

# CURRENT AFFAIRS

For Integrated Preparation of CSE Prelims + Mains + Interview

**INCLUDES**  
**UPSC-CSE 2024 Prelims Paper**  
**General Studies + CSAT (Pg. No. 115)**



*\*MCQs on Prelims 2023 Pattern*

- Economic Advisory Council to the Prime Minister (PM-EAC)
- Juvenile Justice Act
- India-Indonesia Relations
- BIMSTEC Charter
- India's Tourism Sector
- Periodic Labour Force Survey (PLFS)
- Urban Heat Islands
- Tackling Wildlife Crime

- Neglected Tropical Diseases (NTDs)
- X chromosome revival in older women
- Insurgency in North-East Region (NER)
- Deaf and Hard of Hearing (DHH) individuals in India
- Sri Madhava Perumal Temple
- Smart Cities Mission
- Catastrophic Soil Erosion
- Handloom Products of India: From Local to Global

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## POLITY &amp; GOVERNANCE

## CONSUMER PROTECTION ACT

**Why in News:** Advocates can't be held liable for deficiency under the Consumer Protection Act as per recent ruling from the Supreme Court of India.

## Key Details

The Supreme Court of India clarified that the services hired or availed of an advocate would be that of contract of personal service and would therefore stand excluded from the definition of service contained in Section 2(42) of the Consumer Protection Act 2019.

## About CPA 1986

Previously, the **Consumer Protection Act, 1986**, provided a broad framework for the protection of consumer rights in India at the district, state, and national level. However, there were several deficiencies in the Act itself, and there were several challenges in the implementation of the Act. Following were the issues with the 1986 Act:

- It did not cover e-commerce platforms
- It lacked provisions that could empower the authority to take *suo moto* action against any entity that violates the Act.
- The Act didn't address upcoming unfair business strategies that could harm the consumer, such as misleading marketing and advertising.

- Consumers were unaware of their rights under the act due to the complexities in the Act.
- **Case pendency was high**, as it took around 12 months on average to dispose of cases.

## Recent Developments in CPA 1986 through 2019 Amendment Act

## Six Consumer Rights

According to the Consumer Protection Act, 2019 a consumer has the right to:

1. **Be protected** against the marketing of goods, products or services which are hazardous to life and property
2. **Be informed** about the quality, quantity, potency, purity, standard and price of goods, products or services, as the case may be, so as to protect the consumer against unfair trade practices
3. **Be assured**, wherever possible have access to a variety of goods, products or services at competitive prices
4. **Be heard** and to be assured that consumer's interests will receive due consideration at appropriate fora
5. **Seek redressal** against unfair trade practice or restrictive trade practices or unscrupulous exploitation of consumers.

## Provisions of the Consumer Protection Act, 2019

## Simplified process for consumer dispute adjudication

- Consumer Commissions are provided more powers to enforce their orders.
- **Power to review orders:** State and District Commissions have the power to review their own orders.
- The **admissibility of the complaint has to be decided within 21 days**. If a decision is not taken within the stipulated time period, then that complaint will be deemed as admitted.
- **Complaints can be filed from the place of residence or work.**
- Easier online filing and the option of **videoconferencing for hearing**.

## Provisions related to e-commerce entities

- To enable the consumer to make an informed decision, e-commerce platforms or retailers should provide all information related to warranty/guarantee, return, refund, exchange, grievance redressal information, etc.
- These **platforms shall appoint a grievance redressal officer** who will be responsible for taking appropriate action as required by the Act.
- Platforms must acknowledge receipt of any complaint **within 48 hours** and take appropriate action on the complaint within a month of receipt of the complaint.
- Freedom to buyers for return of product or services on certified terms and conditions.

