned with a policy paper approved by Parliament.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. The National Security Council is headed by:

- (a) National Security Advisor
- (b) Chief of Defence Staff
- (c) Prime Minister
- (d) Defence Minister

(c) Answer

Descriptive Question

Q. What is a National Security Doctrine? Discuss the need and advantages of a National Security Doctrine for India. [15 Marks] [250 Words]

THE NEW CHIEF OF THE ARMY STAFF (COAS)

Why in News: General Upendra Dwivedi took over as the 30th Chief of the Army Staff (COAS) from General Manoj Pande who superannuated after more than four decades of service.

About Chief of the Army Staff (COAS) of India

- **Role and Responsibilities:**
 - The COAS is the professional head of the Indian Army, which is the land forces branch of the Indian Armed Forces.

- Customarily held by a four-star general officer, the COAS oversees the overall functioning of the force during peace and wartime.
- Responsibilities include maintaining operational effectiveness, defending territorial integrity, and advising the Government of India on defence matters.
- Permanent member of the Chiefs of Staff Committee (COSC) and the National Security Council (NSC).
- **Status and Equivalents:** Statutorily, the COAS ranks 12th overall in the Indian order of precedence.
- The COAS is equivalent in status to the Chief of Defence Staff, the Chief of the Naval Staff, and the Chief of the Air Staff.
- **Appointment and Term:** Appointed by the Appointments Committee of the Cabinet (ACC).
- Term length is 3 years or until the age of 62, whichever is earlier.
- **Location:** The COAS is seated at the Integrated Headquarters of the Ministry of Defence in New Delhi.

Ranks in the Indian Army

The Indian Army has a hierarchical structure divided into three main categories:

- Commissioned Officers (COs),
- Junior Commissioned Officers (JCOs), and
- Non-Commissioned Officers (NCOs).

Officers Rank comparison between Indian Army, Navy, Air Force

OFFICERS RANKS OF THE INDIAN ARMY, AIR FORCE & NAVY		
COMMISSIONED OFFICERS		
ARMY	NAVY	AIR FORCE
Field Marshal	Admiral of the Fleet	Marshal of the Indian Air Force
General	Admiral	Air Chief Marshal
Lieutenant General	Vice Admiral	Air Marshal
Major General	Rear Admiral	Air Vice Marshal
Brigadier	Commodore	Air Commodore
Colonel	Captain	Group Captain
Lieutenant Colonel	Commander	Wing Commander
Major	Lieutenant Commander	Squadron Leader
Captain	Lieutenant	Flight Lieutenant
Lieutenant	Sub-Lieutenant	Flying Officer

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

- Q. Which of the following is the correct sequence of ranks (Junior to Senior) in the Indian Army?
- Captain, Colonel, Major, Brigadier
 - Major, Captain, Brigadier, Colonel
 - Colonel, Brigadier, Major General, Lieutenant General
 - Colonel, Brigadier, Lieutenant General, Major General

(c) :Answer

PROJECT ZORAWAR

Why in News: The Defence Research and Development Organisation (DRDO) recently tested light battle tank Zorawar, to be inducted into the Indian Army by 2027, in Gujarat's Hazira.

Key Details

- Jointly developed by DRDO and Larsen & Toubro (L&T) Limited, Zorawar is built to meet the Indian Army's requirements in the eastern Ladakh sector against Chinese deployment across the Line of Actual Control (LAC).
- The DRDO and L&T have integrated USVs (unmanned surface vehicle) in loitering munitions in the tank, learning lessons from the Russia and Ukraine conflict.
- The Indian Army has placed an initial order for 59 Zorawar tanks, with plans to potentially procure a total of 354 light tanks.

About Zorawar Tank

- The Zorawar will help balance the scales against China's existing fleet of lightweight mountain tanks, like the Type 15, in the high altitudes of Ladakh.
- It is named after the 19th century Dogra General Zorawar Singh, who led military expeditions to Ladakh and Western Tibet.
- A 105mm or higher caliber main gun capable of firing anti tank guided missiles Modular explosive reactive armor and an active protection system to enhance survivability
- A power-to-weight ratio of at least 30 hp / ton for improved mobility integration with drones and battle management systems for enhanced situational awareness.
- The tank with its lightweight and amphibious capabilities can travel through steep climbs in mountains and cross rivers and other water bodies much more easily than the heavy-weight T-72 and T-90 tanks.
- It will provide the Indian Army with a critical capability to rapidly deploy and maneuver in the high-altitude regions of Ladakh and other border areas.

- The light tank Zorawar with 25 tonnes in weight and it is the first time a fresh tank has been designed and made ready for trials in such a short time.
- The trials are expected to be completed in the next 12-18 months and be ready for induction.
- 59 of these tanks will be provided to the Army initially and it will be a front runner for the major programme of 295 more of these armoured vehicles.
- The Army also wants the light tanks to be amphibious, allowing them to be deployed across riverine regions, including the Pangong Tso Lake in eastern Ladakh.
- The Indian Air Force can supply two tanks at a time in the C-17 class transport aircraft as the tank is light and can be run at high speeds in mountain valleys.
- The unique thing about the Zorawar tank is its weight as well as the combination of the fundamental parameters of a tank.
- There are three different types of tanks depending on the weight.
 - The heavy tanks for protection.
 - The medium tanks offense.
 - The light tanks, for both, protective and offensive.
- There are also the Western tanks, the Russian tanks, Chinese tanks. The unique thing about these tank is the weight as well as the combination of the fundamental different parameters of a tank like ability to fire, show power, mobility and protection.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Choose the correct statement from the following:

- The induction of the Zorawar light tank will provide the BSF with a critical capability to rapidly deploy and maneuver in the high-altitude regions of Ladakh and other border areas.
- The Zorawar will help balance the scales against China's existing fleet of lightweight mountain tanks, like the Type 15, which have a significant advantage in the high altitudes of Ladakh.
- The Indian Air Force can supply two tanks at a time in the C-18 class transport aircraft as the tank is light and can be run at high speeds in mountain valleys.
- Generally there are four different types of tanks.

(b) :Answer

25TH KARGIL VIJAY DIWAS

Why in News: Kargil Diwas, also known as Kargil Vijay Diwas, is celebrated annually on July 26 to commemorate India's victory over Pakistan in the Kargil War.

Kargil Vijay Diwas

- Kargil Vijay Diwas is celebrated every year on 26th July to rekindle the pride and valour of the soldiers who took part in Operation Vijay.
- The day marks the victory of Indian soldiers in capturing the mountain heights that were occupied by the Pakistani Army on July 26, 1999 known as the Kargil War.

Kargil War and Operation Vijay

- The Kargil war was a three month long skirmish between India and Pakistan.
- Operation Vijay commenced in May 1999 when approx 1500 Pakistani soldiers intruded into the Indian Territory in Kargil, Jammu and Kashmir with an aim of severing the link between Kashmir and Ladakh.
- In a systematically planned and methodically executed operation, the dominating peaks occupied by the enemy were attacked and recaptured.
- The operation was a unique display of bravery, resolve and commitment under inhospitable conditions of terrain and weather.
- By July 20, the Indian forces managed to recapture Kargil heights.
- During the operations a total of 674 Indian soldiers made the supreme sacrifice and were awarded 4 Param Vir Chakra, 10 Maha Vir Chakra and 70 Vir Chakra among others for gallantry.

Background and Genesis of Kargil War

- The genesis of the Indo-Pak conflict can be traced back to the year 1947. The bone of contention between India and Pakistan are the attempts by Pakistan to annex the erstwhile state of Jammu and Kashmir by any means.
- In May 1998, both India and Pakistan declared themselves as nuclear powers, escalating the security concerns of both the nations.
- **Lahore Declaration:** The possibility of a nuclear exchange between the two countries was reduced by the signing of the Lahore Declaration in 1999 by the Prime Minister of India, Atal Behari Vajpayee and the Prime Minister of Pakistan, Nawaz Sharif in Lahore on 20-21 February 1999. The Lahore Declaration reaffirmed India and Pakistan's commitment to peaceful resolution of their long standing border dispute over the state of Jammu and Kashmir.
- The war commenced shortly after the signing of the Lahore declaration in 1999, when the Pakistan army surreptitiously occupied the winter vacated posts of the Indian Army.
- This act was thought to be the brain-child of General Pervez Musharraf, then chief of the Pakistan Army.

Lessons learned from Kargil War

- India must prepare for future Pakistani recklessness across-the-board.

- India must increase its efforts to contain intrusions across the LoC.
 - Aggressively counter Pakistani threats along the LOC by investing in more technologically advanced military and intelligence equipment.
- The Kashmir issue requires high-level attention, it cannot be neglected in hopes of gradual atrophy.
- India must cultivate international support that will circumscribe Pakistani adventurism
- India must sustain the information offensive
 - India recognizes the utility of the media in contemporary conflicts and will continue its offensive in the information war.
- India must treat nuclear issues more seriously as Pakistan is a risk-acceptant state capable of “irrational” strategic surprises.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following awardees of the Param Vir Chakra (PVC):

1. Lieutenant Manoj Kumar Pandey
2. Grenadier Yogendra Singh Yadav
3. Rifleman Sanjay Kumar
4. Captain Vikram Batra

How many of the above awardees were awarded PVC for their gallantry in the Kargil War?

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

Answer: (d)

BIRLESTIK-2024 EXERCISE

Why in News: Azerbaijan Army has joined Kazakhstan for the “Birlestik-2024” exercises, involving 4,000 personnel and 700 military vehicles. The drills aim to enhance regional defense cooperation.

Key Details

- **Participants:** Defense Ministries of Azerbaijan, Kazakhstan, Kyrgyzstan, Tajikistan, and Uzbekistan.
- **Location:** Conducted at Oymasha training ground and Cape Tokmak in Kazakhstan’s Caspian Sea aquatorium.
- **Objective:** Enhance regional defense cooperation and readiness through joint operational planning.
- It serves as a platform for building stronger regional security partnerships.

About Birlestik

- Azerbaijan Army servicemen have arrived in Kazakhstan to take part in the “Birlestik-2024” operational-tactical command-staff exercise.



- Azerbaijan’s contingent includes commando units from the Land Forces, Parachute descent and search-rescue service personnel, Su-25 aircraft from the Air Force, and patrol and descent ships from the Navy.
- The “Birlestik-2024” exercise aims to enhance regional cooperation and readiness by simulating joint operational scenarios.
- Approximately 4,000 military personnel and 700 pieces of military equipment will be involved, focusing on coordinating a unified response to localize armed conflicts in the region.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ.

Q. Which of the following is correct regarding BIRLESTIK Exercise?

- (a) It is a multinational naval exercise hosted by ASEAN countries in South China Sea.
(b) It is a joint command and staff military exercise held in Central Asian region.
(c) It is an air defence exercise hosted by USA in West Asia.
(d) It is the first ever military exercise of BIMSTEC countries in Bay of Bengal.

Answer: (b)

EXERCISE - SAGAR KAVACH

Why in News: Coastal security exercise, Sagar Kavach, was recently held along Andhra Pradesh coast.

About Exercise Sagar Kavach

A two-day comprehensive Coastal Security Exercise involving all maritime security agencies conducted by Indian Navy to assess the effectiveness of the coastal security mechanism.

- **Aim:** To assess the efficacy and robustness of the coastal security mechanism while dealing with asymmetric threat emanating from the sea.
- **Participants and Stakeholders:** Indian Navy, Coast Guard, CISF, Customs, RPF and State agencies such as State police, Marine police, Fisheries, Intelligence Bureau and Port Authorities.
- Extensive aerial surveillance of coastal areas by both Naval and Coast Guard air assets was undertaken during the exercise which was closely monitored at the Joint Operations Centre (East), Eastern Naval.
- The exercises witness close coordination and synergy among all coastal security stakeholders. Lessons learnt from the exercise are incorporated to strengthen the coastal security architecture.
- Recently held Exercise Sagar Kavach
 - 3-4 May 2023 in Lakshadweep
 - 11-12 Oct 2023 in Andhra Pradesh, Tamil Nadu and Puducherry
 - 1-2 April 2024 in Lakshadweep
 - 22-23 May 2024 in Maharashtra
 - 10-11 July 2024 in Andhra Pradesh

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Which of the following is a comprehensive Coastal Security Exercise involving all maritime security agencies:

- (a) Exercise Sagar Suraksha (b) Exercise Sagar Kavach
(c) Exercise Coastal Defence (d) Exercise Sagar Raksha

(b) Answer

KHAAN QUEST - MULTINATIONAL MILITARY EXERCISE

Why in News: The Indian Army recently departed for Ulaanbaatar, Mongolia to join Exercise KHAAN QUEST from July 27 to August 9, aimed at boosting peacekeeping capabilities.

About KHAAN QUEST

- It is a multinational military exercise **co-sponsored by U.S. Indo-Pacific Command** and **hosted annually by the Mongolian Armed Forces**.
- The Indian Army contingent comprising 40 personnel is being represented mainly by troops from a Battalion of the Madras Regiment along with personnel from other

Arms and Services. One Woman Officer and two Women Soldiers will also form part of the contingent.

- It first started as a bilateral event between USA and Mongolian Armed Forces in 2003.
- Subsequently, from the year 2006 onwards the exercise graduated to a Multinational Peacekeeping Exercise.

Aim and Significance

- Aim of Exercise KHAAN QUEST is to prepare Indian Armed Forces for peacekeeping missions while operating in a multinational environment, thereby increasing interoperability and military readiness in peace support operations under Chapter VII of United Nations Charter.
- The exercise will focus on a high degree of physical fitness, joint planning and joint tactical drills.
- Exercise KHAAN QUEST will enable the participating countries to share their best practices in Tactics, Techniques and Procedures for conduct of joint operations.
- The exercise will facilitate developing interoperability, bonhomie and camaraderie between soldiers of the participating countries.

Tactical Drills to be practiced during the exercise

- Establishment of Static and Mobile Check Points
- Cordon and Search Operations
- Patrolling
- Evacuation of Civilians from Hostile Area
- Counter Improvised Explosive Device drills
- Combat First Aid and Casualty Evacuation

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements regarding Exercise KHAAN QUEST:

1. It is a bilateral military exercise between USA and Mongolia.
2. It started in the year 2015 to counter Chinese influence in the region.

Which of the above statement(s) is/are incorrect?

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

(c) Answer

EXERCISE PITCH BLACK 2024

Why in News: IAF's Su-30 MKIs to be part of 20-nation mega 'Exercise Pitch Black' in Australia.

Exercise Pitch Black

- It is a biennial, multi- national exercise hosted by the **Royal Australian Air Force (RAAF)**.

- It is Australia's biggest international air combat training activity.
- Exercise Pitch Black 2024 will be the largest in the exercise's 43-year history.
- Held every two years, it focuses on large force employment missions involving large numbers of international aircraft.
- It is the RAAF most significant flying activity for strengthening international engagement and enhancing our ability to work with overseas partners.
- First Pitch Black Exercise - 1983
- The Indian Air Force has previously participated in the 2018 and 2022 editions of this exercise.

Significance

- The exercise provides an excellent opportunity for strengthening the ability of the participating nations to deploy over large distances, support integrated operations in the Indo-Pacific region and building strong aviation associations in a highly challenging environment.
- The exercise is expected to strengthen international cooperation and build robust aviation associations in a challenging environment.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Which of the following statements best describe the Exercise Pitch Black?

- It is an annual bilateral exercise hosted by the US Navy.
- It is the Indian Air Force's biggest international air combat training activity.
- It is a biennial space defence exercise jointly hosted by NASA and European Space Agency (ESA)
- It is a biennial, multi- national exercise hosted by the Royal Australian Air Force

Answer: (d)

SEBEX 2 – HIGH PERFORMANCE NON NUCLEAR EXPLOSIVE

Why in News: India has recently introduced SEBEX 2, a high-performance non- nuclear bomb, that's two times more lethal than trinitrotoluene (TNT)

Key Details

- India has introduced SEBEX 2, a high-performance explosive with a TNT equivalence of 2.01.

- Economic Explosives Limited is also working on another variant that will have an explosive power graded at 2.3 times of TNT.

- Developed under the Make in India initiative by Economic Explosives Limited, SEBEX 2, utilizes a high-melting explosive (HMX) composition. This formulation significantly enhances the lethality of warheads, aerial bombs, artillery shells, and other munitions.
- SEBEX 2 has undergone rigorous testing and certification under the Indian Navy's Defence Export Promotion Scheme, with final certifications recently completed.
- Certified by the Indian Navy, SEBEX 2, alongside SITBEX 1 and SIMEX 4, demonstrates India's growing capabilities in military technology, offering significant export potential and enhancing global security efforts.

- The Indian Navy has certified SITBEX 1, a thermobaric explosive known for its extended blast duration and intense heat generation. This makes it highly effective in demolishing enemy bunkers, tunnels, and fortified positions.

- SIMEX 4, an insensitive munition, has also received certification, emphasizing safety in storage, transport, and operation.

- Performance of explosives is typically measured in terms of TNT equivalence, with higher values indicating greater lethality. The current most potent conventional explosive used in India, filling the Brahmos warhead, has a TNT equivalence of about 1.50.

Global Significance and Export Potential

- The performance of SEBEX 2, SITBEX 1 and SIMEX 4, has increased India's capability in military technology innovation, potential exporter of advanced explosive technologies and national defense capabilities.
- SEBEX 2 enhanced India's military technology landscape paving the way for strategic collaborations in global security.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Which of the following best describes SEBEX and SITBEX seen in news recently:

- India-Singapore bilateral military exercises
- India-Sri Lanka bilateral military exercises
- Explosives used by Indian Armed Forces
- Experimental rockets used by ISRO

Answer: (c)

CHINA IS BUILDING BUNKERS CLOSE TO PANGONG LAKE

Why in News: China's People's Liberation Army (PLA) recently reported to have constructed underground bunkers in the area around Pangong Lake in eastern Ladakh.

Key Details

- PLA recently reported to have constructed underground bunkers for storing weapons and fuel and hardened shelters for protecting armoured vehicles storage facilities and test ranges around Pangong Lake in eastern Ladakh.
- The base possesses several large buildings that serve as the headquarters. It has hardened shelters or covered parking for protecting armoured vehicles from air strikes using precision-guided munitions.
- These facilities are not visible on publicly available mapping applications.
- The base has been reportedly built in an area claimed by India and is located about 5 km from the Line of Actual Control (LAC).

Why does the PLA base matter?

- PLA's increased construction of underground facilities makes military sense.
- India does not have such underground shelters on its side at present and tunnelling is the only method of creating better defences.
- In the absence of underground shelters, weapons and stores are vulnerable to air strikes conducted with precision-guided munitions.
- Building such facilities did not require advanced technology, it only needs funding and civil engineering skills.
- If similar investments were not made on the Indian side, then the country would have to invest in additional air defence equipment.

India's response so far

- Since the standoff with China began in 2020, India has constructed a number of roads, bridges, tunnels, airfields, and helipads in its border areas to enhance logistics support and military mobility.
- During 2023-24, Border Roads Organisation completed 125 infrastructure projects, including the **Sela tunnel** in Arunachal Pradesh.
- The infrastructure development on the Indian side is focused on improving the living conditions for soldiers, along with protecting weapons and equipment in forward areas.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements regarding Pangong Lake:

1. It is the world's highest freshwater lake at 4350 m.
2. It is a transboundary lake, with one-third in China and two-thirds in India.
3. Over the years the region near the lake is witnessing heavy militarisation.

How many of the statements above is/are correct?

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

(Answer) (a) 3 (uo y)

Descriptive Question

Q. Discuss the border build-up situation along the LAC and Indian response to it since Galwan clashes of 2020. [10 Marks] [150 words]

FIRST INDIGENOUS ANTI-RADIATION MISSILE OF INDIA

Why in News: India has recently successfully test-fired its first indigenous anti-radiation missile, the Rudram-1, developed by the Defence Research and Development Organisation (DRDO) for the Indian Air Force (IAF).

About RUDRAM – 1 Missile

- It is the first indigenous anti-radiation missile of India for the Indian Air Force (IAF).
- IT can be integrated with the IAF's Sukhoi-30MKI fighter jets, serving as a potent platform for its deployment.
- **Features:**
 - INS-GPS navigation with Passive Homing Head to detect, classify and engage targets over a wide band of frequencies as programmed.
 - For Suppression of Enemy Air Defence (**SEAD**) operations by effectively neutralising enemy Radars, communication sites and other RF emitting target from extended ranges.
 - **Range:** It supports launch from varying altitudes (from 500 meters to 15 kilometers) and boasts a range of up to 250 kilometers, adapting seamlessly to varied combat scenarios.
- Compared globally, Rudram-1 enhances India's SEAD capabilities against adversaries like the US (AGM-88 HARM), Russia (Kh-58), UK (ALARM), China (FT-2000), Iran (Hormoz-2), and Brazil (MAR-1).
- RUDRAM – 1, strengthens India's defense against regional threats, showcasing its technological prowess and commitment to indigenous defense innovation.

RudraM-II

RudraM-II is an indigenously-developed solid-propelled air-launched missile system meant for Air-to-Surface role to neutralise many types of enemy assets.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Which of the following is the anti-radiation missile developed by DRDO?

- (a) Nag
- (b) Trishul
- (c) RudraM
- (d) S-400

Answer: (c)

UNMANNED AERIAL VEHICLE (UAV)

Why in News: NewSpace tested Drone with 25-kg payload at world's highest pass in Ladakh.

Key Details

- Bengaluru-based firm NewSpace has successfully tested a 100-kg Max Take Off Weight (MTOW) Unmanned Aerial Vehicle (UAV) at an altitude of 19,024 feet at Ladakh's Umling La pass, the highest motorable pass in the world.
- MTOW includes the weight of the drone and the payload.

Significance

- Operation:** It offers a great value for money to support autonomous drone operations towards civilian and military use cases.
- Support:** It will especially give a huge boost to support logistics carriage like medicines and small spares to army posts, disaster and rescue events and medical relief in the higher regions of J&K like Siachen Glacier, Uttarakhand, and the North Eastern states.
- Rescue and response:** The transshipments can be done at night too in emergency situations subject to weather and wind conditions.
- Financial Benefits:** It can also augment the Ministry of Defence's air maintenance sorties at high altitude, offering a huge reduction in cost per hour of manned flights in the region.

Umling La pass

- It is the highest paved road and mountain pass in the world.
- It connects Chisumle and Demchok from Leh.
- Mountain range: Ladakh Range

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Which of the following is the highest motorable road in the world:

- (a) Khardung La Pass
- (b) Mana Pass
- (c) Photi La Pass
- (d) Umling La Pass

Answer: (d)

SCHOLAR WARRIORS

Why in News: Air Chief Marshal VR Chaudhari recently highlighted the old military concept of "scholar warriors" in his speech at an event.

Key Details

- Warfare & Aerospace Strategy Program (WASP)**
 - Started in 2022 and conducted by the IAF with the College of Air Warfare and Centre for Air Power Studies, the WASP seeks to provide participants a deep understanding of geopolitics, grand strategy and comprehensive national power and to "nurture critical thinkers who can blend cross-domain knowledge to generate policy-driving ideas at the strategic level."
- At the Air Force capstone seminar, which was organised to mark the end of the third Warfare & Aerospace Strategy Program (WASP) course, the Indian Air Force Chief said that the 15-week long strategic programme has refined the definition of scholar warriors.

About Scholar Warrior

- A scholar warrior is a **military professional** who combines intellectual acumen with combat prowess in today's increasingly complex and dynamic security environment.
- The concept of scholar warrior is aimed at creating well-rounded military practitioners who possess academic knowledge and statecraft alongside their core war-fighting skills.
- The concept looks at promoting heavy strategic thinking in the military, while creating the best thinking minds adept academically, in statecraft, and in tactical and strategic know-hows of warfare.
- The aim is to create a body of officers with a wide-angled view of National Security, officers who by education and instinct think strategically.

Skills of Scholar Warriors

- Interdisciplinary expertise — both in subjects of other services as well as deep military knowledge in artificial intelligence, cyber and space operations and international relations.
- Scholar warriors are trained in warfare strategies, cutting-edge technologies, and strategic relations with other

nations. This equips them to decipher complex situations, think critically, anticipate threats, and formulate unique responses.

- The diverse skill set can be leveraged to enhance the military's operational capabilities and maintain an advantage over adversaries.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Which one of the following best describes "Scholar Warriors" recently seen in the news?

- A military professional who combines intellectual acumen with combat prowess.
- A scholar with military expertise and warfare knowledge.
- A soldier who solely focuses on academics and avoids military involvement.
- An ex-military professional dedicated to academia post retirement.

Answer: (a)

STRYKER ARMoured INFANTRY COMBAT VEHICLES

Why in News: The Indian Army is ready to initiate the trials of the US-made Stryker armoured infantry combat vehicles in both deserts and high-altitude Ladakh soon.

Key Details

- The Army is looking to procure new infantry combat vehicles (ICVs) to replace the Russian-origin BMP-2 vehicles in use with the mechanised infantry.
- One reason the Stryker is under consideration, according to sources, is that Indian vendors are unable to meet the qualitative requirements (QR).
- If the Stryker vehicle is finalised, its capabilities will have to be altered to suit high-altitude areas such as eastern Ladakh.
- The decision will be taken progressively after a "holistic analysis", which will include an evaluation of the technical capabilities such as mobility, terrain negotiation in various conditions, protection to troops as well as lethality parameters.

About Stryker armoured infantry combat vehicles

- The Stryker is a family of eight-wheel-drive combat armoured fighting vehicles (AFVs) jointly developed by General Dynamics Land Systems (GDLS) Canada and the General Dynamics Land Systems Division in the United States.
- It is one of the joint-production technologies to be pursued as part of the US-India Initiative on Critical and Emerging Technologies (iCET).
- **Drawback:** One of the big drawbacks of the Stryker is that it's not an amphibious vehicle.

Significance of Stryker for India

- The Stryker can formulate a quick response to insurgencies or war-like situations, moving much faster than tanks on paved roads, thereby getting infantry squads into the fight more swiftly. This capability is particularly valuable in urban warfare.
- The Strykers can be transported via Chinook helicopters, which the Indian Air Force uses. During the 2021 Yudh Abhyas exercise, an Indian Air Force Chinook demonstrated this capability.
- The potential deal around the Strykers is expected to significantly boost India's defence manufacturing industry under the 'Atmanirbhar Bharat' initiative.

Infantry Combat Vehicles

These are a type of armoured fighting vehicles used to carry infantry in the battle and provide direct-fire support.

Examples: Abhay IFV ; BMP-IIK

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements regarding Stryker infantry combat vehicles:

- These are amphibious eight-wheel-drive combat armoured fighting vehicles.
- They are developed jointly by US and India.

Which of the above statement(s) is/are correct?

- 1 only
- 2 only
- Both 1 and 2
- Neither 1 nor 2

Answer: (d)

SOCIAL ISSUES

MENTAL HEALTH

Why in News: The Economic Survey 2023-24 for the first time highlighted rising mental health issues in India.

Mental Health

- Mental well-being is intertwined with all aspects of health, viz. physical, social, and emotional, and can be described as a state of well-being in which a person is able to cope with the stresses of daily life, continue to be productive and contribute to the community.
- The Economic Survey 2023-24 emphasised the critical intersection of mental health with both health and economic outcomes.
- It has underscored that mental health issues can have broader impacts on productivity across society than physical health ailments.

Prevalence of Mental Health in India

- As per the National Mental Health Survey (NMHS) 2015-16, 10.6% adults in India suffered from mental disorders while treatment gap for mental disorders ranged between 70% and 92% for different disorders.

- The prevalence of mental morbidity was higher in urban metro regions (13.5%) as compared to rural areas (6.9%) and urban non-metro areas (4.3%).
- As per NCERT's Mental Health and Well-being of School Students Survey, there is an increasing prevalence of poor mental health among adolescents exacerbated by the COVID-19 pandemic, with 11% of students reported as feeling anxious, 14% as feeling extreme emotion and 43% experiencing mood swings.

Mental Health Issues through the lens of Economics

- Economic Survey points out that at an aggregate economic level, mental health disorders are associated with significant productivity losses due to absenteeism, decreased productivity, disability and increased healthcare costs.
- There is also evidence of poverty affecting the risk of mental health via stressful living conditions, financial instability, and a lack of opportunities for upward mobility, which contribute to heightened psychological distress.

Mental Health Initiatives in India

Programme / Initiative	Details
National Mental Health Programme	Under the District Mental Health Programme of this scheme, more than 1.73 lakh Sub Health Centres, Primary Health Centres, Urban PHCs and Urban Health and Wellness Centres were upgraded to Ayushman Arogya Mandirs providing mental health services.
National Tele Mental Health Programme	With over 1600 trained counsellors in over 20 languages, 53 Tele MANAS (Mental Health and Normalcy Augmentation System) cells were set up in 34 states/UTs and more than 8.07 lakh calls handled since Oct 2022, as of 31 March 2024.
Increasing mental health personnel	25 Centres of Excellence were sanctioned to increase PG students' intake, support provided to 19 Government medical colleges/institutions to strengthen 47 PG Departments, mental health services provisioned for 22 AIIMS, and three Digital Academies providing online training courses to general healthcare medical and paramedical professionals.
Rashtriya Kishor Swasthya Karyakram	Adolescent Friendly Health Clinics (AFHC) and Peer education programmes were conducted across the country.

Policy Recommendations on Mental Health

The Economic Survey stresses on proper implementation to accelerate the improvements made in mental healthcare on the ground and address gaps in the existing programmes to maximise their effectiveness.

Important policy recommendations include:

- Redoubling efforts to **increase the number of psychiatrists**, from 0.75 psychiatrists per lakh population in 2021 to the WHO norm of 3 per lakh population.
- **Developing comprehensive guidelines** for the

excellence centres' services alongside mental healthcare professionals and users to understand their needs.

- Assessing the effectiveness of the programmes by gathering feedback from the users, professionals, and stakeholders to make necessary changes and meet the needs of a wider population.
- **Nurturing peer support networks, self-help groups, and community-based rehabilitation programmes** can help de-stigmatization of mental disorders and develop a sense of belonging.
- Partnering with NGOs to scale up efforts, share knowledge, and leverage resources to enhance future policies, to aid in identifying areas of improvement.
- Involving individuals with personal experience with mental health problems in decision-making, service planning, and advocacy efforts can increase the person-centricity and recovery orientation of mental healthcare services
- **Sensitization of mental health at the preschool, Anganwadi level** to provide precious early identification of disorders.
- **Standardisation of guidelines** for mental-health services across government and private sector
- Effective pathways for **integrating mental health interventions in schools** including developing an age-appropriate mental health curriculum for teachers and students, encouraging early intervention and positive language in schools, promoting community-level interactions, and balancing the role of technology.
- **A bottom-up, whole-of-community approach** in addressing the topic of mental health and breaking the stigma.
- **For public health officials**, tackling mental health by acknowledging and addressing the fundamental reluctance at personal level.

Conclusion

The Economic Survey has stressed the need to combat stigma by normalizing conversations about mental health and promoting acceptance and treatment-seeking behaviours akin to physical ailments. It has noticed that the government is also working at standardising guidelines for mental health services across the government and private sectors, and bringing effective pathways for integrating mental health interventions in schools, including developing an age appropriate mental health curriculum for teachers and students, promoting community-level interactions, and balancing the role of technology.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following initiatives:

1. Rashtriya Kishor Swasthya Karyakram

2. Ayushman Bharat School Health & Wellness Programme
3. Manodarpan

How many of the above initiatives have a bearing on mental health?

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

(c) :Answer

Descriptive Question

Q. What are the economic impacts of rising mental health issues in India? Suggest policy recommendations to enhance the mental health of citizens and society. [10 Marks] [150 Words]

DRUG CONTROL IN INDIA

Why in News: Union Home Minister recently launched the MANAS (Madak Padarth Nishedh Asuchna Kendra) Portal .

Key Details

- The MANAS (Madak Padarth Nishedh Asuchna Kendra) Portal was launched at the 7th Apex-level meeting of the Narco-Coordination Center (NCORD).
 - The meeting was aimed to co-ordinate and synergizes the efforts of various central and state government agencies involved in countering drug trafficking and abuse in India.
 - Through the 'MANAS' portal and helpline, citizens can share information on drug trafficking, and connect with the Narcotics Control Bureau anonymously 24 hours a day to get advice on de-addiction and rehabilitation.
- A toll-free number 1933 was also launched to seek advice on de-addiction and rehabilitation and share information on drug trafficking.
- Moreover, Union Home Minister had announced the constitution of the Narcotics Control Bureau (NCB) Zonal office at Srinagar in Jammu and Kashmir on curbing drug trafficking through the northwestern border of India.

Narco-Coordination Center (NCORD)

- The NCORD mechanism was formed in 2016 for better coordination between states and the Ministry of Home Affairs.
- It has been further strengthened through a four-tier system in 2019.
 - It has an Apex Level NCORD Committee, which is headed by Union Home Secretary
 - Executive Level NCORD Committee, which is headed by Special Secretary, Ministry of Home Affairs

- State Level NCORD Committees, headed by Chief Secretaries
- District Level NCORD Committees, headed by District Magistrates

3 points strategy by Ministry of Home Affairs to achieve drug-free India by 2047

- Strengthening of institutional structure
- Coordination among all narco agencies
- Extensive public awareness campaign

Drug Addiction and Concerns

- Drug Addiction is emerging to be a serious concern in the country, especially in the younger generation leading to dangerous consequences not just for the person using drugs, but on the family and society at large.
- Drug abuse has resulted in an increase in crime rate and had an overall detrimental impact on society.
- Prevention has proven to be the most effective strategy to counter this problem.

Drug Business: Concern and Control

- The entire drug business is now linked with narco-terror, and the money generated from the drug trade has become the most serious threat to the country's security.
- There should be a ruthless approach towards the drug supply chain, a strategic approach towards demand reduction, and a human approach to harm reduction.

Nasha Mukh Bharat Abhiyaan

- To tackle the issue of Substance Abuse and a vision to make India Drug Free, Nasha Mukh Bharat Abhiyaan (NMBA) was launched on 15th August 2020, in 272 Districts identified as most vulnerable in terms of usage of drugs in the country.
- These vulnerable districts were identified on the basis of findings from the Comprehensive National Survey and the inputs provided by the Narcotics Control Bureau (NCB).
- **Objectives:** Nasha Mukh Bharat Abhiyaan intends to reach out to the masses and spread awareness about substance abuse through various activities like:
 - Awareness generation programmes
 - Focus on higher educational Institutions, university campuses and schools
 - Reaching out to the Community and identifying dependent population
 - Focus on counselling and treatment facilities in hospitals and rehabilitation centres that have been geo-tagged
 - Capacity building programmes for service providers

- Nasha Mukh Bharat Campaign is a **three-pronged approach**
 - Supply curb by Narcotics Control Bureau
 - Outreach, Awareness and Demand Reduction effort by Social Justice and Empowerment and
 - Treatment through the Health Department.
- **Implementation Structure**
 - The identified districts will take the lead in the implementation of the Nasha Mukh Bharat Abhiyaan through the **District Level Nasha Mukh Committees** constituted specially for the Abhiyaan. These committees will be headed by the District Collector/ Magistrate.
 - **State Level Abhiyaan Committees** will monitor the Abhiyaan activities of all the selected districts in their state. The committee is chaired by the Principal/ Chief Secretary of the department implementing drug prevention programmes in the state.
 - The Abhiyaan will be monitored at the **central level** by the **Ministry of Social Justice & Empowerment** through the multiple mechanisms that have been set in place and also through the State Coordinators of the Project Monitoring Unit.
 - NCB along with BISAG-N has developed a web portal and mobile app "MAPDRUGS" to curb illegal cultivation and provide accurate GIS information so that such illicit cultivation can be destroyed by the concerned agencies.

Constitutional Provision related to Drugs Control in India

- The National Policy on Narcotic Drugs and Psychotropic Substances is based on the **Directive Principles**, contained in **Article 47** of the Indian Constitution, which direct the State to endeavour to bring about prohibition of the consumption, except for medicinal purposes, of intoxicating drugs injurious to health.

International Conventions

- India is a signatory to the single **Convention on Narcotic Drugs 1961**, as amended by the 1972 Protocol, the **Conventions on Psychotropic Substances, 1971** and the United Nations Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances, 1988.

Legislations in India

- The broad legislative policy is contained in the three Central Acts
 - Drugs and Cosmetics Act, 1940
 - The Narcotic Drugs and Psychotropic Substances Act, 1985
 - The Prevention of Illicit Traffic in Narcotic Drugs and Psychotropic Substances Act, 1988.

The responsibility of drug abuse control, which is a central function, is carried out through a number of Ministries, Departments and Organisations.

Narcotics Control Bureau (NCB)

- It is the nodal agency on the matter of drug law enforcement in India.
- The **Narcotic Drugs and Psychotropic Substances Act, 1985** which came into effect from the 14th November, 1985 made an express provision for constituting a Central Authority for the purpose of exercising the powers and functions of the Central Government under the Act.
- In presence of this provision, the Government of India constituted the NARCOTICS CONTROL BUREAU on the 17th of March, 1986.
- It functions under the Ministry of Home Affairs.
- NCB now has 30 zonal offices and 7 regional offices.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements regarding Narcotics Control Bureau (NCB):

1. It was constituted in 1986 under the provisions of Drugs and Cosmetics Act, 1940.
2. It functions under the aegis of the Ministry of Home Affairs.

Which of the statements above is/are correct?

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

(b) : Answer

Descriptive Question

Q. Discuss the strategy of Government of India to achieve the vision of *Nasha Mukh Bharat*. [15 Marks]
[250 Words]

KARNATAKA GIG WORKERS (SOCIAL SECURITY AND WELFARE) BILL 2024

Why in News: Recently, the **Karnataka Platform-based Gig Workers (Social Security and Welfare) Draft Bill, 2024** was introduced to provide social security for platform-based gig workers in the State of Karnataka.

Key features of the Bill

- **Legal Right against arbitrary removal:** It provides legal right to gig workers against arbitrary removal except on the ground mentioned in the contract between aggregator and the workers.
 - Also, the aggregator must provide a 14-day notice period before removing the gig worker, giving valid reasons in writing.

- **Grievance redressal mechanisms:** If workers face any issue, the bill provides for human grievance redress mechanisms under the Industrial Disputes Act of 1947.
- **Transparency in payment method:** The Bill tries to bring more transparency into the opaque tangle of automated monitoring and algorithm-based payments.
- **Welfare Board:** It also provides social security for which there is provision for the establishment of a welfare board and fund.
 - The fund will get contributions from the government and the aggregator, either through a cut from every transaction on the app, or as a percentage of the platform's turnover in the State.
- **Timely Payment:** The bill also ensures that workers get payments at least every week and aggregators have to inform the worker about the reasons for payment deductions if any.
 - It has also introduces provisions that mandate fair contracts, income security and the right of platform workers to refuse work without being slapped with sanctions.
 - The bill also has provision that a worker has the right to refuse a specified number of gigs per week with 'reasonable cause' without any adverse consequences.
- **Safe working conditions:** The Bill also provides "reasonable and safe working conditions" for workers.
- **Right to terminate contracts:** Gig workers also have the right to terminate contracts at any time without jeopardizing their existing entitlements.
- **Penalty for violation:** If any aggregators were found violating the conditions mentioned in the bill, the government can impose a penalty of Rs 5,000 extendable up to Rs 1 lakh.

Who are Gig Workers?

The Bill defines a gig worker as "a person who performs a work or participates in a work arrangement that results in a given rate of payment, based on terms and conditions laid down in such a contract and includes all piece-rate work, and whose work is sourced through a platform, in the services specified in Schedule-1."

India's Gig Workforce

According to a Nasscom report, India's gig workforce is projected to reach 23.5 million by 2030 -- up from 7 million in 2021. This means gig workers will constitute 4.1% of the total workforce in India by the 2029-30 financial year, compared to 1.5% in the 2021-22 fiscal year.

Key Issues

- **Excessive Regulatory Powers May Stifle Growth of Nascent Gig and Start-Up Economy:** The Bill provides the State government with wide ranging powers of inspection including algorithms, contracts, and day-to-

day operations of platforms. Gig and start-up economy in a nascent stage and compliance burden will hamper its future growth.

- **Harsh Penalty:** In case of offense, Bill proposes for the personal liability of directors and employees which they found quite harsh.
- **High Welfare Fees Risk Burdening Customers and Gig Workers:** The potential financial burden of a high welfare fee on platforms can be counterproductive as platforms try to pass this burden on customers or the gig workers.
- **Low wages and long working hours:** There are many studies that have proven that gig workers have to face low wages and long working hours, which was not addressed by the bill.
- **Lack of Guaranteed Welfare Schemes for Workers:** Bill also lacks the welfare schemes guaranteed as an entitlement for the workers from the funds collected under it. For example, the failures of the implementation of welfare schemes under the Building and Other Construction Workers Act, despite the collection of massive corpus through cess.
- **Bill Fails to Provide Institutional Social Security Benefits:** It does not replace institutional social security benefits such as provident fund, gratuity, or maternity benefits, which regular workers are legally entitled to.
- **Bill Overlooks Basic Facilities for Gig Workers:** Gig workers lack basic facilities such as drinking water, toilets etc. and have to depend on the public facilities which are not sufficient and accessible all the time. Bill also does not address the issue.
- **Bill Fails to Ensure Collective Bargaining and Freedom of Association:** A major flaw in the bill is that it does not establish a system for collective bargaining or enforce the right to freedom of association.
- **Bill Neglects Employment Relationship, Weakening Worker Protections:** It also fails to address the employment relationship in the gig economy. This oversight confuses employment relations and absolves employers of legal obligations, making it difficult to fully protect workers' rights.