## Alternate Dispute Resolution mechanism

- A mediation process can be referred to by a Consumer Commission wherever there is scope for settlement between the parties involved.
- **Mediation Cells** will be established under Consumer Commissions that facilitate mediation.
- **No appeal** will be available against the settlement reached through the mediation process.
- **Punishment:** Various provisions related to punishment that can be doled out by a competent court. Penalties can be imposed for misleading advertisements, the sale of adulterated goods, or spurious products.
- Formation of the **Central Consumer Protection Council** headed by the **Union Minister of Consumer Affairs, Food and Public Distribution**, Minister of State as vice chairperson and other members from **various** fields. It will be an advisory body for consumer issues.
- **Consumer Disputes Redressal Commissions (CDRCs)** will be set up at the district, state, and national levels.

**Other provisions:**

- **Concept of Product Liability:** in case of injury or harm caused by a defective product or deficient service, the service provider or product manufacturer shall be liable for compensation

➤ **No fees for filing cases up to INR 5 lakh**

➤ State Commissions shall provide information related to case disposal, pendency, vacancies, etc. to the Union Government on the quarterly basis.

**Comparison between 1986 and 2019 Act**

Consumer Protection Act, 2019	Provisions	Consumer Protection Act, 1986
CCPA is established	Regulator	No separate regulator
Complaint can be filled in a consumer court where the complainant resides or work	Ease of filling	Complaint can be filled in a consumer court where the seller's office is located
Provision for compensation for the harm or damage caused	Product liability	No provision.
District: up to INR 1 Crore State: INR 1 crore to 10 crore National: Above INR 10 crore	Pecuniary Jurisdiction	District: up to INR 20 lakh State: INR 20 lakh to 1 crore National: Above INR 1 crore
Court can refer settlement through mediation	Mediation	No legal provision
Various provisions related to e-commerce platforms and retailers	E-commerce	No provisions

**Challenges**

- Vacancies in the State and District CDRCs are not filled, which adds to the pendency of cases.
- Lack of consumer awareness.
- Lack of infrastructure and resources required at various levels for effective and efficient implementation of the act.
- Lack of coordination among various stakeholders at the state and national level.

**Conclusion**

The 1986 Act was outdated and lacked provisions that are necessary for the protection of consumer rights. The 2019 Act introduced many important aspects that empower consumers, such as product liability, mediation, provisions related to e-commerce, etc. This Act is a positive step in the right direction towards consumer empowerment. However, challenges related to vacancies, lack of infrastructure and resources, consumer awareness, etc need to be addressed for effective implementation of the Act.

How many of the above are constitutional bodies?

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

Answer: a

**Descriptive Question**

Q. Discuss the Consumer Protection Act in the detail with important provisions also analyze its role in consumer protection in the India. [15 Marks] [250 words]

**JUVENILE JUSTICE ACT**

**Why in News:** The ruling in the case of "Child in Conflict with Law (CCL) through his mother v. State of Karnataka" by the Supreme Court addresses the act's provision for the initial evaluation of CCL in cases involving heinous offenses.

**EXPECTED QUESTIONS FOR UPSC CSE**

**Prelims MCQ**

Q. Consider the following organisations/ bodies in India:

1. The National Commission for Backward Classes
2. The National Human Rights Commission
3. The National Law Commission
4. The National Consumer Disputes Redressal Commission

**Who is a Juvenile?**

- Under the Act, any child who is **below the age of 18 years is a juvenile.**
- No child below the age of 7 years can be convicted under any law in India.
- This law makes **distinctions between two kinds: 'child in conflict with the law' and 'child in need of care and protection'.**

## Juvenile Justice Act (Care and Protection of Children Act), 2015

- This Act aims to provide a framework related to children who are in conflict with the law and for children who are in need of care and protection.
- This Act aims at fulfilling the obligations and commitments made by India as a signatory to the **United Nations Convention on the Rights of the Child** and other related international conventions.
- This Act replaced the Juvenile Delinquency Law and the Juvenile Justice (Care and Protection of Children) Act, 2000.
- This Act categorises offences committed by children in three categories:
  - **Petty offences:** these are offences for which the maximum punishment under any law is **imprisonment up to 3 years**
  - **Serious offences:** these are offences for which the maximum punishment under any law is:
    - ◆ minimum imprisonment for a term more than three years and not exceeding seven years
    - ◆ maximum imprisonment for a term more than seven years but no minimum imprisonment or minimum imprisonment of less than seven years is provided
  - **Heinous offences:** these are offences for which the maximum punishment under any law is **imprisonment for seven years or more**
- There is a **special provision** under the Act that allows for the **trial of a juvenile as an adult for heinous crimes.**