Note: In 2023, Rajasthan became the first government to bring legislation for the social security of gig workers but not yet implemented.

Conclusion

According to a NITI Aayog report, India had 77 lakh gig workers at the beginning of the decade, and by 2029-30, they are projected to account for 4.1% of income, and 6.7% of the non-agricultural workforce. Therefore, at the national level, comprehensive legislation is needed not just to set minimum wages, reasonable working hours and conditions and robust social security but also to provide gig workers with the coveted status of 'employees'.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q: Which of the following statements is / are correct about the Karnataka Platform-based Gig Workers (Social Security and Welfare) Bill, 2024?

1. The Bill mandates a 14-day notice period with valid reasons before the removal of a gig worker.
2. It provides a legal right for gig workers to terminate contracts at any time without risking existing entitlements.
3. The Bill introduces collective bargaining rights for gig workers.

(a) 1 and 2 only

(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2, and 3

Answer: (a) 1 and 2 only

Descriptive Question

Q: Discuss the main provisions and key issues of the Karnataka Platform-based Gig Workers (Social Security and Welfare) Bill, 2024. How does the Bill aim to protect gig workers, and what are the potential challenges in its implementation? [15 Marks] [250 Words]

CASE STUDY- THE HUMANITARIAN CRISIS IN MYANMAR

Why in News: The conflict between ethnic armed organisations (EAOs) and the military junta in Myanmar has created a serious humanitarian crisis, which the United Nations Security Council took up for discussion on 03 July 2024.

Background

- In February 2021, the Myanmar military had a coup and overthrew the elected civilian government. So far, the military has murdered more than 5,000 people and displaced some 2.5 million people.
- India's traditional policy towards Myanmar has two components: to develop good cordial relations with the military junta and second, to keep supporting democratic forces and ensure the strengthening of democracy.

Current Scenario

- The military in Myanmar now holds all political and administrative authority in the nation.
- There is also a resistance force that comprises the ethnic armed groups (EAOs), and the PDF (People's Defence Force) is fighting against them in a coordinated manner.
- The situation in Myanmar has become difficult. About

half of country it is still under military rule and control, but the other half is considerably fragmented. This resistance force has been able to hold at least 45% of the territory in Myanmar.

- The Rohingya crisis in Rakhine State remains unresolved, and clashes between the military and ethnic rebels have intensified in different regions.
- Some experts on Myanmar have called for India to review its policy and must explore various options for a peaceful resolution to the crisis and provide humanitarian assistance to displaced people and establish channels with the EAOs to help the affected civilians.

Why India needs to Review Its Policy?

- **Influx of refugees:** The innocent civilian population bears a terrible price as a result of the confrontation between the military junta and EAOs. They are running for their life and India is paying the ultimate price as they are taking refuge into India.
 - Myanmar's ongoing crisis is significantly impacting India's northeastern border regions. Over 54,100 Myanmar nationals have sought refuge in the Indian states of Arunachal Pradesh, Mizoram, Manipur, and Nagaland, straining resources and posing security challenges for India.
- **Geo-political Concern:** China is supporting EAOs and has good relations with the Military Junta. Also, China is actively engaging and mediating in the crisis and has economic interests. India needs to counterbalance China's influence.
- **EAOs control 45% of territory:** Resistance groups have taken control of all the trading routes that fall on the India-Myanmar, Myanmar-China, and Thailand-Myanmar border. This makes them important stakeholders in the ongoing crisis and India should engage with them too.
- **Military, Political & Diplomatic stalemate:** After the coup, the military is not able to convince their citizens and citizens continuously rebelled against them. This leads to Myanmar being stuck in a serious military, political, and diplomatic crisis.
- **Myanmar role in 'Act East Policy':** Myanmar is important to India both strategically and economically because of its geographical position. The nation is essential to India's ambitions to use its Act East Policy (AEP) to expand its influence in Southeast Asia, particularly among the members of the Association of Southeast Asian Nations (ASEAN).

Way Forward

- **Humanitarian Assistance:** Currently many people in Myanmar can't even avail basic amenities like food, sanitary napkins, medical facilities etc. Since India is directly affected by this and India can help in the most non-controversial way by providing humanitarian assistance.
 - India's approach should prioritise humanitarian

assistance and support for displaced people as well as showcasing its commitment to regional stability. Providing aid and service to those affected by the crisis will alleviate suffering and demonstrate India's solidarity with the people of Myanmar.

- **Engage with all stakeholders:** India should increase the area for interaction with other stakeholders such as the Chin National Army, Arakan Army and the NUG as they are becoming more dominant while maintaining a friendly relationship with the military regime. It must also refrain from meddling in internal matters in Myanmar. India can only safeguard its interests as a nation then.
 - India should use its influence to open channels of dialogue with and between the junta and the opposition, including armed ethnic groups.
- **Ensure Stability:** Such a crisis can lead to Balkanisation of State which will neither favour India nor Myanmar. India needs to engage with other countries and try to espouse for International cooperation. There is news that the Kuki group is trying to make a separate Kuki state which will impact India's north-eastern part.
- **Safeguarding India's Economic Interest:** India-Myanmar-Thailand trilateral highway project which is already 70% completed and Sittwe Port project is a really important for regional connectivity and economic cooperation. India needs to diversify its economic partnership as it will provide more stability as we have a huge trade deficit with China.

Conclusion

With the ground situation in Myanmar evolving rapidly, India's efforts hold immense significance in fostering regional peace and cooperation as well as preserving Indian interests in a country which is critical for India's own internal security in the northeast. India must strike a balance between protecting its own interests and demonstrating to the rest of the world that it genuinely adheres to the "Vasudev Kutumbakam" philosophy by helping the defenseless civilians who are suffering the most as a result of the current situation.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following countries:

- | | |
|----------|---------------|
| 1. India | 2. Bangladesh |
| 3. Laos | 4. Thailand |

How many of the above countries share land border with Myanmar?

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

(d) Answer

Descriptive Question

Q: In the light of ongoing humanitarian crises in Myanmar, does India need to review its traditional approach towards Myanmar? Discuss. [15 Marks] [250 Words]

CASE STUDY - MATERNAL HEALTHCARE FOR THE TRIBAL POPULATION IN GUJARAT

Why in News: An article - 'Timely Access to Public Health Facilities for Pregnancy Care in Tribal Gujarat: A Geospatial Analysis' recently published in Economic & Political Weekly, look at how geographical location and factors such as time and distance determine access to health facilities for communities in the periphery of society.

Key Details

- 'Timely Access to Public Health Facilities for Pregnancy Care in Tribal Gujarat: A Geospatial Analysis' examines access to maternal healthcare facilities from a geospatial perspective.
 - Timely access to healthcare during pregnancy is necessary to ensure a healthy delivery, to prevent maternal and infant mortality, and to provide proper care for both mother and infant after birth.
 - While many healthcare facilities may exist within a State, it is crucial to assess whether these facilities are concentrated in specific regions or distributed equitably across all areas, ensuring accessibility to all people, particularly those on the social and spatial peripheries of society.
 - Thus, an analysis that considers both temporal and spatial aspects of healthcare, rather than solely focusing on population and socio-economic factors, becomes crucial.

Methodology

- The study focuses on Gujarat's tribal population, constituting 14.8% of the total population, scattered across 14 districts.
- The study used GIS data, data from the National Family Health Survey and geocoded health facilities spread across districts with higher concentrations of tribal population including Dahod, Banaskantha, Sabarkantha, Aravalli, Mahisagar, Bharuch, Surat, Tapi, Dang, Navsari, Valsad, Panchmahal, Chhota Udaipur, and Narmada.

Key Findings

- UN report in May 2023 highlighted that India accounted for over 17% of global maternal deaths in 2020, holding the highest share among the 10 countries responsible for 60% of global maternal deaths, stillbirths, and newborn deaths.
 - The report emphasised the critical need to focus on maternal healthcare to achieve the Sustainable

Development Goals (SDGs) aimed at improving maternal and child health outcomes and ensuring access to quality healthcare services (UNDP 2017).

- The paper reveals that the average coverage of pregnancy care in Gujarat's tribal districts is 88%. About 80% of women receive antenatal care (ANC), while 90% give birth at healthcare facilities, and 92% receive postnatal care (PNC) for themselves and their infants.
- Moreover, it showed that the worst-performing districts are in the north near Rajasthan and northwest near Madhya Pradesh, while the best-performing districts are in the south near Maharashtra.
- This spatial analysis highlights distinct pregnancy care patterns within these tribal districts, pinpointing the geographical epicentre of the issue which can guide targeted interventions.
- The analysis shows that over 50% of households reside more than 25 km away from tertiary care facilities while about 30% of households live away from community healthcare centres and primary healthcare centres. Such geographical constraints further limit women's access to health facilities even during pregnancy-related emergencies.

Conclusion:

Looking at the tribal districts in Gujarat, where the population faces high levels of poverty, malnutrition, and inadequate healthcare access, the study highlights a broader national issue: the challenge of healthcare inaccessibility for disadvantaged communities due to geographical constraints, including issues of time, distance, and limited transportation options in the peripheral areas of a region.

EXPECTED QUESTION FOR UPSC CSE**Descriptive Question**

Q. A robust maternal healthcare system leads to healthy population and increases growth & development aspects of a country. Comment. [10 Marks] [150 Words]

MAINTENANCE RIGHTS OF MUSLIM WOMEN

Why in News: The Supreme Court of India in a recent judgment upheld that the enactment of the Muslim Women Act 1986 does not deprive a divorced Muslim woman's rights under the beneficial provision of Section 125 of the CrPC.

Background

- Under section 125 the deserted wife was awarded Rs 20,000 monthly maintenance by the family court of Telangana.
- According to Muslim Women Act (MWA) 1986 the husband divorced the deserted wife after the divorce she was not entitled to claim maintenance.

- Further the Telangana High Court reduced the Maintenance to Rs 10,000.

About the judgment

- On July 10, the bench of Justices B V Nagarathna and Augustine George Masih of the Supreme Court of India in case Mohd Abdul Samad vs State of Telangana upheld that the Muslim wife's right to claim maintenance under Section 125 of the CrPC is a socially beneficial provision in addition to the rights mentioned under the Muslim Women Act 1986.
- The apex court ruled that the Shah Bano case in 1985 (Mohd Ahmed Khan vs Shah Bano Begum), which was followed by the enactment of the Muslim Women (Protection of Rights on Divorce) Act of 1986 (MWA) had created a new right for the divorced Muslim woman to claim maintenance during the iddat period as well as a fair and reasonable provision for the future.
- Further, the rights of maintenance are justiciable under the fundamental rights conferred through Articles 14, 15, and 21 of the Constitution of India.

Iddat period:

The concept of Iddat is very significant in Islamic Law. Under Muslim law, it is that period during which a woman is prohibited from remarrying after the dissolution of her marriage and is required to live a simple life.

Earlier judgment

- **Danial Latifi and Another v. Union of India(2001):** Examined the constitutional validity of the Muslim Women (Protection of Rights on Divorce) Act of 1986.
 - **A five-judge Constitution Bench** of the Supreme Court, while holding that the Act is constitutionally valid, provided an innovative interpretation of Section 3(a) to secure the rights of divorced Muslim women.
 - ◆ It held that the former husband is required to pay maintenance for the three months of the iddat period and, in addition, also provide a fair and reasonable provision for her entire life, within the iddat period.

Conclusion:

Justice V R Krishna Iyer in **Fuzlunbi v. K Khader Vali and Another (1980)**, had categorically observed that the enactment of Section 125 charges the court with a deliberate secular design to enforce maintenance or its equivalent against the humane obligation, which is derived from the state's responsibility for social welfare. It is not confined to members of one religion or region, but the whole community of womanhood.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

- Q. Which of the following are correct regarding- recent, SC judgment on the muslim women's right to maintenance
- (a) The judgment was delivered by Constitution bench of SC
 - (b) The judgment was delivered by Division bench of SC
 - (c) The judgment was delivered by Single bench of SC
 - (d) The judgment was delivered by Constitutional bench of HC

Answer: (b)

SIERRA LEONE BANS CHILD MARRIAGE

Why in News: Sierra Leone recently passed a new legislation allowing child brides to annul their marriages and be financially compensated.

Provisions of the Law



- The president of the West African country of Sierra Leone recently signed a law that banned marriage for children ages 18 and younger, and would impose steep fines on adult spouses.
- The new legislation goes further than many other similar laws in Africa, by penalising people who enable the marriage — like the parents, the officiant and even the wedding guests — in addition to the husband.

- Under the new law, those married as children can seek financial compensation. They also have a path out of their marriages.
- In 2020 there were about 800,000 girls younger than 18 who were married in Sierra Leone, according to UNICEF. Moreover, according to Human Rights Watch, half had been married by the time they turned 15. About 4% of boys are wedded by 18.
- According to the United Nations, every year, at least 12 million girls younger than 18 marry. More than 650 million girls and women were married as children.
- South Asia has the largest number of child brides, about 290 million people, or 45% of the global total. Sub-Saharan Africa follows with about 127 million people, or 20%.
- Many face additional complications from another widespread cultural practice in the country: female genital cutting.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Which Countries Border Sierra Leone?

- (a) Guinea and Liberia.
- (b) Guinea and Cote D Ivoire
- (c) Liberia and Cote D Ivoire
- (d) Gambia and Liberia.

Answer: (a)

Challenges with early child marriage

- Child marriage often leads to girls leaving school.
- Pregnancies at a young age can cause long-term injuries and trauma.



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ABHAYA MUDRA

Why in News: Recently, Leader of Opposition in Lok Sabha invoked abhaya mudra in his speech in Parliament.

Key Details

Abhaya mudra is a gesture of the raised open palm that is commonly understood as conveying reassurance and a freedom from fear.

- **Mudras:** Mudras are hand gestures that are used in Indian dance, yoga, and meditation practices to convey certain meanings and emotions.
 - They are believed to facilitate the flow of prana or vital energy in the body and can have therapeutic benefits.
 - Five esoteric mudras for the representations of the Buddha- DharmaChakra Mudra, Bhumisparsha Mudra, Varada Mudra, Dhyana Mudra and Abhay Mudra.
- **Abhay Mudra:** It is a hand gesture commonly depicted in Buddhist and Hindu iconography, representing the “gesture of fearlessness”.
 - It is typically formed with the palm of the right hand facing outward at shoulder height, with the fingers pointing upwards.
 - Origin: It is associated with the Lord Buddha immediately after he attained enlightenment, portraying a sense of the security, serenity, and compassion that derive from enlightenment”.
 - ◆ The mudra represents the moment when the Buddha tamed a mad elephant, illustrating his ability to grant fearlessness to his followers.

Other Mudras in Buddhism

- **DharmaChakra Mudra:** In this the hands are held in front of the chest with the thumb and index finger of each hand forming a circle. The remaining three fingers of the hand are extended upwards, representing the Three Jewels of Buddhism: the Buddha, the Dharma (his teachings), and the Sangha (the community of practitioners). The circle made by the thumb and index finger represents the wheel of the Dharma.
 - It symbolises the pivotal moment when Buddha preached his first sermon after enlightenment, signifying the initiation of teaching the Dharma.

- This mudra represents the constant cycle of birth, death, and rebirth, and the Buddha’s teachings as the means to break free from this cycle.
- **Bhumisparsha Mudra:** This mudra involves touching the ground with the fingertips of the right hand, while the left hand rests on the lap.
 - It represents the moment of the Buddha’s enlightenment, and the gesture symbolises the earth witnessing his attainment of enlightenment.
 - It is in this posture that Shakyamuni overcomes the obstructions of Mara while meditating on truth.
- **Varada Mudra:** In this mudra, the right hand is extended downwards, with the palm facing outwards.
 - The 5 extended fingers in this mudra symbolise the five perfections: generosity, morality, patience, effort, and meditative concentration.
- **Dhyana Mudra:** In this mudra, the hands are placed on the lap, with the right hand on top of the left, and the thumbs touching held at a level above the stomach or thighs.
 - This mudra symbolises meditation, concentration, and inner peace.
- **Anjali Mudra:** This is the most common mudra used in Buddhism, and it involves pressing the palms together in front of the chest, with the fingers pointing upwards.
 - It represents respect, greeting, and gratitude.
 - It is a hand gesture, very similar to Namaskara or Namaste.

EXPECTED QUESTIONS FOR UPSC CSE**Prelims MCQ**

- Q. Lord Buddha’s image is sometimes shown with the hand gesture called ‘Bhumisparsha Mudra’. It symbolizes.
- (a) Buddha’s calling of the Earth to watch over Mara and to prevent Mara from disturbing his meditation.
 - (b) Buddha’s calling of the Earth to witness his purity and chastity despite the temptations of Mara.
 - (c) Buddha’s reminder to his followers that they all arise from the Earth and finally dissolve into the Earth, and thus this life is transitory.

- (d) Both the statements (a) and (b) are correct in this context.

(b) :Answer

Descriptive Question

Q. Explain different forms of Mudras in Buddhism ?
[10 marks] [150 words]

THE KHANDAGIRI AND UDAYAGIRI CAVES

Why in News: President Droupadi Murmu recently visited Udayagiri and Khandagiri Caves and interacted with the students of Bibhuti Kanungo College of Art and Crafts and Utkal University of Culture.

Key Details

On the same day, President Droupadi Murmu inaugurated the Divine Retreat Centre of Brahma Kumaris at Haridamada village near Bhubaneswar and launched the 'Lifestyle for Sustainability' campaign.

About the Udayagiri Cave

Udayagiri caves are famous for the Hathigumpha inscription which is carved out in Brahmi script. The inscription starts with 'Jain Namokar Mantra' and highlights various military campaigns undertaken by Kharavela, a great monarch of Kalinga, the ancient name of Odisha.

- The caves which is located 7KM from Bhubaneswar, was built around the 2nd century BC by King Kharavela of the Meghavahana dynasty.
- These ancient rock cut caves were first discovered by a young British Officer Andrew Sterling in the 19th century AD.
- The caves built on the **Kumari mountain range** were built for the Jain monks and offered them a place to stay and meditate.
- Out of the one hundred and seventeen caves that were built originally only thirty-three survive till this day.
- Eighteen caves are located in the Udayagiri hill and fifteen in the Khandagiri hill.
- The Archeological Survey of India (ASI) is in charge of the Udaygiri caves and it's a ticketed monument.
- The major attractions of the Udaygiri caves are
 - **Hathigumpha** : or the elephant cave as it is known, bears the inscriptions of King Kharavela. The seventeen lines mentions about his many conquests and his way of governance.
 - **The Rani Gumpha** : or the Queen cave ; is a double storeyed structure with beautiful carvings. Exquisite carvings apart, the cave is known for its acoustic characteristics.

- **The Ganesh Gumpha** : the Ganesha Cave known for its carvings of Jain tirthankars and other sculptures. The carving of Lord Ganesha and two elephants were added much later.
- **The Vyaghra Gumpha** : or the Tiger cave is so called because the entrance is shaped like the head of the tiger and the door shaped like a tiger's throat.

About the Khandagiri Cave

- **Barabhuji Gumpha** features the twelve armed Sasana Devi's facing each other along with Tirthankar sculptures.
- **Trushula Gumpha** – One can find the twenty-four Jain Teerthankar's carved on the walls of the cave. The sculpture of Tirthankar Rishab Dev stands out.
- **Ambika Gumpha** - The Yaksha and Yakshini of each Tirthankar is carved on the walls of the cave.
 - The most extraordinary achievement of these beautifully carved caves is that each cave and sculpture was painstakingly carved by hand using basic tools.
 - One of the most poignant sections of carving is the depiction of the Kalinga War, where women and teenagers are depicted fighting to save their motherland from Ashoka's army.
 - The caves served as residences for the Jain monks and were equipped with a water source in the form of a small canal which passes through every cave, an ingenious communication system through holes, a place to light the lamps and the tilted flooring which served as a head rest. Many of the caves are double storeyed and it is believed that the upper chambers of the caves were used for deep meditation.

EXPECTED QUESTION FOR UPSC CSE

Descriptive Question

Q. "Discuss the significance of Hathigumpha" Why Udayagiri is protected by ASI but not Khandagiri. [10 marks] [150 words]

THE 46TH WORLD HERITAGE COMMITTEE

Why in News: India and the US signed their first ever 'Cultural Property Agreement' on the sidelines of the 46th World Heritage Committee being hosted by India at Bharat Mandapam in New Delhi.

Key Details

- The agreement was signed to prevent and curb the illicit trafficking of antiquities from India to the US.
- A large number of antiquities have been smuggled out of India before the ratification of 1970 UNESCO Convention.
- Which are now housed in various museums, institutions and private collections across the world.

About Cultural Property Agreement (CPA)

- The Cultural Property Agreement (CPA) is aligned with the 1970 UNESCO Convention on the “Means of Prohibiting and Preventing the Illicit Import, Export and Transfer of Ownership of Cultural Property, to which both countries are parties.”.
- The illicit trafficking of cultural property is a longstanding issue that has affected many cultures and countries throughout history.
- Speaking on the occasion, Union Cultural minister of India Shekhawat said that the CPA is a step towards securing India’s rich and diverse cultural heritage and invaluable artifacts of our grand history.
- The preservation and protection of the Indian artifacts and cultural heritage has emerged as an integral component of India’s foreign policy over the last decade.”
- India has repatriated 358 antiquities since 1976; out of these, 345 have been retrieved since 2014, mostly from the US.
- In 2023, the US had offered 1,440 artifacts in possession of its museums or authorities for repatriation, and a team of experts from the Archaeological Survey of India (ASI) had visited to examine their antiquarian value.
- The team found around 300 artifacts eligible under the “antique” category.

- The agreement would mean that the repatriation would be “faster and smoother.” While it is not clear where these repatriated artifacts will be situated once returned.
- With this agreement, India joins the ranks of 29 existing US bilateral cultural property agreement partners. The US has 28 active bilateral cultural property agreements including with Afghanistan, China, Cambodia, Egypt, Greece, Italy, Jordan and Turkey.

EXPECTED QUESTIONS OR UPSC CSE

Prelims MCQ

Q. Which among the following are the principles of 1970 UNESCO Convention:

1. The 1970 Convention gives a central role to prevention.
2. One of the guidelines of the 1970 Convention is the strengthening of international cooperation between States Parties.
3. Articles 8 and 13 of the 1970 convention provide the provisions for restitution.

Choose the correct option:

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

Answer: (c)

GOVERNMENT SCHEMES

KHELO INDIA RISING TALENT IDENTIFICATION (KIRTI) PROGRAM

Why in News: The Union Minister for Youth Affairs & Sports and Labour & Employment, recently inaugurated the Phase 2 of Khelo India Rising Talent Identification (KIRTI) program to create a pool of talent capable of winning medals at global competitions like the Olympics and Asian Games.

About KIRTI (Khelo India Rising Talent Identification)

- KIRTI has been envisioned to develop an integrated talent identification architecture using IT and AI-based data analytics.
- The KIRTI project is based on an athlete-centric approach wherein at every step the process of Talent Identification has been made more broad-based and accessible.
- The twin objectives of the Khelo India Scheme are excellence in sports, and mass participation in sports.
- The first phase of KIRTI was launched in Chandigarh on 12 March 2024.
- In the first phase of the KIRTI program, out of 3,62,683 registrations across 70 centres, close to 51,000 assessments in 28 states and Union Territories have been made. Evaluations of aspiring athletes were conducted in 11 disciplines: Archery, Athletics, Badminton, Boxing, Football, Hockey, Kabaddi, Kho-Kho, Volleyball, Weightlifting, and Wrestling.
- The phase 2 of KIRTI aims to achieve 20 Lakh assessment in the FY 2024-25 by onboarding all states and treating the district as a unit of assessment.

Ambition and Accessibility

- The programme aligns with the nation's aspiration to become a top 10 sports nation by 2036 and among the top five by 2047.
- The KIRTI program aims to reach every block in the country, connecting with children who aspire to play sports but lack guidance. Prospective candidates are encouraged to register through the MyBharat portal.
- KIRTI boasts a transparent selection methodology leveraging Information Technology. Data analytics and Artificial Intelligence are utilized to predict the sporting potential of aspiring athletes.

Conclusion

The KIRTI program stands as a testament to India's commitment to nurturing sports talent and promoting a healthy, active lifestyle among its youth. The programme promises to bridge the gap between dreams and reality for aspiring young athletes across the nation, contributing to India's goal of becoming a global sports powerhouse.

EXPECTED QUESTION FOR UPSC CSE**Prelims MCQ.**

Q. Which among the following games are not included in KIRTI Program:

- | | |
|--------------|-------------|
| (a) Football | (b) Hockey |
| (c) Cricket | (d) Kho-Kho |

Answer: (c)

TECHNOLOGY DEVELOPMENT FUND (TDF) SCHEME

Why in News: Recently, the Technology Development Fund (TDF) scheme was allocated Rs 60 crore in the 2024-25 fiscal year.

Objectives of the TDF Scheme

- The TDF scheme is a flagship programme of Ministry of Defence executed by Defence Research and Development Organisation (DRDO) under the 'Make in India' initiative.
- To provide Grant in Aid to Indian industries, including MSMEs and Start-ups, as well as academic and scientific institutions for the development of Defence and dual use technologies that are currently not available with the Indian defence Industry.
- To engage with the private industries especially MSMEs and Start-ups to bring in the culture of Design & Development of Military Technology and support them with Grant in Aid.
- To focus on Research, Design & Development of Niche technologies which are being developed for the first time in the country.
- To create a bridge amongst the Armed Forces, research organizations, academia and qualifying/certifying agencies with private sector entities.

- To support the futuristic technologies having a Proof of Concept and converting them into prototype.

Benefit of TDF Scheme

- Capacity and capability building of Indian industries for design and development of defence technologies in the country.
- Creation of an ecosystem of R&D where industry and Academia work together to meet the current and futuristic requirement of Armed Forces and defence sector.
- Building of Defence manufacturing ecosystem in country.
- Achieving 'Aatmanirbharta' in defence technology.

Achievement of TDF Scheme

- As of 03 July 2024, a total of 77 projects, with a commitment of over Rs 300 crore, have been sanctioned to various industries, and 27 defence technologies have been successfully realised under the scheme.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ.

Q. Consider the following statements regarding KIRTI Program:

1. To engage with the private industries especially MSMEs and Start-ups to bring in the culture of Design & Development of Military Technology and support them with Grant in Aid.
2. To support the futuristic technologies having a Proof of Concept and converting them into prototype.

Which of the above statements is/are correct?

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

Answer: (c)

PRADHAN MANTRI FASAL BIMA YOJANA (PMFBY)

Why in News: General insurance companies recently reduced their exposure to crop insurance under the Pradhan Mantri Fasal Bima Yojana (PMFBY) during FY24 despite the government's push to expand the insurance coverage in the farm sector.

Key Details

- Gross direct premium underwritten by insurers declined during the current fiscal year even as farmers faced crop losses due to floods, unseasonal rains and heatwaves.
- Crop insurance premium underwritten had risen by 8.66 per cent to Rs 29,465 crore in the previous fiscal (FY23).
- The decline is mainly due to the 32 per cent fall in premium

income underwritten by state-owned Agriculture Insurance Company (AIC) during FY24.

- SBI General Insurance and State-owned Oriental Insurance Company reduced its insurance exposure. New India Assurance Company also reported a negative premium underwritten.

About PMFBY

- PMFBY provides a comprehensive insurance cover against failure of the crop, thus helping in stabilising the income of the farmers and encourage them for adoption of innovative practices.
- The scheme is compulsory for loanee farmer obtaining crop loan or kisan credit card (KCC) account for notified crops.
- It is voluntary for other/ non loanee farmers who have insurable interest in the insured crop.
- The maximum premium payable by the farmers will be 2 per cent for all Kharif food and oilseeds crops, 1.5 per cent for rabi food and oilseeds crops and 5 per cent for annual commercial or horticultural crops.
- Crop Insurance is an integrated IT solution and a web-based ecosystem to speed up service delivery, unify fragmented databases, achieve a single view of data, and eliminate manual processes. Crop Insurance provides insurance services to farmers faster than before.
- Crop Insurance portal has enabled the digitization of notification of areas, crops, schemes for enabling information access to multiple stakeholders thereby facilitating ease of access to the farmers in availing crop insurance services. This automated solution has opened a window of opportunity to remote and economically-weak farmers to benefit from crop insurance services.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Which of the following is not a crop insurer company:

- (a) Agriculture Insurance Company (AIC)
(b) Oriental Insurance
(c) SBI General
(d) None of the above

Answer: (d)

Descriptive Question

Q. "The needs of crop insurance should be addressed through a concerted National insurance policy ". In light of the statement critically examine the utility of Pradhan Mantri Fasal Bima Yojana (PMFBY) [15 Marks] [250 Words]

NAAVU MANUJARU PROGRAMME

Why in News: Karnataka government recently set to begin 'Naavu Manujaru' programme in schools to inculcate social harmony and Constitutional values among children.

Key Details

- **Launch:** Naavu Manujaru' programme was announced in the State Budget of 2024-25, presented by Chief Minister Siddaramaiah, to inculcate values enshrined in the Constitution among children.
- **Objective:** Turning all educational institutions in the State into centres of social harmony, tolerance and scientific temper, the government has ordered implementation of 'Naavu Manujaru' programme from this academic year.
- **Implementation of this programme** would involve discussions and dialogues for two hours per week (with three periods of 40 minutes) in all government, aided, and unaided primary and high schools of the State, the order said. One period of value education and two periods of Socially Useful Productive Work (SUPW) have been adjusted to this.
- **DSERT is the nodal agency** for implementing technology in education through various schemes
- **No special grant** will be given for the implementation of the programme. The Department of School Education and Literacy has released a format for implementation of the programme.
- **Lessons on harmony**
 - According to the format, discussion should be held on social harmony and its significance, based on local and national festivals, folk games, sports etc.
 - Discussion on the thoughts of social reformers, visiting and sharing information on outbound/local famous places, cottage industries, discussion on nuclear and non-nuclear families, discussion on elimination of inequality and dialogue on constitutional values like equality, liberty and fraternity, will be the part of the implementation of the programme.
- **Scientific temper**
 - Creating awareness among children about scientific temper, environmental consciousness, eradication of superstitions and reconciliation of superstitions and science is also part of the programme.
 - To create awareness about science in everyday life, discussions are to be held on home remedies, experiments conducted using a science laboratory, and efforts made to develop a questioning attitude by designing activities to develop curiosity among the students.
- **Co-existence**
 - Group activities are to be planned to convey to the students the importance of midday meals, sahabhojana (community lunch), school garden

management, indoor and outdoor games and desi sports for everyone to participate in.

- Awareness is to be created on equal opportunity and its significance.
- It will also be helpful for the overall development of the students. It will be executed in all schools of the State soon,"

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Which of the following statement are not correct regarding Naavu Manujaru programme:

- Implementation of this programme would involve discussions and dialogues for two hours per week (with three periods of 40 minutes) in all government, aided, and unaided primary and high schools of the State, the order said.
- Special grant will be given for the implementation of the programme.
- This programme was announced in the State Budget of 2024-25, presented by Chief Minister Siddaramaiah, to inculcate values enshrined in the Constitution among children.
- It will also be helpful for the overall development of the students. It will be executed in all schools of the State soon,".

(b) :Answer

EMPLOYEES' PENSION (AMENDMENT) SCHEME, 2024

Why in News: The Central government has recently amended the Employees Pension Scheme (EPS), 1995 giving withdrawal benefits for employees with less than six months of service.

Key Details

- According to a Union Government the amendment is expected to benefit more than 7 lakh EPS members who leave the scheme with less than six months of contributory service.
- The Centre has also modified Table D to ensure that the service for every month is taken into account and withdrawal benefits are given in proportion to the service provided.
- It is estimated that every year more than 23 lakh members will benefit from this modification of the Table D.
- Table D refers to the members who have not offered the required service for the scheme's eligibility or the members attaining 58 years of age.

- The amount that can be withdrawn will now depend on the months a member has completed the service and the wages on which the EPS contribution was received.
- Earlier, the withdrawal benefit was calculated based on the period of contributory service in completed years and the wages on which the EPS contribution was paid.
- This included a mandatory six-month contributory service. Even after completion of contributory service of six months and above, members were given benefits.
- The members who used to leave the scheme before six months were not entitled to the benefits.
- Members were entitled to a withdrawal benefit after completing contributory service for six months or more.
- Members who left the scheme before six months were not entitled to the benefit. This was the reason why many claims were rejected for members exiting before providing the mandatory service.
- Employees eligible for the Employee Provident scheme are also eligible for the pension scheme.
- Both employer and employee contribute to the fund, which is administered by the Employee Provident Fund Organisation (EPFO) under the Ministry of Labour and Employment.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. The Employee Pension Scheme was introduced for employees in the organised sector in which year:

- (a) 1994 (b) 1995
(c) 1996 (d) 2024

Answer: (b)

THE PACHATHURUTHU (GREEN SPACE / MINI FOREST) PROJECT

Why in News: On June 5, the World Environment Day, Kerala's Chief Minister pledged to promote the Pachathuruthu initiative to achieve state's ambitious Net Zero Carbon target.

About Pachathuruthu (green space / mini forest) project

- The initiative aimed at greening barren land by planting trees and native plants.
- It focuses on creating natural biological diversity, including fruit trees, to absorb and store excess carbon in the atmosphere through joint efforts of local self-government bodies and the Mahatma Gandhi National Rural Employment Guarantee Scheme.
- The project initiated was on June 5, 2019 at Vengode in Pothencode panchayat, Thiruvananthapuram District
- The aims to create man-made mini-forests within the

living surroundings. These projects are planned by mobilizing the masses through participatory campaigns and through coordination and leadership of the Local Self-Government Institutions.

- Maintenance and conservation of these pachathuruths are entrusted with the local communities.
- Trees in small forests which are limited to certain areas, which are widely formed through green cover, have the ability for long term carbon sequestration and become long-term carbon stores through carbon dioxide absorption.
- These greenhouses can provide a number of ecological benefits, including regulating the ambient temperature in the area where the vegetation is formed and providing habitat for species including birds and insects.
- Carbon is stored in the wood, bark, leaves, roots and soil of trees, which can greatly reduce the effects of climate change.
- The presence of plant roots and organic soil reduces the risk of soil erosion. This is why forests are considered as reservoirs of freshwater.
- By creating more Pachathuruth (green spaces) in urban areas, it mitigates the effects of pollution and can reduce the effect of urban heat island, thereby to provide relief from the heat emitted by concrete structures and vehicles in cities.
- The concept of pachathuruth falls within the preview of Target 15.2 of SDG. Further it features Target 13.2 of SDG as pachathuruths are Man-made mini-forests, they form green cover, and have the ability for long term carbon sequestration and become long-term carbon stores.
- The Target 15.2 of SDG urges to promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally.
- The pachathuruth project promotes afforestation, it mitigates the effects of pollution, reduces the effect of urban heat, directly or indirectly influences the local climate and helps to form a green sustainable regional biodiversity.
- This innovative project being a role model for originating mini-forest greenery in the midst of urbanization can be replicated in the urbanized locales of other states too.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Which of the following is correct regarding Pachathuruth project?

- (a) The Pachathuruth project is to create man-made mini-forests.

- (b) Trees in small forests which are limited to certain areas, which are widely formed through green cover, have the ability for long term oxygen scavenger and become long-term carbon stores through carbon dioxide absorption.
- (c) The pachathuruth project promotes deforestation.
- (d) It is a centralized scheme.

Answer: (a)

SEHER PROGRAMME

Why in News: SEHER, a credit education program was launched recently by the Women Entrepreneurship Platform (WEP) and TransUnion CIBIL.

Key Details

- **Aim:** SEHER program will empower women entrepreneurs in India with financial literacy content and business skills, helping them to access the financial tools they need to drive further growth and create employment in the country's economy.
- India has 63 million micro, small, and medium enterprises of which around 20% are women-owned.
- The demand for business loans by women has grown 3.9X in the last five years (FY 2019 – FY 2024).
- By accelerating women's entrepreneurship, India could create more than 30 million new women-owned enterprises, potentially creating 150 to 170 million more jobs

About WEP (Women Entrepreneurship Platform)

- Incubated in NITI Aayog in 2018 as an aggregator platform that transitioned as a public-private partnership in 2022 to build a comprehensive ecosystem supporting women entrepreneurs across India.
- WEP aims at empowering women entrepreneurs by overcoming information asymmetry and providing continuum of support across different pillars -
 - Entrepreneurship promotion
 - Access to Finance
 - Market Linkages
 - Training and Skilling
 - Mentoring and Networking and Business Development Services.

About TransUnion CIBIL

- TransUnion CIBIL provides solutions that help create economic opportunity, great experiences, and personal empowerment for millions of people in India.
- It serves the financial sector as well as MSMEs, corporate and individual consumers including banks, financial institutions, NBFCs, housing finance companies, microfinance companies and insurance firms.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Which of the following statement is correct regarding SEHER:

- (a) It was announced during the Union Budget 2024.
- (b) It was launched by NITI Aayog
- (c) It is a credit education program.
- (d) It will empower men entrepreneurs in India

Answer: (c)

THE INTEGRATED TRIBAL DEVELOPMENT PROGRAMME

Why in News: National Bank for Agriculture and Rural Development (NABARD) recently launched an integrated tribal development programme in the Kulathupuzha grama panchayat marking its first initiative in Kollam.

Key Details

- **Aim:** To transform livelihoods of tribal families over the next five years.
- **Implementing agency of the project:** Thanal, an environment organisation.
- **Focus Area:** Promoting diverse agricultural crops such as pepper, arecanut, coconut, ginger, Thai ginger, turmeric, and plantain, as well as initiatives in goat rearing, poultry, beekeeping, fish farming, and fodder production.
- **Other components:** Water resource development, leadership training, awareness creation, sanitation and hygiene initiatives, marketing and branding training, and skill development workshops including establishment of a Tribal Farmer Producer Company (FPO).
- The initiative targets the sustainable livelihood and agricultural enhancement of 413 families residing in eight hamlets.
- As part of the project tribal families will be divided into groups to empower communities, promote both agricultural and non-agricultural activities, and enhance income levels through skill development and sustainable agricultural practices.

About NABARD

- NABARD is India's apex development bank, established in 1982 under an Act of Parliament to promote sustainable and equitable agriculture and rural development.
- It aids in nation building through participative financial and non-financial interventions, innovations, technology and institutional development in rural areas through agri-finance, infrastructure development, banking technology,

promotion of microfinance and rural entrepreneurship through SHGs & JLGs and more.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Which one of the following are not the focus area of Integrated Tribal development Programme Project:

- (a) Promoting diverse agricultural crops such as pepper.
- (b) Water resource development.
- (c) Sanitation and hygiene initiatives.
- (d) Including establishment of an Urban Producer Company.

Answer: (d)

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. For the Assertion (A) and Reason (R) given below, choose the correct alternative from the following:

Assertion (A): The scheme covers manufacturing of components of Air Conditioners and LED Lights

Reason (R): Which are only manufactured in India.

- (a) Both (A) and (R) are true and (R) is the correct explanation of (A)
- (b) Both (A) and (R) are true, but (R) is not the correct explanation of (A)
- (c) (A) is true, but (R) is false
- (d) (A) is false, but (R) is true

Answer: (c)

PLI SCHEME FOR WHITE GOODS (PLIWG)

Why in News: The Ministry of Commerce & Industry recently reopened the application window for the PLI scheme for white goods, including ACs and LED lights, for 90 days.

Key Details

- The application window for the PLI Scheme for White Goods will remain open online from July 15, 2024, to October 12, 2024.
- The scheme covers manufacturing of components of Air Conditioners and LED Lights across the complete value chain including components which are not manufactured in India presently with sufficient quantity.
- Under the PLI Scheme for White Goods, incentives will only be available for the remaining tenure of the scheme.
- Both new applicants as well as existing beneficiaries of PLIWG who propose to invest more by way of switching over to higher target segment or their group companies applying under different target segment would be eligible to apply subject to fulfilling the eligibility conditions.
- System of Quarterly claims processing of PLI has been introduced to maintain liquidity in the business, better working capital management, and enhance operational efficiency of beneficiaries.
- The PLI Scheme for White Goods for manufacture of components and sub-assemblies of Air Conditioners (ACs) and LED Lights was launched in 2021 for seven-year period, from FY 2021-22 to FY 2028-29.

PRODUCTION LINKED INCENTIVES SCHEMES FOR TELECOM SECTOR

Why in News: The telecom equipment manufacturing sales, in the last three years, have exceeded the target of Rs 50,000 crore under Product Linked Incentive Scheme.