### ● Juvenile Justice Board

Every **State Government shall constitute one or more Juvenile Justice Board** for exercising the power and discharge functions related to children under the Act.

#### ● Composition

A Metropolitan Magistrate or Judicial Magistrate of first class (referred to as the Principal Magistrate of the Board) and two social workers, one of whom should be women.

#### ● Section 15

In the case of a heinous crime alleged to be committed by a child aged **between 16–18 years**, the **Juvenile Justice Board shall conduct a preliminary assessment** with respect to the mental and physical capacity to commit such an offence and other factors such as the ability to understand the consequences of such action and surrounding circumstances.

★ After the assessment, the Board shall decide whether the child shall be tried as an adult or as a child. If the **Board decides the said child should be treated as an adult**, then the Board will transfer the case to the **Children's Court**, which has the jurisdiction to try such cases.

- **Child Welfare Committees (CWCs):** The **State Government shall constitute one or more Child Welfare Committees in every district by a gazette notification.**

- **Composition:** A Chairperson and four other members as the State Government deem fit. Out of this, one member should be a woman, and one member should be an expert on matters concerning children.
- CWCs shall be responsible for ensuring the care, protection, appropriate rehabilitation, or restoration of children in need of care and protection. These children could be lost or abandoned children, sexually abused children, or others. CWCs will be responsible for declaring the child legally free for adoption.
- **National Commission for Protection of Rights of Child Rights (NCPCR)** which is a **statutory body**, is responsible for the **implementation** of the various provisions of the Act.

### Adoption of a child

- The Act governs the process of adoption in India. It prohibits the adoption of a child outside the process laid down under the act. There is a punishment of imprisonment of 3-5 years and a fine of INR 1 lakh for such violations.
- The **Central Adoption Resource Authority (CARA)** is a **statutory body under the Act** that deals with the adoption of children (inter-country as well as intra-country) who are orphaned, abandoned or surrendered.
- Previously, the adoption orders were issued by a court. But it was found that this process was time consuming and led to many delays. To expedite the adoption process, there was an amendment to the act. The **Juvenile Justice (Care and Protection of Children) Amendment Act, 2021** gives **District Magistrate (including Additional DM)** the power to issue adoption orders.

### Issues related to the Act

#### Limited Capacity

CWCs and JJBs lack the human and financial resources that are necessary for the discharge of the functions prescribed in the act.

#### Rising Juvenile Delinquency and Pendency of cases

According to the Crime in India Report by the NCRB, the number of children in conflict with the law increased by 15% in 2019 as compared to the year 2009. Whereas there is a large pendency of cases involving juveniles. The conviction rate has decreased to 43% in 2019 as compared to 52% in the year 2009.

#### Undue influence

As witnessed in the recent Pune Porche Case, there was undue influence in the whole process, and the various institutions responsible for the prosecution were under political pressure because the accused juvenile belongs to a rich family.

#### Maturity, irrespective of age:

The core principle of this Act is that the child lacks maturity to comprehend the consequences of committing such crimes. But, due to the changing nature of society in the modern age, there is a need to assess the maturity of the child, irrespective of age.

**Conclusion**

The Juvenile Justice Act (Care and Protection of Children Act), 2015 was enacted after deficiencies in the process of dealing with juvenile delinquencies were exposed due to the Nirbhaya Case. In the wake of the recent Pune Porche Case, there is a need to relook at the Act and address the gaps in its implementation.