About the Telecom PLI Scheme

Aim: To enhance domestic manufacturing capabilities and make India a global hub for telecom equipment production and financial incentives to manufacturers based on their incremental sales from products manufactured in India.

It covers the manufacture of mobile phones and its components for Large Scale Electronic Manufacturing of Electronics.

Achievement of the PLI Scheme for Telecom and Networking Products (excluding Mobiles)

- **Industry Growth:** The sales of Telecom & Networking Products by PLI beneficiary companies in FY 2023-24 has increased by 370% vis-a-vis, Base Year (FY 2019-20).
- **Job Creation:** The scheme has contributed in creating thousands direct jobs and many more indirect jobs.
- Not only contributed to economic growth but also generated substantial employment opportunities across the value chain, from manufacturing to research and development.
- **Reduced Import Dependency:** The PLI scheme has significantly reduced the country's reliance on imported telecom equipment, resulting in import substitution of 60%.
- **Global Competitiveness:** Indian manufacturers are

increasingly competing on a global scale, offering high-quality products at competitive prices. For example, 5G Telecom equipment manufactured in India is currently being exported to North America and Europe.

- The trade deficit in telecom (both telecom equipment and mobiles put together) has reduced from Rs 68,000 crore to Rs 4,000 crore over the last five years.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Which of the following statements is/are not correct?

1. The PLI scheme aims to enhance domestic manufacturing capabilities and make India a global hub for telecom equipment production.
2. The scheme also offers financial incentives to manufacturers based on their incremental sales from products manufactured in India.

Select the correct answer using the code given below:

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

Answer: (c)

VIBRANT VILLAGES PROGRAMME

Why in News: Union Home Minister and Minister of Cooperation has recently reviewed the implementation of the “Vibrant Villages Programme”.

Key Details

The Union Home Minister and Minister of Cooperation has emphasised following points:

- Continued efforts should be made by senior ministers and officials to better understand the issues of border villages under the Vibrant Villages Programme.
- The Central Armed Police Forces (CAPFs) and Army deployed around the border villages should be encouraged to purchase local agricultural and handicraft products through cooperatives.
- The healthcare facilities of the Army and CAPFs should be regularly made available to benefit the residents of nearby villages of border areas.
- Providing employment opportunities to local residents and increasing connectivity with villages to prevent migration from border villages.
- Maximum use of renewable energy sources like solar energy and windmills in vibrant villages.

About Vibrant Villages Programme’ scheme

- It is a Centrally Sponsored Scheme, launched on 15th

February, 2023 for comprehensive development of the select villages in 46 blocks in 19 districts of abutting northern border in the States of Arunachal Pradesh, Himachal Pradesh, Sikkim, Uttarakhand and UT of Ladakh.

- By December 2024, all villages under the Vibrant Villages Programme will be covered by the 4G network.
- 136 border villages are being provided connectivity through 113 all-weather road projects.
- More than 600 projects have been sanctioned by the Central government for employment generation in these villages.

ASMITA (AUGMENTING STUDY MATERIALS IN INDIAN LANGUAGES THROUGH TRANSLATION AND ACADEMIC WRITING)

Why in News: The Ministry of Education and the University Grants Commission (UGC) has recently launched a ASMITA project.

About ASMITA Project

- It is a collaborative effort of the UGC and the Bharatiya Bhasha Samiti, a high-powered committee under the ministry, to promote Indian languages in education.
- **Aim:** To develop 22,000 books in Indian languages in the next five years.
- **Objective:** Empowering learners in their academic pursuits and preserving and promoting India’s language traditions.
- Project ASMITA, Bahubhasha Shabdkosh and Real-time Translation Architecture initiatives are in line with the National Education Policy towards
 - A comprehensive pool of academic resources in 22 scheduled languages.
 - Bridge linguistic divide.
 - Foster social cohesion and unity.
 - Transform youth into socially-responsible global citizens.
 - Creating a robust ecosystem for translation and original book writing in Indian languages across various disciplines within higher education.
- The UGC has created a standard operating procedure (SOP) for the book-writing process in each assigned language.
- **Bahubhasha Shabdkosh:** Multilingual dictionary repository for a single-point reference for all the words in all Indian languages and their meanings.
- **Real-time Translation Architecture initiatives:** Facilitate the creation of a technological framework to enhance real-time translation capabilities in Bharatiya Bhasha.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Which of the following statement are correct with respect to ASMITA?

1. ASMITA to produce 22000 books in 5 years in 22 languages.
2. Bahubhasha Shabdakosh to create multilingual dictionaries.
3. Real-time Translation Architecture to enhance translation capabilities.

Choose the correct option:

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

(p) :Answer

PRADHAN MANTRI GRAMIN DIGITAL SAKSHARTA ABHIYAN

Why in News: Recently, the Minister of State for Electronic & Information Technology, informed the Rajya Sabha about the Pradhan Mantri Gramin Digital Saksharta Abhiyan (PMGDISHA).

Key Details

The Minister of State for Electronic & Information Technology, informed that out of 6.39 crore trained candidates under the PMGDISHA, only 4.78 crore candidates were certified.

About PMGDISHA scheme

- It was announced during the union budget 2016-17 to provide digital literacy specifically in rural areas.
- **Objective:** To empower the citizens in rural areas by training them to operate computer or digital access devices and enable them to use the Information Technology to actively participate in the process of nation building.
- Promoting cashless transactions through mobile phones, the content on digital wallets, mobile banking, Unified Payments Interface (UPI), Unstructured Supplementary Service Data (USSD), Aadhaar Enabled Payment System (AEPS), and PoS.
- **Aim:** To bridge the digital divide, specifically targeting the rural population including the marginalised sections of society like Scheduled Castes (SC) / Scheduled Tribes (ST), Minorities, Below Poverty Line (BPL), women and differently-abled persons.

- **Implementing Agency:** CSC (common service center) e-Governance Services India Limited, in collaboration with all the State Governments and UT Administrations.
- **Target Beneficiaries:**
 - One person from every eligible rural household would be trained in Digital Literacy relevant to their needs across all States/ UTs.
 - The target group would be in the age group of 14-60 years.
 - Priority would be given to non-smartphone users, Antyodaya households, college drop-outs, participants of the adult literacy mission etc.
- **Main features of the PMGDISHA scheme:**
 - The scheme was implemented only in rural areas i.e. Gram Panchayat/Village to cover 6 crore rural households (one person per household).
 - The beneficiaries were provided with 20 hours of training consisting of 5 modules:
 - ◆ Introduction to digital devices
 - ◆ Operating digital devices
 - ◆ Introduction to the internet
 - ◆ Communications using the internet
 - ◆ Application of internet (includes citizen centric services) and use of financial tools for undertaking digital cashless transactions.
 - ◆ The training content was made available, both online and offline mode, in 22 scheduled languages and English.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Which of the following statement is not correct regarding PMGDISHA:

- (a) One person from every eligible rural household would be trained in Digital Literacy relevant to their needs across all States/ UTs.
- (b) The target group would be in the age group of 18-60 years.
- (c) Priority would be given to non-smartphone users, Antyodaya households, college drop-outs, participants of the adult literacy mission etc
- (d) The scheme was implemented only in rural areas.

(b) :Answer

SDG INDIA INDEX 2023-24

Why in News: India's Sustainable Development Goals (SDG) score has been improved to 71 points in 2023-24 from 66 points in 2020-21.

Key details

- The SDG India Index has been developed in collaboration with the Ministry of Statistics and Programme Implementation (MOSPI), the United Nations (UN), and the Global Green Growth Institute (GGGI).
- The SDG India Index, which evaluates progress made across 16 goals on a scale of 1 to 100.
- Different criteria of SDG score: Aspirant (0-49), Performer (50-64), Front-Runner (65-99), Achiever (100).
- The index has not included SDG goal 14 in the calculation of the composite score for the index as it is solely limited to the 9 coastal states.
- **Overall Improvement:** India's SDG score improved from 57 in 2018 to 71 in 2023-24.
- **Top Performers:** Uttarakhand, Kerala, Tamil Nadu, Goa, and Himachal Pradesh led in overall performance.
- Kerala and Uttarakhand are the best performing states with a score of 79 points each.
- **Lagging States:** Bihar, Jharkhand, Nagaland, Meghalaya, and Arunachal Pradesh showed the lowest performance.
- **Significant Improvement:** Goals related to poverty (Goal 1), economic growth (Goal 8), climate action (Goal 13), and life on land (Goal 15) showed substantial progress.
- **Climate Action (Goal 13):** Recorded the highest increase in score, from 54 in 2020-21 to 67 in 2023-24.
- **Poverty Eradication (Goal 1):** Score improved from 60 to 72.
- **Gender Equality (Goal 5):** Remains a challenge with a score below 50.

Conclusion

The SDG India Index 2023-24 underscores varying state-level achievements and gaps in Sustainable Development Goals, crucial for targeted policy interventions and inclusive national progress.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements regarding SDG India Index:

1. It is released by NITI Aayog.
2. The first SDG India index was released in 2018.
3. SDG India Index 2023-24 includes all the 17 SDGs.

How many of the above statements are incorrect?

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

Answer: (a) (3 only)

WORLD SOIL HEALTH INDEX

Why in News: The World Soil Health Index was recently released by the United Nations Educational, Scientific and Cultural Organization (UNESCO) during an international conference held in Agadir, Morocco.

Key Details

- Thirty countries attended this conference.
- UNESCO urged its 194 Member States to prioritize soil protection and rehabilitation.
- The output of the conference was an action plan with three key objectives as follows
 - Improving soil protection and rehabilitation.
 - Filling scientific knowledge gaps.
 - Strengthening the commitment of young people and communities through education and training.
- Two new Initiatives proposed by UNESCO in this conference are World Soil Health Index and Pilot Program for Sustainable Soil Management.

World Soil Health Index

- UNESCO will establish this standardized index to assess and compare soil quality globally.
- It will also help identify trends in soil degradation or improvement and evaluate the effectiveness of soil management practices.

Government Initiatives to Prevent Soil Degradation:

- Pradhan Mantri Krishi Sinchayee Yojana (PMKSY)
- Soil Health Card Scheme.
- National Mission for Sustainable Agriculture.
- National Afforestation Programme (NAP).
- National Mission for Green India (GIM)
- Paramparagat Krishi Vikas Yojana.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. World Soil Health Index is released by which of the following organisation?

- (a) Food and Agriculture Organization (FAO)
- (b) United Nations Environment Programme (UNEP)
- (c) United Nations Educational, Scientific and Cultural Organization (UNESCO)
- (d) International Union for Conservation of Nature (IUCN)

Answer: (c)

IUCN REPORT PLANET ON THE MOVE REIMAGINING CONSERVATION

Why in News: Recently, the 'Planet on the Move: Reimagining Conservation at the intersection of migration, environmental change, and conflict' report has been released by the International Union for Conservation of Nature (IUCN).

Key Details

- The report stated that Environmental change is a prominent cause of forced migration and is predicted to contribute to dramatic increases in the displacement of vulnerable people and other species over the coming decades. For example:
 - Without concrete climate and development action, by 2050 some 143 million people – about 3% of the population across Sub-Saharan Africa, Latin America, and South Asia – could be forced to move within their own countries as part of climate-induced migration.
- In a context of environmental change, the concepts of 'alien' and 'invasive' species will need to be thoroughly reconsidered to incorporate the expanding ranges of indigenous species, the introduction of non-indigenous species transported by humans for their very survival, the voluntary movement of species towards more favourable conditions, and so on.

- Conservation practice has at times resulted in – and in some places continues to contribute to – the forced and violent displacement of local communities and Indigenous peoples and the relocation of other species.
- Forced displacements have environmental and social impacts across migration arcs – that is, in places of origin, transit and destination – including furthering environmental change, causing or amplifying violent conflict and/or human-wildlife conflict, deepening impoverishment and generating new forms of displacement.

International Union for Conservation of Nature (IUCN)

- IUCN, established in 1948 in France as a membership Union of Government and civil society organizations.
- **Members:** More than 1400 including 160+ countries.
- **Highest governing authority:** IUCN Council
- **Played a key role in establishing:** The Ramsar Convention on Wetlands (1971), the World Heritage Convention (1972), the Convention on International Trade in Endangered Species (1974), and the Convention on Biological Diversity (1992).
- It has the **world's largest and most diverse environmental network.**

FINANCIAL INCLUSION INDEX

Why in News: Recently, the Reserve Bank of India (RBI) released the latest Financial Inclusion Index (FI-Index) for the fiscal year 2023-24.

Key Details

- It is an annual index published by the RBI to systematically track and measure India's progress towards financial inclusion.
- It incorporates various aspects of financial inclusion, covering banking, investment, insurance, postal, and pension sectors in consultation with government and respective sectoral regulators.
- It captures the extent of financial inclusion on a scale from 0 to 100, where 0 indicates complete financial exclusion and 100 signifies full financial inclusion.

Three parameters of the FI-Index (comprising a total of 97 indicators)

1. **Access (35%):** Evaluates the ease of access to financial institutions and services.
2. **Usage (45%):** Assesses the extent of usage of financial services by the population.
3. **Quality (20%):** Captures the quality of financial inclusion, focusing on financial literacy, consumer protection, and addressing inequalities and deficiencies in services.

Trends in FI-Index 2023-24

- This Index has improved from 60.1 in March 2023 to 64.2 in March 2024.
- This growth indicates progress across all sub-indices, with the significant improvement in 'Usage' dimension.
- **Improvement in Usage:** Indicate increasing adoption of financial services, driven by digital payments, mobile banking, and other financial products.

Digital Technology assisting Financial Inclusion

- Mobile banking
- Internet banking and digital payment system such as Unified Payment Interface (UPI)
- Aadhar Enabled Payment System (AEPS), Application Programming Interface (API), Bharat Bill Payment System (BBPS), and Bharat Interface for Money (BHIM).
- Enhanced financial literacy through digital platforms. E.g. Youtube, etc.
- Jan Dhan Yojana (JDY) and RuPay debit cards allowing ATM withdrawals and POS (point of sale) payments.
- Payments Banks and Small Finance Banks
- Direct Benefit Transfers (DBT) and Government-to-Person (G2P) payments

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following:

- | | |
|----------------|------------|
| 1. Usage | 2. Access |
| 3. Consumption | 4. Quality |

How many of the above broad parameters constitute the Financial Inclusion Index?

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

Answer: (c) (1/2 and 4)

DIGITAL ECONOMY REPORT

Why in News: Recently, the 'Digital Economy Report 2024' was released by the UN Trade and Development (UNCTAD).

Key Details

- Released biannually, it monitors trends and policies related to access, use and impact of digital technologies from a development perspective.
- The report has highlighted the direct environmental impact of increased reliance on digital tools such as from raw material depletion, water and energy use, air quality, pollution, and waste generation.

The report has highlighted following concerns:

- Understanding the nexus of digitalization and environmental sustainability is increasingly important:
 - Rapid pace and expanding scope of digitalization make it increasingly important to understand growing concerns related to the depletion of raw materials, water stress, climate change, pollution and waste generation.
- Environmental impacts are generated along the whole digitalization life cycle:
 - Direct and indirect environmental effects from the use of digital technologies and services in different sectors of the economy.
- Need for comprehensive assessments of the environmental effects of digitalization:
 - For example, existing studies do not adequately capture the environmental impact of recent developments in Artificial Intelligence or the shift to 5G mobile networks.
- Digitalization's promise of dematerialization has not yet materialized:
 - The production phase of digitalization has the greatest combined negative impact on the environment.
- Digital use is boosting energy and water consumption:
 - Digital technologies have a significant water footprint which comprises a substantial part of their overall environmental impact.
- **Waste related to digitalization is expanding, with uneven regional implications:**
 - Current rates of formal collection of digitalization-related waste remain low, especially in developing countries.
- E-commerce should become more environmentally sustainable:
 - E-commerce is disrupting economic processes and consumption patterns, with positive and negative implications for environmental sustainability
- Achieving an inclusive and environmentally sustainable digital economy requires a shift towards circularity:
 - Achieving greater circularity requires change at all stages of the digital life cycle.
- **More effective global governance is needed:**
 - There is currently no inclusive global governance framework in place towards shared goals at the interface of digitalization and environmental sustainability.

United Nations Trade and Development (UNCTAD)

- It is a permanent intergovernmental body established by the United Nations General Assembly in 1964.

- It is part of the UN Secretariat and United Nations Development Group.
- It focuses on trade, investment, finance, and technology.
- It is headquartered in Geneva, Switzerland.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Which of the following organization released Digital Economy Report 2024?

- (a) World Bank
- (b) International Monetary Fund (IMF)
- (c) World Economic Forum (WEF)
- (d) UN Trade and Development (UNCTAD)

(d) :Answer

WORLD POPULATION PROSPECTS REPORT 2024

Why in News: Recently, "World Population Prospects 2024" was released by the United Nations Department of the Economic and Social affairs.

Key Details

- It is the 28th edition of official United Nations population estimates and projections that have been prepared by the Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat.

Key Findings of the Report

- The world's population is expected to continue growing over the coming fifty or sixty years, reaching a peak of around 10.3 billion people in the mid-2080s, up from 8.2 billion in 2024.
- By the late 2070s, the global population aged 65 and older is projected to reach 2.2 billion, exceeding the number of children under 18. By the mid-2030s, those aged 80 and over will outnumber infants (1 year of age or less), reaching 265 million.
- Increasing levels of life expectancy at birth are expected to contribute to population growth or to help mitigate population decline in nearly all countries over the coming decades.
- A group of 126 countries including India, Pakistan and the United States of America the population is likely to continue growing through 2054.
- Countries with populations that are projected to peak by 2054 tend to have younger age structures, which are conducive to continued growth.
- In around 100 countries and areas, however, the share of population at the working ages (between 20 and 64 years) will continue to increase more rapidly than the total

population between now and 2054, providing a window of opportunity, known as the demographic dividend.

- Currently, the global fertility rate stands at 2.3 live births per woman, down from 3.3 births in 1990.
- Average fertility levels are at or above 2.1 live births per woman in 45% of countries and areas globally.
- One fifth of all countries including China, Italy, the Republic of Korea and Spain, are experiencing "ultra-low" fertility, with fewer than 1.4 live births per woman over a lifetime.
- Globally, life expectancy at birth reached 73.3 years in 2024, an increase of 8.4 years since 1995. Further reductions in mortality are projected to result in an average longevity of around 77.4 years globally in 2054.
- Globally, the number of women at ages 15–49 is projected to grow from nearly 2 billion in 2024 to a peak of around 2.2 billion in the late 2050s.
- In 2023, the number of deaths among children under age 5 fell below 5 million for the first time in recent history.
- Immigration is projected to attenuate the decline in population size caused by sustained low levels of fertility and an older age structure.
- For countries such as Italy, Germany or the Russian Federation where population size has already peaked, that peak would have occurred sooner in the absence of immigration.
- Immigration is projected to be the main driver of population growth in 52 countries and areas through 2054 and in 62 through 2100. This group includes Australia, Canada and the United States of America.
- In countries where populations have peaked already or are likely to peak in the next three decades, gender gaps in the division of domestic work within households and inadequate child and family welfare support can prevent or discourage women and couples from having larger families even when they want them.
- For nearly all countries with populations that peaked in size by 2024, and for three quarters of those with populations projected to peak between 2025 and 2054, the time-bound window of opportunity for accelerated economic growth associated with a youthful population and declining fertility has already closed.

GLOBAL EDUCATION MONITORING REPORT 2024

Why in News: The United Nations Educational, Scientific and Cultural Organization (UNESCO) has recently published the Global Education Monitoring Report: Gender report – Technology on her terms in France in 2024.

Key Details

- The Global Education Monitoring (GEM) Report is an independent **annual** publication. The GEM Report is

funded by a group of governments, multilateral agencies and private foundations and facilitated and supported by UNESCO.

- The report looks at the interaction between education and technology with a gender lens.
- It looks at the impact of technology on girls' education opportunities and outcomes.
- It highlights ICT's potential to overcome educational barriers for girls, citing the M-shule platform in Kenya. However, the digital divide persists, with fewer women owning mobile phones and having internet access compared to men.
- The report looks into the role of education on the shape of future technological development.
- It shows that women struggle to pursue STEM careers, which manifests from an early age in the form of anxiety in mathematics and develops into a reluctance to study STEM subjects, ultimately resulting in a lack of women in the technology workforce.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Global Education Monitoring Report is published by:

- British Council
- UNESCO
- Global Partnership for Education
- World Economic Forum

Answer: (b)

THE INDIA KLEMS DATABASE

Why in News: The Reserve Bank of India (RBI) has recently released an update on 'Measuring Productivity at the Industry Level.

Measuring Productivity at the Industry Level – The India KLEMS Database

- It describes the procedures, methodologies and approaches used in the construction of India KLEMS database version 2024. The dataset includes measures of Gross Value Added (GVA), Gross Value of Output (GVO), Labour Employment (L), Labour Quality (LQ), Capital Stock (K), Capital Composition (KQ), the consumptions of Energy (E), Material (M) and Services (S) inputs, Labour Productivity (LP) and Total Factor Productivity (TFP).
- The current version of the database covers the period from 1980-81 to 2022-23. The series has been constructed on the basis of data compiled from NSO, NSSO, ASI, Input-Output tables (I-O tables) and processed according to appropriate procedures.

Significance

- The production and publication of the India KLEMS database are meant to support empirical research in the area of economic growth and its sources.
- It provides a comprehensive measurement tool to monitor and evaluate productivity growth in the Indian economy.
- The database is created for 27 industries. The 27 industries are aggregated to form six broad sectors:
 - Agriculture, Hunting, Forestry and Fishing
 - Mining and Quarrying
 - Manufacturing
 - Electricity, Gas and Water supply
 - Construction
 - Services

Data highlights

- The number of persons employed in 27 sectors increased by 3.31% year-on-year to 59.66 crore in 2022-23. During 2021-22, the employment in these 27 sectors stood at 57.75 crore.
- The 'agriculture, hunting, forestry and fishing' had employed 25.3 crore individuals, up from 24.82 crore in 2021-22.
- Construction, trade, and transport and storage were among the leading employment provider segments.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following sectors:

- Manufacturing
- Construction
- Services

Data from how many of the sectors above are used to prepare KLEPS database by RBI?

- Only one
- Only two
- All three
- None

Answer: (c)

ELEPHANT POPULATION KERALA

Why in News: A new report released by the Kerala government has revealed a significant decline in the population of juvenile elephants (aged ten years and below) over the last year.

Elephant Population Estimation in Kerala - 2024

Findings of the report

- Using the block-count method, the survey has

estimated the state's elephant population to be 1,793 in 2024, a decline of roughly 7% over the previous year, with a density of 0.19 per sq.km.

- 845 elephants have died across the state's forests and elephant reserves between 2015 and 2023, with the death rate increasing over time.
 - An elephant reserve (ER)-level analysis indicated largely stable elephant populations in Periyar and Wayanad ERs, while Wayanad and Anamudi ERs recorded significant reductions in population of 29% and 12% respectively.
 - The estimated populations in various ERs are: Anamudi – 615 (last year – 696), Nilambur – 198 (171), Periyar – 813 (811), and Wayanad – 178 (249).
- Reasons**
- The Forest department attributed the decline to a “natural variation” caused by elephant migration, which was triggered by extreme climate conditions, including an unusually dry period early this year.
 - While the death rate in elephants has declined with the increase in age, juvenile elephants (aged ten and below) are particularly susceptible to the Elephant Endotheliotropic Herpesviruses (EEHVs), with a 40% death rate reported.

Endotheliotropic Herpesviruses (EEHVs)

- EEHVs are a class of novel double-stranded DNA herpes viruses which cause acute haemorrhaging in juvenile Asian and African elephants, with severe cases causing death within 24 hours of infection.
- Given the endangered status of the Asian elephant, EEHVs pose a dire threat to conservation efforts.
- The disease itself has coexisted with elephants for millions of years, however, young elephants are particularly vulnerable on account of the lower EEHV-specific antibody levels compared to the seniors.
- Calves in large herds of elephants benefit from shared immunity through exposure to different EEHV strains, enabling them to develop the antibodies to fight the virus effectively.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCO

Q. Consider the following statements regarding Endotheliotropic Herpesviruses (EEHVs):

1. These are double-stranded DNA herpes viruses which cause acute haemorrhaging particularly in adult elephants.
2. Living in a large herd provides herd immunity against the different strains of the virus.

Which of the statements above is/are correct?

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

(b) Answer:

GLOBAL GENDER GAP REPORT 2024

Why in News: Recently World Economic Forum has released Global Gender Gap Report 2024.

What is Global Gender Gap Index?

The Gender Gap Index is a framework designed to measure and compare gender equality across countries. The scores are from 0 to 1, where 1 = parity. It assesses the gap between men and women in four key areas:

- **Economic Participation and Opportunity:** This includes indicators such as wage equality, labor force participation, and the number of women in managerial positions.
- **Educational Attainment:** This measures the gap in access to education between men and women at various levels, from primary to tertiary education.
- **Health and Survival:** This area focuses on life expectancy and the sex ratio at birth to determine gender-based disparities in health.
- **Political Empowerment:** This examines the representation of women in political offices, such as parliamentary seats and ministerial positions.

Key Findings of the Report

- Globally, gender parity marginally improved at 68.5% as compared to the previous year report standing at 68.4%.
- It is estimated that if this rate is followed, it will take 134 years to achieve gender parity roughly five generations.
- Iceland maintains its consistency and ranked number 1 with 93.5% score.
- India is now ranked 129th out of 146 countries, slipping two spots with 64.1%. After moving up eight spots from 135 in 2022 to 127 last year.
- In Educational Attainment, India scored 0.964; in Health & Survival 0.951 which is near to 1. But in Economic Participation & Opportunity 0.398 and in Political Empowerment 0.251 India performed really poor.

Conclusion

India needs to focus on two fronts in co-ordinated manner: labour force participation and political empowerment of the women. There is a lot that needs to be done on these two fronts, though the government working really hard, but it requires collective effort.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

- Q. Global Gender Gap Report is published by?
- International Labour Organization (ILO)
 - World Economic Forum (WEF)
 - World bank
 - International Monetary Fund (IMF)

Answer: (b)

HENLEY PASSPORT INDEX

Why in News: The Henley Passport Index for 2024 was recently curated by Henley & Partners.

About Henley Passport Index

- The passport ranking in the Henley Passport Index is based on a comprehensive methodology that considers several factors. These include the number of countries a passport holder can access without a visa, the country's diplomatic relations, and its international agreements.
- The index is based on exclusive data from the International Air Transport Association (IATA) – the largest, most accurate travel information database – and enhanced by Henley & Partners' research team.
- It compares the visa-free access of 199 different passports to 227 travel destinations.

Key finding of the Henley Passport Index

- Singapore topped the index offering visa free access to 195 countries.
- Second place is occupied by France, Italy, Germany, Spain and Japan providing visa free access to 192 countries.
- India ranked at the 82th position with citizens allowed to travel to 58 countries without a visa including popular destination like Indonesia, Malaysia and Thailand
- Ranking low on the index are Pakistan (101), Iraq (102), Syria (103) and Afghanistan (104).
- The global average number of destinations travelers are able to access visa-free has nearly doubled from 58 in 2006 to 111 in 2024. However, the global mobility gap between those at the top and bottom of the index is now wider than it has ever been.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

- Q. Which of the following statements about the Henley Passport Index is correct?
- The Henley Passport Index ranks passports based on the number of destinations their holders can access without a prior visa.

- The index is based solely on data from the United Nations.
- India ranks at the 100th position in the 2024 Henley Passport Index.
- The global average number of destinations travelers are able to access visa-free has nearly doubled from 58 in 2006 to 111 in 2024.

Select the correct answer using the code given below:

- 1 only
- 1 and 3 only
- 2 and 4 only
- 1 and 4 only

Answer: (d)

STATE OF FOOD SECURITY AND NUTRITION IN THE WORLD (SOFI) REPORT 2024

Why in News: The report is recently published by five United Nations specialised agencies: Food and Agriculture Organization (FAO), International Fund for Agricultural Development (IFAD), United Nations International Children's Emergency Fund (UNICEF), the UN World Food Programme (WFP), and the World Health Organization (WHO).

Key Finding of the Report

- According to the report, 1 in 11 people facing hunger globally in 2023.
- Approximately 63 per cent of low-and-middle-income countries (of 119 analysed) have limited or moderate access to financing for food security and nutrition.
- It has been found that there is direct link between under-nourishment and financing for food security and nutrition. The more fund available the lesser would be under-nourishment.
- Asia is still home to more than half of all those facing hunger in the world and Asia had the highest wasting levels among children under five.
- Hunger is still on the rise in Africa, by 2030, Africa will replace Asia as the region accounting for more than half the undernourished people in the world.
- Progress has been made in increasing the global exclusive breastfeeding rate among infants under six months of age, rising from 37.1 percent in 2012 to 48 percent in 2022.
- New estimates showed that more than one-third of people in the world — about 2.8 billion — could not afford a healthy diet in 2022.

India Specific

- More than half of India's total population (55.6 per cent) is unable to afford a healthy diet
- India had 194.6 million undernourished people between 2021 and 2023. This was 13.7 per cent of the total population.
- The number of children (under five years) affected by 'wasting' was 21.9 million (18.7 per cent); and 36.1 million (31.7 per cent) children were stunted in 2022.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Which of the following reports are published by the World Economic Forum?

- (a) Global Gender Gap Report
- (b) State of Food Security and Nutrition in the World (SOFI) report
- (c) World Economic Outlook
- (d) Battery Energy Storage System

(a) : Answer

ECONOMIC CASE FOR INVESTMENT IN WELL-BEING OF ADOLESCENTS IN INDIA REPORT 2024

Why in News: The report is recently released by the Ministry of Health and Family Welfare provides insights into interventions where investments on adolescents will yield high returns.

Key finding of the Report

- India has largest population of adolescents (aged 10-19) in the world which is around 253 million.
- Adolescent mortality rate fell by more than half that is 50% & adolescent fertility rate declined by 83% in the period of 2000-2019.
- Adolescent completing secondary school has increased from 22% in 2005 to just over 50% in 2020 which more than double.
- The number of girls getting married before age 18 has dropped by more than half since 2006.
- Report also highlighted that adolescents are greatly affected by traffic accidents, which are among the top five causes of death for this age group in India.

- If government start investing in seven key programmes in areas such as adolescent health, education, child marriage prevention, and road safety, it will provide impressive returns on investment, ranging from US\$ 4.6 to US \$ 71.4 for every one dollar invested.
- These interventions could increase the Indian economy by about 10.1% of its annual GDP.

The well-being of adolescents (10–19 years) has been defined as having the ability to thrive and be able to achieve their full potential, across five domains:

- Good health & optimum nutrition
- Connectedness, positive value and contribution to the society
- Safety and Supportive environment
- Learning, competence, education, skills and employability
- Agency & resilience

Conclusion

Adolescents are the backbone of a country's future. This crucial stage of life, with major physical, emotional, and social changes, sets the foundation for a healthy and productive adulthood. Therefore, the government must create an environment where they can thrive, make informed decisions, and contribute to society.

STATE OF THE WORLD'S MANGROVES REPORT 2024

Why in News: The "State of the World's Mangroves 2024" was recently released by the Global Mangrove Alliance (GMA) on World Mangrove Day (26 July).

Key Details

- The State of the World's Mangroves 2024 report provides a comprehensive assessment of the latest scientific advancements and policy efforts to protect these valuable ecosystems.
- It also features more than 60 case studies and examples of field-based research that are contributing to national and global biodiversity and climate goals.
- According to the report, new data and better mapping are helping identify and inform decision-makers responsible for setting policies to protect these valuable ecosystems.
- Southeast Asia has almost 50,000 km² of mangrove cover, or about one-third of all mangroves globally. (Indonesia alone has 21% of the world's mangroves.) This region is followed by West and Central Africa and then the Americas.

Mangroves in India

MANGROVES IN INDIA



- UNESCO observes July 26 as the International Day for the Conservation of the Mangrove Ecosystem.
- As per ISFR 2021, the mangrove cover in India is 4,992 sq km, which is 0.15% of the country's total geographical area.
- West Bengal>Gujarat>A&N Islands>Andhra Pradesh>Maharashtra, have the largest Mangrove cover in India (ISFR 2021).
- In India, mangroves are protected by the Environmental (Protection) Act 1986 and Coastal Zone Regulations.
- Sundarbans, a UNESCO World Heritage Site, is the world's largest single patch of Mangrove Forests. • Sundarbans is the first Mangrove forest in the world, which was brought under scientific management, as early as in 1892.

Water Filtration

Mangroves are vital to maintain seawater quality. They retain flowing sediments, and can trap pollutants, protecting connected habitats such as coral reefs and seagrass beds.

Landmass Builders

The dense network of roots and surrounding vegetation which trap sediment prevents erosion and can buildup coastlines and cayes over time.

Fighting Climate Change

Mangroves extract carbon from the atmosphere at a higher rate than tropical forests, and can store up to 5 times more carbon per acre in their soils.

Economy

Many coastal communities rely on mangroves for their economic benefits, especially in the fisheries and tourism sectors. Mangroves also reduce costly damages from hurricanes by providing protection against wave action and storm surges.



Mangrove roots promote water clarity and provide protection for juvenile fishes.



Juvenile lemon sharks are almost exclusively found in mangrove habitats.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. State of the World's Mangroves Report 2024 is produced by ...

- Food and Agriculture Organization (FAO)
- World Wildlife Fund for Nature
- Global Mangrove Alliance
- Conservation International

Answer: (c)

About MANGROVES

WHY MANGROVES MATTER

Mangroves consist of a variety of salt-tolerant trees and shrubs that thrive in shallow and muddy saltwater. Mangrove forests can be found in mostly tropical and subtropical coastal regions. There are about 80 species of mangroves globally, 3 of which occur in Belize, and they take up to 15 years to reach maturity.



Mangroves Provide a Variety of Benefits Including:

Biodiversity Hotspots

Mangroves are home to an incredible array of species, providing habitat for fish, sharks, rays, sea turtles, and birds. An estimated 80% of the global fish catch relies on mangrove forests either directly or indirectly.

Livelihoods

The fisher communities we work with depend on their natural environment to provide for their families. Healthy mangrove ecosystems mean healthy fisheries.

PERSONALITIES IN NEWS

PROF. PRASANTA CHANDRA MAHALANOBIS

Why in News: 18th 'National Statistics Day' was celebrated recently to commemorate the birth anniversary of (Late) Prof. Prasanta Chandra Mahalanobis.

About Prof. Prasanta Chandra Mahalanobis

- He is also known as the father of Indian Statistics.
- He was born on 29th June 1893 in Calcutta (Kolkata).
- He earned a Bachelor degree in Science with Honours in Physics from Calcutta University and also joined Cambridge University.
- He joined Presidency College in 1915 as a temporary Professor.
- He set up the Statistical laboratory in the Baker laboratory of Presidency College, Calcutta, in the early 1920s.
- In 1922 he became Asst. Professor of Physics and taught for 33 years (1915-1948).
- He served as the Principal of Presidency College for a few years.
- He held the post of Meteorologist in the Alipore Observatory in Calcutta from 1922 to 1926.
- He set up the Indian Statistical Institute for advanced research and training in statistics on 17th December, 1931.

**Statistical Contributions**

- Developed the Mahalanobis Distance, a crucial tool in fields like taxonomy, economics, and geology.
- Pioneered large-scale sample surveys for agriculture, leading to the establishment of India's Central Statistical Organization.
- Founded the Indian Journal of Statistics, *Sankhya*.
- Introduced innovative statistical methods like Fractile Graphical Analysis.

Contribution in National Development

- Played a pivotal role in India's **Second Five-Year Plan**, emphasizing heavy industrialization.
- Established the **Indian Statistical Institute (ISI)**, which contributed to various fields including geology (dinosaur excavation).

- Built international collaborations and received numerous awards and honors for his work.

Honour and Awards

- The Weldon Medal from Oxford University (1944)
- Sir Devaprasad Sarbadhikari Gold Medal from Calcutta University (1957)
- Gold Medal from Czechoslovak Academy of Sciences (1964)
- Durga Prasad Khaitan Memorial Gold Medal from Asiatic Society (1968)
- Srinivasa Ramanujan Gold Medal (1968)
- Honorary Deshikottama from Visva Bharati University (1961).
- In 1968, he was awarded the **Padma Vibhushan**, the second highest civilian award by the Government of India.

PINGALI VENKAYYA

Why in News: Pingali Venkayya, the freedom fighter behind the design of India's national flag, has recently gained recognition for his contribution to the nation.

About Pingali Venkayya

- Born on August 2, 1876 in Krishna district of Andhra Pradesh.
- He served as a soldier in the British Army in South Africa during the Anglo-Boer War.
- He met Mahatma Gandhi in South Africa.
- He worked as a teacher, author, agriculturist, and linguist.
- A postage stamp was issued in his honor in 2009 by the Government of India.
- His life and contribution to the freedom struggle have barely been documented.

**Contribution to the National Flag**

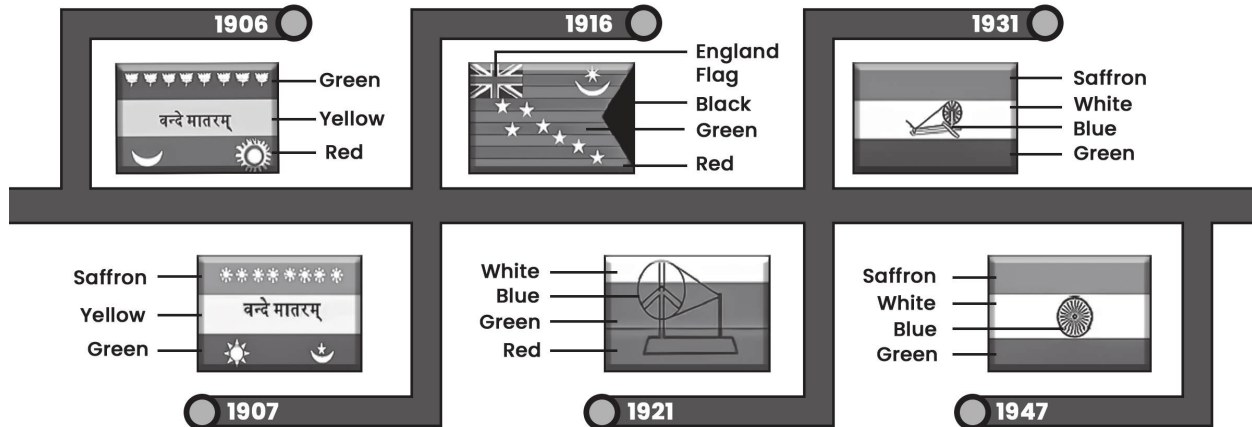
- He was entrusted with the task of making the national flag by Mahatma Gandhi.
- He designed the initial draft of the Indian flag in 1906.
- Finally, in 1921 he prepared the National flag for India.

- Flag initially featured red and green colors, representing Hindu and Muslim communities.
- Upon Gandhi's suggestion, added a white stripe for peace and a spinning wheel for progress.
- This tricolour flag having spinning wheel in place of

today's chakra was first accepted by the Indian National Congress in 1931

- The **national flag of India** was adopted in its **present form** during a meeting of the Constituent Assembly held on 22 July 1947, when it became the official flag of the Dominion of India.

THE DEVELOPMENT JOURNEY OF THE TRICOLOR



DR. PHAKIRAPPA GURUBASAPPA HALAKATTI

Why in News: Recently, the 145th birth anniversary of Dr. Phakirappa Gurubasappa Halakatti was celebrated as Vachana Literature Conservation Day at S.M. Pandit Ranga Mandir in North Karnataka.

About Dr. Phakirappa Gurubasappa Halakatti

- He was born in Dharwad on July 2, 1880.
- Took education in Dharwad and Mumbai's St. Xavier's College and became a lawyer in Vijayapura.
- He encountered a bundle of Vachana manuscripts, inspiring him to collect and preserve them.
- He dedicated his life to collecting, preserving, and publishing Vachana literature.
- He faced difficulties in acquiring palm-leaf manuscripts, often damaged or considered sacred.
- He dedicated his life to the revival and dissemination of the Vachana literature of the 12th century AD.

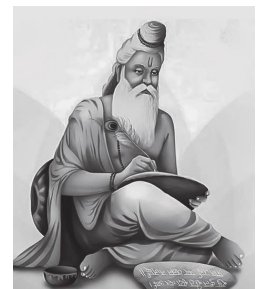
His Accomplishments

- He collected 1,000 bundles of 'Vachana manuscripts'.
- Published "Vachana Shastra Sara" and numerous other works on Vachanas and Lingayatism.
- Founded "Hitachinaka Mudranalaya" press to publish Vachana literature.
- Translated some Vachanas into English.
- Published magazines "Shiv Anubhava" and "Navakarnataka".

- Earned the title "Vachana Pitamaha" (Grandfather of Vachana Conservation).
- Credited with reviving and bringing to light the works of 200 forgotten Sharanas (Vachana writers).
- Establishment P.G. Halakatti Research Centre.
- He ensured the survival and accessibility of Vachana Literature, for future generations.
- The books Halakatti wrote or edited include: Sri Basaveshwara Vachanagalu (1926), Mahadeviayakkana Vachanagalu (1927), Prabhudevvara Vachanagalu (1931), Devara Dasimayyana Vachanagalu (1939), Sakalesha Madarasana Vachanagalu (1929), Shunya Sampadane (1930), and Siddarameshvarana.

MAHARISHI SUSHRUTA

Why in News: The Department of Plastic Surgery of All India Institute of Medical Sciences (AIIMS), Delhi, recently announced plans to conduct research on the surgical practices pioneered by Maharishi Sushruta during ancient India.



Key Details

- Objective:** The project aims to conduct a comparative study of the latest existing medical surgery and the oldest recorded surgery of Sushruta.
- Funding:** AIIMS (Delhi) has requested the Ministry of Science and Technology to make a grant for this research.

Maharishi Sushruta and Sushruta Samhita

- Sushruta Samhita is said to be one of the oldest medical systems in Ayurveda, believed to have been written about 3,000 years ago, before 600 BC.
- It is the compilation of medical knowledge of Maharishi Sushruta who is known as **“the Father of Indian medicine and Father of Plastic surgery”**.
- Maharishi Sushruta lived 2000 years ago in the ancient city of Kashi, now known as Varanasi or Banaras.
- Sushruta Samhita has 184 chapters:
 - It mentions more than 150 types of surgical instruments such as knives, needles, tongs, sharp tools, thread, etc which were used for multiple purposes by boiling them for sterilization.
 - It has details of **1120 diseases**, their symptoms and surgeries.
 - It gives an account of the **700 varieties of plants used for surgery**, with their properties & identifications.
 - While detailing the **12 types of broken bones**, it mentioned **7 types of dislocations** of bones and joints.
- For successful surgery, Sushruta induced anesthesia using intoxicants such as wine and henbane (Cannabis indica).
- Sushruta has described surgery under eight heads: Chedya (excision), Lekhya (scarification), Vedhya (puncturing), Esya (exploration), Ahrya (extraction), Vsraya (evacuation), and Sivya (suturing).
- In the eighth century AD, Sushruta Samhita was translated into Arabic as **“Kitab Shah Shun al –Hindi”** and **“Kitab – I – Susurud.”**

SANT DYANESHWAR - WARKARI SAINT FROM MAHARASHTRA

Why in News: Recently the Palkhis carrying padukas (footwear) of Warkari saint Dnyaneshwar from Alandi temple reached Pandharpur, at Vittala Temple.

About Sant Dnyaneshwar Maharaj

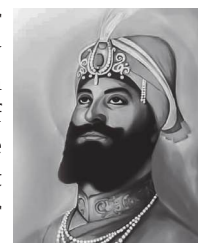
- Sant Dnyaneshwar was born in 1275 to devout and religious parents in Apegaon village on the banks of Godavari River near Paithan in Aurangabad district in Maharashtra.
- He belonged to a family that held the ‘watan’ of Kulkarni in Apegao.
- **Siblings of Dnyaneshwar:**
 - **Nivrattinath:** His elder brother, considered a spiritual guide to Dnyaneshwar.
 - **Sopan:** His younger brother.
 - **Muktabai:** His younger sister, also a revered saint.



- The Brahmins of the area ostracized his parents for adopting Grihastha Ashram after Sanyas.
- Despite facing adversity, including the ostracism of family, Dnyaneshwar emerged as a profound thinker, poet, and yogi.
- Approximately between the ages of thirteen and sixteen, Sant Dnyaneshwar realized that the Gita’s teachings could be read and understood only by a small Sanskrit-knowing elite.
- He then under the advice of his guru, Nivrathinath, rendered a Marathi version of the Gita known as Dnyaneshwari or Bhawarth Dipika, explaining complex philosophical concepts lucidly and clearly. This composition is considered as the fundamental Granth of the Warkaris.
- Dnyaneshwari, written in Marathi, seeks to highlight the deeper significance of Arjun’s personal spiritual experience.
- Along with Dnyaneshwari, Dnyaneshwar has written Amritanubhava / Anubhava-mrit at Newase village in Ahmednagar District.
- Sant Dnyaneshwar was aware of other forms of spirituality, such as “Bhakti” and idol worship with Shree Krishna.
- This literary work showcases his deep understanding of yoga and philosophy.
- Dnyaneshwar presented his work to his guru **Nivrattinath** and sought his blessings. He did this through a poem of just nine verses called **Pasaydan**.
- Sant Dnyaneshwar believed that the evils in human beings are indulgence, anger, greed, pride; Kama, Krodh, Lobh, Matsar and Ahankar. He prayed that these evils be replaced by kindness, humility, tolerance, forgiveness and devotion and surrender to God.
- After composing ‘Amritanubhava’, Sant Dnyaneshwar went to visit the holy places along with Namdeo and other saints of his time.
- After completing their visits to the holy places, Dnyaneshwar felt that the mission of his life was over. He therefore, expressed his intention to take Samadhi.
- Ultimately, on the 13th day of the second half of Kartik in Shaka 1218 Dnyaneshwar Maharaj took live Samadhi at Alandi.

GOVIND GURU BANJARA

Why in News: Recently, a large number of people from the Bhil tribe recently gathered at a rally in Rajasthan’s Mangarh Dham, where Banswara’s Member of Parliament Rajkumar Roat raised the “long due” demand for an independent ‘Bhil state’. Earlier, the Bhil social reformer



and spiritual leader Govind Guru first raised the demand for a separate state for tribals back in 1913.

About Govind Guru Banjara (1858-1931)

- **Govindgiri, also known as Govind Guru Banjara** was a social reformer from the Dungarpur district of Rajasthan who engaged himself in the betterment of the **Bhil** community in the region.

Samp Sabha

- In 1883, Govindgiri started an organization called Samp Sabha which aimed towards uniting the Bhils.
- He organized annual meetings of the Samp Sabha on the Managarh hill.
- Members of the Samp Sabha were encouraged to set up Panchayats, to oppose injustice and refrain from forced labour.
- Though the Samp Sabha began with socio-religious reforms which attracted many followers, it acted as a spark to resist all exploitation under colonial rule and demand for an administration in the interest of the Bhils.
- Many princely states joined hands with the British to suppress the Samp Sabha and even opened fire at the crowd at the annual congregation in 1908.
- Govind Giri was arrested and imprisoned for life.
- He encouraged his followers to give up social evils such as adultery, theft, the practice of dowry etc.
- His teachings succeeded in awakening the Bhils and it culminated in the politico-economic revolt of the Bhils, which is popularly known as the **Bhagat Movement**.
- The Bhil uprising had several ramifications, particularly against the policies under British rule.
 - It made it easier to mobilize them to revolt against the forced labour and the high revenue rates in 1921-22.
 - It also forced the Rajput states to treat the Bhils sympathetically. In the states of Dungarpur, Banswara, and Sunth, forced labour was abolished except for state purposes.
- A social reformer movement was also launched by Govindgiri where he tried to uplift the moral and material life of the Bhils through socio-religious preachings. This socio-religious movement which was initiated by Govindgiri continued even after his death in 1931 by his disciples.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Govind Guru was associated with which of the following tribal movement in colonial India:

- (a) Larka Rebellion (b) Vedcchi Movement
(c) Bhagat Movement (d) Tana Bhagat Movement

Answer: (c)

MANGAL PANDEY

Why in News: Recently, the Prime Minister of India has paid tribute to freedom fighter Mangal Pandey on his 197th birth anniversary.



About Mangal Pandey

- Mangal Pandey was born (July 19th, 1827 – April 8 1857) at a town near Faizabad currently eastern Uttar Pradesh (earlier under the kingdom of Awadh.)
- He joined the East India Company's army at the age of 22 as a soldier in the 6th company of the 34th Bengal Native Infantry.
- **The Barrackpore Incident:** On March 29, 1857, Mangal Pandey, refused to use the new Enfield rifle cartridges that were allegedly greased with animal fat, and fired at his Senior Sergeant Major. On April 8, 1857, he was hanged for his involvement in the mutiny at the Barrackpore military cantonment near Calcutta (now Kolkata).
- **Inspiring the Rebellion and Symbol of Resistance:** Mangal Pandey's defiance at Barrackpore served as a catalyst and inspired many other Indian soldiers and civilians to rise up against British rule, ultimately leading to the widespread Indian Rebellion of 1857, popularly known as 'First War of Independence' against the British Rule in India.
- **Contribution to Indian Nationalism:** By taking a stand against the oppressive British policies and refusing to succumb to unjust orders, Mangal Pandey played a vital role in laying the groundwork for the birth of Indian nationalism in India. His bravery and sacrifice inspired future generations of Indian freedom fighters and leaders, who carried forward the struggle for independence against British rule in India.
- **Impact on British Policies:** The actions of individuals like Mangal Pandey followed by the Indian Rebellion of 1857, led the British government to reconsider some of their policies and eventually resulted in the transfer of power from the East India Company to the British Crown (beginning the era of direct British rule in India).
- **Commemoration:** Mangal Pandey's name and memory continue to be commemorated in India, with numerous streets, parks, and institutions being named after him as a tribute to his contributions to the country's freedom struggle.
- **Cultural Representation:** Mangal Pandey's story has been depicted in various books, films, and other media, making him a prominent figure in India's cultural and historical narratives of resistance and independence.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Who among the following joined the East India Company's army at the age of 22 as a soldier in the 6th company of the 34th Bengal Native Infantry.

- (a) Kunwar Singh (b) Nana Sahib
(c) Tantia Tope (d) Mangal Pandey

(d) :Answer

ARUNA ASAF ALI

Why in News: Recently, the 115-birth anniversary of the female freedom fighter was widely remembered for her daring act of hoisting the Tricolour at the Gowalia Tank maidan, Bombay during a Quit India Movement in 1942.

About Aruna Asif Ali

- Aruna Asaf Ali (16 July 1909 – 29 July 1996) was born in the village Kalka Punjab (British India) now in Haryana into a Bengali Brahmin family.
- She was brought up with liberal Brahmo Samaj upbringing & married to Asaf Ali a Muslim Congress leader.
- She came into her own and became part of the female leadership of the Congress along with figures like Sarojini Naidu, Sucheta Kripalani, Kamaladevi Chattopadhyay.



Contribution in Indian freedom struggle

- In 1932, Aruna was jailed for participating in the Civil Disobedience movement. After the Gandhi-Irwin Pact, all the political prisoners were to be released. But Aruna, in spite of Gandhi's directions, decided to stay.
- Aruna co-edited a newspaper called 'Inquilab' with Ram Manohar Lohia & also protested against the inhuman treatment meted out to prisoners in Tihar Jail. Her efforts helped improve the conditions of Tihar jail.
- She was an Indian educator, political activist, publisher & also participated in public procession during the salt Satyagraha.
- Aruna left the Congress for the Communist Party of India. There she created the 'National Federation of Indian Women' - women's wing of Communist Party of India.
- Post-independence, she remained active in politics, becoming Delhi's first Mayor in 1958.
- In the 1950s and 60s, she became a staunch advocate for social and economic equality, aligning with socialist ideologies.
- She ran the left-leaning Patriot newspaper and the weekly magazine Link in New Delhi.

- She was also awarded the Padma Vibhushan in 1992 and the Bharat Ratna posthumously in 1997 for her contributions as a freedom fighter and social activist.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Who among the following freedom fighters was the first mayor of Delhi & created the 'National Federation of Indian Women':

- (a) Usha Mehta (b) Aruna Asaf Ali
(c) Kamaladevi Chattopadhyay (d) Sucheta Kripalani

(b) :Answer

CHANDRA SHEKHAR AZAD

Why in News: The Prime Minister of India recently has paid tributes to Chandra Shekhar Azad on his 118th birth anniversary.

About Chandra Shekhar Azad

- Chandrashekhar Azad was born on 23 July 1906 in the erstwhile princely state of Alirajpur, now in Madhya Pradesh.
- Deeply moved by the Jallianwala Bagh incident on April 13, 1919, Chandrashekar participated in the Non-Cooperation movement in 1920-21 in Banaras and opposed the sale of foreign goods.
- He was arrested and put under trial in the court of Khareghat where the presiding magistrate was notorious for his brutality towards the freedom fighters. Chandrashekhar's attitude in the court was defiant.
- He was reported to have announced his name as 'Azad', his father's name as 'Swatantrata', and his residence as 'prison'.
- The magistrate was aghast at such defiance and subjected Chandrashekhar to fifteen lashes of flogging, and with every lash he shouted Mahatma Gandhi ki Jai, and Vande Mataram, and earned the name 'Azad'.
- With the suspension of the Non-Cooperation movement, Chandrashekhar Azad started engaging in a revolutionary freedom struggle.
- He came in contact with Manmath Nath Gupta and Pranavesh Chatterjee and became a member of the revolutionary party in Banaras.
- Involved in the Kakori Mail Robbery in 1925, under the leadership of Ram Prasad Bismil, Azad went to Jhansi and



stayed under the protection of Master Rudra Narayan Singh. In Jhansi, he was associated with Sadashiv Rao Malkapurkar, Bhagwan Das Mahaur, and Vishwanath Vaishampayan.

- On 8th and 9th September 1928 an all-India meeting of the revolutionaries was held at Feroz Shah Kotla, and the Hindustan Socialist Republican Association, HSRA came into existence.
- Though Chandrashekhar Azad did not attend the meeting, everybody accepted him as the Commander-in-Chief of HSRA.
- He took an active part in the killing of Saunders on 17 December 1928, and it was at his instance that Bhagat Singh and Batukeshwar Dutt exploded bombs in the Central Legislative Assembly on 8 April 1929.
- He was also indirectly involved in the attempt to blow up the Viceroy's train in December 1929.
- He lived up to his resolve of not getting arrested by the British and shot himself, when he was surrounded by heavily armed policemen on 27 February 1931 in Alfred Park, Allahabad.
- The Alfred Park in Prayagraj (Allahabad), Uttar Pradesh is now named in his memory as Chandrashekhar Azad Park.

- The pistol he used still adorns the walls of the museum in Prayagraj, Uttar Pradesh.
- His last words were, "Dushman ki goliyon ka hum saamna karenge. Azad hi rahein hain, azad hi rahenge," which translates to "We will face the bullets of the enemies. We are free and will remain free,"

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Who among the following was involved in the Kakori Mail Robbery in 1925, under the leadership of Ram Prasad Bismil:

- (a) Rudra Narayan Singh.
- (b) Bhagwan Das Mahaur
- (c) Chandra Shekhar Azad
- (d) Vishwanath Vaishampayan

Answer: (c)

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YOJANA SUMMARY (JULY 2024)

FOOD PROCESSING SECTOR

- **Impact of food processing on employment generation and skill development-** Steadfast focus on Innovation, sustainability and market integration.
- India's Food processing Sector: - **Sunrise Sector**
- In recent years, India's Food processing sector have been known for its high growth, which has led to increase its contribution to the world food demand every year.
- **Issue:** - But Currently, India is processing less than 10% of its Agricultural output.
- **Need:**
 - Increasing processing level.
 - Immense investment potential.
 - Creating Skilled Workforce
- **Why sunrise sector:**
 - With about **70% households** still dependent on agriculture for their livelihood in India.
 - The sector provides huge employment generation potential as well.
- **Agricultural Production in India :** Consistently recorded higher output ranking (as follows), in the world agriculture
 - Pulses and milk
 - Vegetables, fruits, wheat and rice
 - Cereals, egg.
- **Status and role of Food Processing Sector (FPS) in India:** Food processing sector has emerged as an important segment of the Indian economy in terms of its contribution to GDP, employment and Investment potential.

(a) Contribution to GDP:

Food processing sector(FPS), during last 5 years ending 2020-21,had grown at an average annual growth rate of 8.38% as compared to around **4.87%** in the agricultural and allied sectors at (2011-12 prices) i.e., FPS has constituted as much as 10.54 % (**Manufacturing**) and 11.57 %(**Agricultural sector**).

However, even after increase in demand of processed food and ready to eat food in India, the share of Food processing Industry (FPI) in overall GVA has only been **1.88%** (2020-21) as against the share of manufacturing (**17.86%**) and Agriculture (**16.26%**)

(b) Skill development Initiatives

Challenge: Availability of skilled manpower in the FPI in India

What has been done so far: Ministry of Food processing Industries (**MoFPI**), working in close collaboration with **FICSI** (Food industry capacity and skill initiative), **SSC** (Sector skill council) ,**NIFTEM**(National Institute of food technology entrepreneurship and management)- institute under MoFPI to regularly guide and assist, it in achieving its mandate.

The **Net Expected:** Skilled Human resource requirement in the **11 major subsectors** of the industry in the country during 2021-30, would be around 13.4 Lakh.

11 Major subsectors:

- Bread and bakery products.
 - Cold chain (including logistics)
 - Meat and poultry processing
 - Milling (grains and oil seeds)
 - Beverages (tea and coffee)
 - Ready to eat and ready to cook products
 - Soya processing and Spices
 - Dairy products
 - Fish and seafood processing
 - Fruits and vegetable processing
 - Condiments
- Government has taken several skill development initiatives.
 - To ensure availability of **technically qualified and trained staff**
 - Strengthening the **SSC (skill sector council)** to complete the validation of the **Qualification packs (QPs)** for each job role.
 - Assisting in the development of the course curriculum through NIFTEM.

(c) Employment generation: As per the latest **Annual survey of Industries (ASI) 2019-20**

- Total number of persons engaged in the **registered FPS** was 20.32 Lakhs.

- (ii) **Unregistered FPS** supported employment of 51.11 Lakh workers- which corresponds to the 14.18% employment in the unregistered manufacturing sector.

What has been done: **MoFPI** has implemented Central sector scheme (CSS)

(i) **Pradhan Mantri Kisan Sampada Yojana (PMKSY):**

- Facilitated Creation of modern infrastructure
 - Efficient supply chain management (from **Farm Gate to Retail Output**)
 - Creation of employment opportunities.
 - Reducing of wastage of Agriculture produce.
 - Increasing processing levels.
 - Increasing export of processed foods.
- **Milestone Achieved:** All this has created substantial direct/indirect employment opportunities (9.69 Lakh in number of projects completed under component schemes of PMKSY).

MoFPI under Atmanirbhar Bharat Abhiyaan has implemented CSS

(ii) **Pradhan Mantri Formalization of Micro Food processing enterprises (PMFME)-June 2020-**

- **First** ever government scheme for **Micro food processing** (MFP) enterprises through credit linked subsidies and adopting the approach of One district one product (ODOP).
- Aims to enhance the competitiveness of individual microenterprises in the unorganized segment of Food processing Industry.
- To encourage Vocal for Local.
- Total outlay – **10,000 crore**
- Period: **2020-2025**
- Promotes **formalization of FPS**
- Milestone achieved: Since its inception a total of 65,094 loans have been sanctioned under credit linked subsidy component
- Loans to: Individual beneficiaries, Self help Groups (SHGs), Farmer Producers Organization (FPOs), Producer Cooperative Societies.
- **Role of NABARD in food processing and storage infrastructure**
 - NABARD has been at the forefront as an important stakeholder in the FPS.
 - Playing vital role in infrastructure creation for FPIs.
 - NABARD manages two important funds viz.

(i) **FPF (Food processing fund)**

(ii) **WIF(warehouse infrastructure fund)**

- Allocation of the two funds: Government of India

- Purpose: For supporting the FPS and the creation of warehouse infrastructure for scientific storage of food grains in the country.



(i) **Food Processing Fund (FPF):**

- **Instituted in:** NABARD (2014-15)
- **Corpus:** 2000 crore
- **Objective:** providing affordable credit to public and private players for setting up of Designated Food Parks (DFPs) notified by the MoFPI, GOI.
- Establishing food processing units, therein
- **Milestone achieved:** Till March 2024, NABARD sanctioned "**Term Loans**" of 1191.57 cr for 14 Mega food parks(MFPs) , 03 Industrial Parks(IPs) and 09 Agro processing clusters(APCs) and 15 Individual Food Processing units(FPUs).
- **Expected Capacity creation:**
 - Area – 1370.03 acres – 14 MFPs + 03 IPs+ 09 APCs (these will act as central Processing centers (CPCs)
 - 14 CPCs of MFP projects will be supported by 45 Primary Processing centres (PPCs) and several Collection Centres(CC)s
 - To be established in the catchment zone of the respective MFP
 - Collection centres (CCs)- Help in the sourcing of Agricultural produce directly from the farmers by FPUs to be established in the MFPs
 - Creating Direct market access to the user industry.
- **Term Loans:**
 - Activities covered : MFP, IP, APC, and Individual Units
 - Borrowing Entities: State Governments, State Government owned entities, SPVs, Federations,

Companies, Partnership firms, Limited Liability Partnerships(LLPs)

- **PLI (Performance Linked Incentive):** GOI has approved PLI scheme for 10 Key sectors including Food processing sector.
- **Budgetary Outlay :** 10,9000 crore.
- **Tenure:** 6 years.
- **Viability:** Financing of Industrial units coming up in completed DPFs, especially those that have been supported by NABARD, will ensure the viability of both the DFP, and the IFPUs, respectively.

(ii) Warehouse Infrastructure Fund (WIF)

- **Announced:** 2013-14
- **Corpus:** Rs. 5000 crore (2013-14)
- **Further Allocation:** Rs. 5000 crore (2014-15)
- **Need:** To support State Government, State Government owned entities, and corporate for
- Creation of scientific warehouse capacity through financial support.
- Creation of storage infrastructure in APMCs was included late.
- **Types:** Dry Warehouses, cold-storage facilities, cold-chain infrastructure.
- **Milestone Achieved:**
 - ◆ 8161 projects sanctioned across the country.
 - ◆ Creation of 13.74 Million Metric Tonne (MMT), out of which 9.69 MMT are “scientific storage”.
- **Spreadout in the country:**
 - ◆ **Southern and Western Region:** Majority of decentralized storage.
 - ◆ **Northern Region:** Major procurement region accounted for large sized storage structures.
 - ◆ **Gujarat, Odisha and Tamil Nadu:** Small size storage structures at Village level.

• Estimated investment potential in FPS

- **Market size:** Rs.28, 057.5 billion (2023)- one of the largest in the world.

- **Output expected to reach-** 61,327.5 billion (2032)
- **Projected Market growth rate – 8.8%**
- **Initiatives:** Planned infra spending of approx Rs.100 lakh cr under the **NIP (National Infrastructure Pipeline)** and **PMKSY** with budgetary outlay of 4600 cr till FY 2020-2025 have provided much needed fillip to the sector.

• Policy Initiatives:

- Exempting all processed food items from the purview of licensing under the **industries(Development and Regulation)Act,1951.**
- Allowing 100% FDI through an automatic route for the FPS.
- Lowering GST for raw and processed products.
- Covering more than 71.7% food products under various chapter heads and sub-heads in a lower tax slab of (0-5%).

• Way Forward:

- To make india a developed country by 2047 , the contribution of FPS to the overall GVA needs to be Quadruple to ~7.2%
- Making India’s processed food exports globally competitive.
- Policy focus should be on making india a market leader in global trade for atleast **five value chains**:
 - I. Processed fruits and vegetables
 - II. Processed fish and sea food
 - III. Meat
 - IV. Dairy products
 - V. Poultry and Eggs
- This must be accompanied by nurturing a skilled workforce for the gaps between the workforce and the industry.

KURUKSHETRA SUMMARY (JULY 2024)

Making Lakhpati Didis

Summary: The Deendayal Antyodaya Yojana-National Rural Livelihood Mission (DAY-NRLM) is a major poverty eradication initiative by the Indian government, empowering rural women through collective action and diversified livelihoods. Mobilizing over 10 crore households into 91 lakh Self Help Groups (SHGs), the program now focuses on sustainable livelihoods through the Integrated Farming Cluster (IFC) approach. IFCs aim to make each household a “Lakhpati Didi,” earning at least ₹1 lakh annually by providing multiple farm and non-farm livelihood options, promoting climate-resilient agriculture, value addition, market linkages, and entrepreneurship, ensuring consistent income and economic resilience.

Background: Deendayal Antyodaya Yojana- National Rural Livelihood mission

About: - One of the **world’s Largest Poverty eradication programme**

Run by: - **Flagship scheme** of Ministry of Rural Development, GOI

Main Goals:-

- Focusing towards improvement of **social status** and **economic capabilities** of rural women from small, marginal, landless and other vulnerable households through :
 - Formation of their collectives.
 - Intensifying and expanding their existing livelihoods.
 - Bringing in new farm, non-farm and other economic opportunities by access and linkages through their collectives.
 - Pursuing diversified and multiple livelihoods each at manageable scale - employed as the risk mitigation strategy for such economically challenged and vulnerable rural households.

Significance of the Programme (DAY-NRLM):-

- It has mobilized more than 10 crore households into 91 Lakh Self Help groups (SHGs) and their Community institutions.
- These SHGs and the CIs provides capitalisation support, to enable them (households) for inter-lending.
 - Also , they connect them to the formal Financial Institutions (Promoting Financial Inclusion)

What is the current need?**Diversified Livelihood Intervention**

As the mobilization of poor households into SHGs and their Financial inclusion has reached saturation levels. The need is to create sustainable livelihoods for the members.

Entire focus:- To ensure each household having multiple livelihoods to ensure income stream round the year and **risk mitigation**.

Important intervention areas:

- (i) Promotion of sustainable and climate resilient agriculture through various Agro Ecological Practices (AEP)
- (ii) improved livestock management practices
- (iii) sustainable Non Timber Forest Produce (NTFP) collection practices
- (iv) Value chain intervention with selected farm and NTFP commodities through bringing in improved technology
- (v) Value Addition
- (vi) Aggregation and market linkages- for better price realization through promotion of need based informal Producers Group (PG) and formal Producers Enterprises (PE)
- (vii) Identification, grooming and placement of livelihood community cadres (LH CRPs) to provide 24X7 doorstep livelihood services
- (viii) Continuous on-field handholding supports to SHG women and
- (ix) Promotion of entrepreneurship

Stress is on to create: Different **livelihood models**

- (i) Across the farm and non-farm sectors
 - (ii) Combination of both the farm – Non-farm sectors
 - (iii) For enhancing the household income (that each household earns at least 1 Lakh rupees in a year) becoming Lakhpati .
- **Who is a Lakhpati Didi:** A Lakhpati Didi is a Self-Help Group member who earns an annual household income of Rupees One Lakh (Rs. 1, 00,000) or more.
 - **How this income is calculated:** This income is calculated for at least four agricultural seasons and/or business

cycles, with an average monthly income exceeding Rupees Ten Thousand (Rs. 10,000), so that it is sustainable.

- **Their Significance on society:** - They serve as an inspiration to the community, not solely for their income, but for their transformation journey through:
 - Adopting sustainable livelihood practices (farm or non-farm or service),
 - Effectively managing resources, and
 - Achieving a decent standard of life.
- ◆ **Lakhpatri Initiative:** facilitates diversified livelihood activities, by ensuring convergence across all Government departments/ Ministries, Private sector and Market players.
- ◆ The strategy includes focused planning, implementation and monitoring at all levels.

Subscheme in Lakhpatri Didi: Integrated Farming Cluster (IFC)

Concept of IFC:

- **Comprises:** - Two-Three (Changes according to state) adjoining intervention villages covering about 250-300 households.
- **Components of IFC:**
 - **Crop Production:** This includes field crops, horticulture, and plantation.
 - **Livestock:** Dairy, piggery, goat rearing, poultry, duck, etc.
 - **Apiculture:** Beekeeping.
 - **Non-Timber Forest Products (NTFP):** Various livelihoods related to forest resources.
- **Support:** - These households will be get support in **2-3 livelihood options (Farm and Non-Farm)** with strong **Backward and Forward linkages.**

Forward Linkage: Occurs when development of an industry stimulated the growth of the industries that uses its products as inputs in their own production process.

E.g. Steel Plant increases production → Increased raw material for other industries → encouraging growth in other sectors.

Backward Linkage: - occurs when the development of an industry stimulated the growth of the industries that supply it with raw materials, components or services.

E.g. Car manufacturing increases → production of raw material increases as input increases.

How **IFCs Approach** is different:

(1) Focus on **Diversity of farmers:**

- Landless
- Leased-in-land farmers
- Rain-fed farmers

(2) Introduces more comprehensive approach to provide end to end solution.

• **Approach:**

- Ensure that each targeted household has a basket of income sources to provide regular income stream throughout the year.
- Output consistency
- High profitability from the whims of the monsoon and fluctuation in market prices.

• **Principles of IFC:**

- **Improving:** Enhancing existing livelihood activities.
- **Intensifying:** Making existing activities more productive.
- **Expanding:** Exploring new opportunities.
- **Integrating:** Coordinating different activities to optimize resource use and minimize waste.

• **Process:**

- Asset creation for enhanced production and processing value addition.
- Honoring skills of producers to augment their productivity.
- Ensuring access to credit at affordable rates.
- Facilitating access to market and improved technologies.

• **Strategy:**

Focus Areas of IFC:

- The area of saturation of social mobilization and financial inclusion processes
- Where initial livelihood initiatives related to production and productivity are well grounded.
- Wherever, a sizable population exists.
- Small ruminant productivity enhancement.
- Horticultural diversification
- Climate resilience Agriculture.

• **Function of Clusters:**

(i) **Value addition/Market Linkage** – Cluster collectivises and aggregates individual produce at the village and/or cluster level through small producers (**Producer Groups**)

Producer Groups:

- Informal Institutions.
- Aggregates the individual produce
- Reduces the transaction cost of primary value addition and market linkages
- **In larger areas :**
 - ◆ These PGs may be federated into **Producer Enterprises**- for larger aggregation
 - ◆ Secondary value addition/ processing/ packaging/labeling.

- ◆ Market linkage/marketing directly /or through partnership.

(ii) **Enabling environment:-**

A tripartite MOU was signed between **ICAR** (Indian Council of Agricultural research), Responsible Coalition for Resilient Communities-**RCRC** (Conglomerate of Civil society organizations) and **DAY-NRLM** in **2021**.

(iii) **Project Implementation:-**

- **December 2021** – first launched in **Ranchi, Jharkhand**
- Duration- 3 Years
- First phase : **400** such IFCs allocated to 13 states supported under World Bank funded **NRETP** (National Rural Economic Transformation Project)
- **List of States:** Assam, Bihar, Chhattisgarh, Jharkhand, Gujarat, Rajasthan, Madhya Pradesh, Maharashtra , Karnataka, Odisha, Tamil Nadu, Uttar Pradesh, West Bengal.
- **6000** more such clusters have been approved under the **Mahila Kisan Shasaktikaran Pariyojana**-Subcomponent under (DAY-NRLM)
- **Mahila Kisans/Women Farmers- (Torch Bearers)** Central actor in every intervention- Both as **farmer** and as the **entrepreneur**.

- **Objectives** of this project -

- (i) Provide end to end solution under various interventions.
- (ii) To enhance the income of rural households at every level of intervention.
- (iii) To empower women through collective livelihood action.

- **Implementation framework:** Required a step by step intervention in order to achieve the desired goal.

- (i) **Identification of Geography** of a given IFC, important as in terms of Approachability, common commodities, similar social structure.

***Areas to be Preferred:** - Significant possibilities for creation of livelihood assets through mission convergence with MGNREG scheme, Ministry of Agriculture and Farmers Welfare, etc.

- (ii) **Identification of Households:**

- Beneficiaries to be drawn from existing SHGs – Those included in mission sponsored farm livelihood activities.
- Interested women Farmers- must have agriculture or livestock rearing as their core livelihoods.
- Should be actively involved with the farmer field school.
- May be part of existing producer group/company.

- (iii) **Commodity Identification:** A study should be conducted in the **selected Cluster area**.

This study helps in:

- Identifying potential products for promotion in the IFC cluster.
- To assess the preliminary situation of the farmers and the level of agriculture in the area.
- Helps in generating data related to current situation of farming and small marginal and tenant farmers.
- Identify 2-3 commodities –
 - ◆ Either universal among the intervention households.
 - ◆ Can be easily adopted with good marketing potential.

- The value chain for all intervening household their adaptability, in each and every household is mandatory.

- (i) **Placement of Human resource:** Provision for 2 dedicated Human resource

- (a) IFC anchor (b) Senior CRP (Community Resource Person)

Both the HR are identified, trained and deployed for smooth running of the project.

***Need:** - To support the implementation of IFC

- **Qualification:**

- **IFC Anchor:** (Preferrably) should have a **degree/ diploma** in Agriculture or Allied sciences with minimum **1 year experience** in Agriculture or farm-based livelihood promotion.
- **In case of no availability:** A person with regular bachelor degree + Two year experience in Agriculture.
- **Senior CRP:** Can be a experienced **Krishi Sakhi, Pashu Sakhi, Van Sakhi, or Udyog Sakhi** developed under DAY-NRLM.

- (ii) **Baseline survey:** Covers a variety of factors to identify the potential interventions.

- Plan development and business plan.
- Can establish indicators – so that can be measured to understand change contribution.
- Assessment: - Structured household level interviews and open ended focus group discussion with a variety of stakeholders.

- (vi) **Development of training and capacity architecture :**

- Every IFC cluster is unique in itself.
- It is important that training material is developed by CRPs, Mahila kisan households looking at the need and identified commodities.
- Support of krishi vikas Kendra/RCRC partners can also be sought.

- (vii) **Business plan for commodity wise intervention**

- It is an important aspect of IFC implementation.
- Plan needs to be developed for activities to

be undertaken for each commodity (after the identification of 2-3 commodities).

- Production, productivity, processing, primary and secondary and marketing.

(viii) Livelihood service centre(LSC)

- Envisaged as a hub of input, processing and output services.
- Governed by Senior CRP/ IFC Anchor.
- LSC will be developed on the lines of private players offering different services in (progressive agricultural belts) at the cluster level.
 - ◆ **Services**- Input shops, Agri machinery, nursery and saddlings.
 - ◆ Similar for **Livestock clinic**- feed, medicine etc

Function of LSC:-

- Procure and do sorting, Grading.
- Bulk selling and establishing linkage with the market.
- Private entrepreneur and community enterprises in the form of Farmer's Producer Organizations(FPOs) may also be leveraged in this regard.

(ix) **Financing** : DAY-NRLM supports each IFC in tune to **40 lakhs** and for further fund requirements:

- Sustained through convergence with different line departments.
- Support through Civil Society organizations(CSO)
- Private Organization by the respective State Rural Livelihood mission (SRLM)

#Success story: - Kondagaon Block, Kondagaon District, Chattisgarh

- **What:** - Exemplary results in terms of **economic gains for 250 households** spread across 4 villages.
 - Identified **Four commodities**- Maize, Vegetable, Non-timber forest Produce, backyard Poultry
 - Result:- End to end intervention- Resulted in increase in income from 1000 to 12000 per month per member.
- **Conclusion:** IFC is a new and innovative concept introduced by DAY-NRLM with aim to provide sustainable and multiple livelihood option to the rural poor SHG households in a structured way. Due to proper planning and market centered strategy it has been able to induce confidence in the community and bring out entrepreneurial qualities of the individuals. This program

can certainly be a milestone in enhancing income of women farmers much more than the vision of Lakhpati Didi.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q1. Consider the following statements about the Integrated Farming Clusters (IFCs) under DAY-NRLM:

1. The IFC initiative aims to create 6000 more clusters under the Mahila Kisan Shashaktikaran Pariyojana.
2. The Pradhan Mantri Fasal Bima Yojana is the sub-scheme that supports the creation of these IFCs.
3. IFCs are designed to ensure that each household earns at least ₹1 lakh annually.

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

Q2. Consider the following statements regarding the concept of "Backward Linkages" in the context of the IFC approach under DAY-NRLM:

1. Backward Linkages refer to the development of industries that use the products from the IFC as inputs in their own production process.
2. Backward Linkages involve increasing the production of raw materials that serve as inputs for other industries.
3. Backward Linkages are focused on the aggregation and market linkages of individual produce.

How many of the above statements are correct?

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

Answer: (a) 2 only

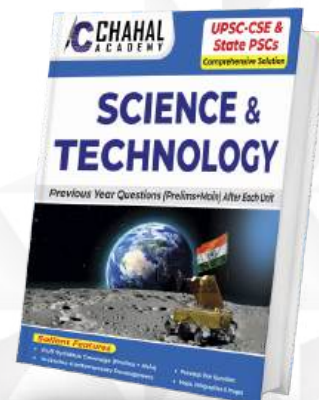
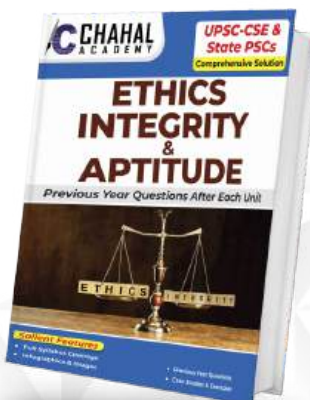
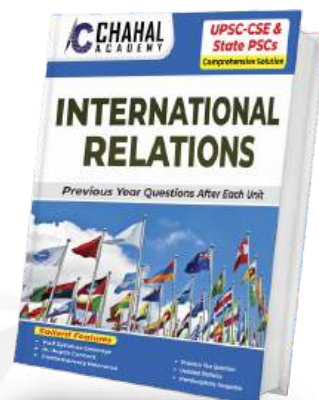
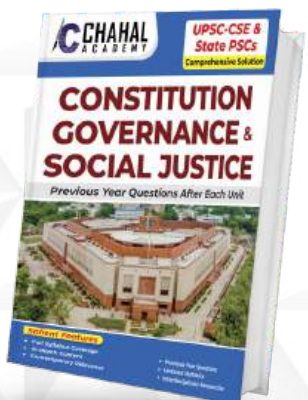
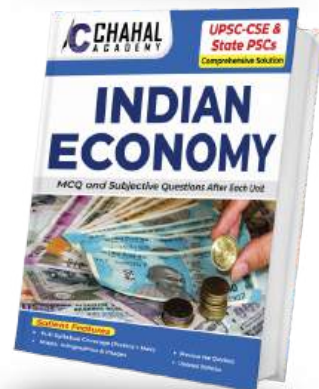
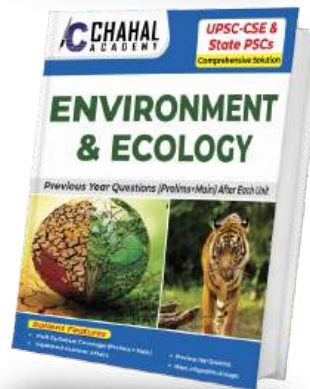
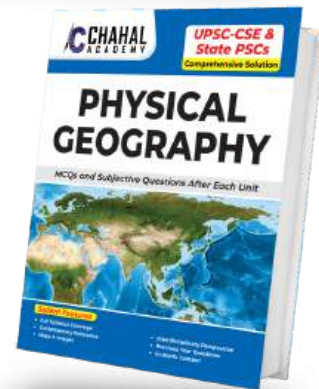
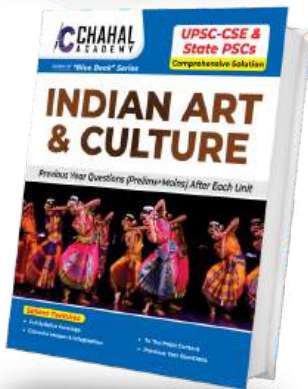
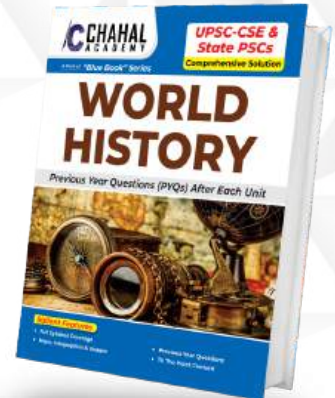
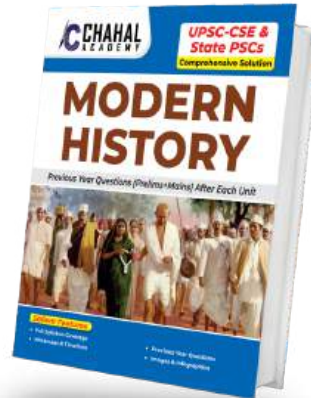
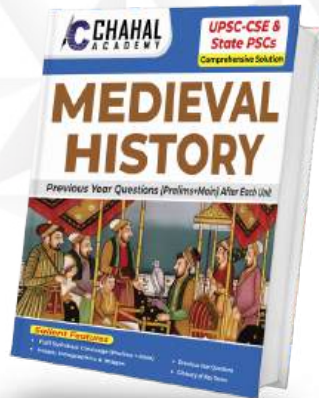
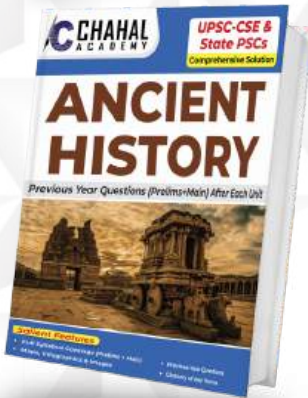
Descriptive Question

Q. Discuss the role of the Deendayal Antyodaya Yojana-National Rural Livelihood Mission (DAY-NRLM) in promoting financial inclusion and empowering rural women. How does this initiative contribute to poverty alleviation in India? [15 Marks] [250 Words]

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