**EXPECTED QUESTIONS FOR UPSC CSE**

**Prelims MCQ**

Q. With reference to the Juvenile Justice Act (Care and Protection of Children Act), 2015, consider the following statements:

1. The Act governs the process of child adoption in India.
2. The Central Adoption Resource Authority (CARA) is a statutory body under the Act.
3. Every State Government shall constitute one or more Juvenile Justice Board.

How many of the above statements are correct?

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

Answer: c

**Descriptive Question**

Q. Highlight the procedural loopholes and issues related to Juvenile Justice Act (Care and Protection of Children Act), 2015? [10 marks] [150 words]

**FOREIGN CONTRIBUTION REGULATION ACT (FCRA)**

**Why in News:** Centre for Policy Research’s FCRA licence suspended over funding violations.

**Key Details**

- FCRA act was enacted in 1976 to regulate foreign donations amid interference concerns.
- It was amended in 2010 and 2020 to tighten control over foreign funds.
- Requires NGOs to register, open specific bank accounts, and file annual returns.
- Bars foreign contributions to certain individuals and entities.

**FCRA Registration Process**

- NGOs apply online with documentation and undergo Intelligence Bureau inquiries.
- Applicants must have legitimate cultural, educational, or social programs.
- Should not have convictions for religious conversion, communal tension, or sedition.

- Approval or rejection must occur within 90 days.

**FCRA Registration Validity and Cancellation**

- Registration is valid for five years, with renewal applications due six months before expiry.
- Can be cancelled for false statements, term violations, inactivity, or financial irregularities.
- NGOs have the right to be heard before cancellation and can appeal in High Court.

**Key Aspects of FCRA**

- **Purpose:** The FCRA aims to halt the utilisation of funds from overseas for operations that are considered unfavourable to the interest, security, and peace of the nation.
- **Registration:** Every institution desiring to receive foreign funds has to get registered with the Ministry of Home Affairs (MHA). The registration is valid for five years and can be renewed if the registered company submits proof that it has invested an additional \$ 100,000 in qualified business assets during the preceding five years on top of the initial investment.
- **Utilization:** Any monies or assets received from any foreign source as part of the organization’s registration can only be utilized for the stated objectives. They cannot be used for betting or in activities likely to alter the religious beliefs of individuals.
- **Reporting:** Fund receivers are required to open proper accounts and file such return with the MHA each year showing the amount of foreign funds received and spent during the year.
- **Amendments:** In 2020 amendment was made to limit foreign funds’ administrative expenses minimum of 50% to only 20%, prohibiting the transfer of the received funds to other organizations, and by requiring the funds’ reception only through a specific bank account.

**Criticisms and Challenges**

- **Bureaucratic Hurdles:** The process of registration, renewal, and compliance is often seen as cumbersome and bureaucratic.
- **Impact on NGOs:** Critics have suggested that bureaucratization and regulatory oversight hinder the practical work of NGOs, particularly those of advocacy and human rights.
- **Political Motivations:** Critics have argued that while the FCRA is a right way to protect human rights, more often than not, it is utilised to intimidate organisations that opposes the policies of the government.

**Way Forward**

The suspension of the Centre for Policy Research’s (CPR) FCRA licence highlights strict regulatory oversight on foreign funding to NGOs in India. Moving forward, CPR and similar organizations must ensure strict compliance with FCRA norms, while advocating for transparent regulatory processes

to balance national security and operational freedom for NGOs.

**EXPECTED QUESTIONS FOR UPSC CSE**

**Prelims MCQ**

Q. With reference to Foreign Contribution (Regulation) Act, 2010, consider the following statements:

1. FCRA registration is valid for five year
2. Once FCRA registration is cancelled, NGOs cannot appeal in any court of law.
3. Every institution desiring to receive foreign funds has to get registered with Ministry of External Affairs.

How many of the above statements are correct?

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

Answer: a (1 Only)

**Descriptive Question**

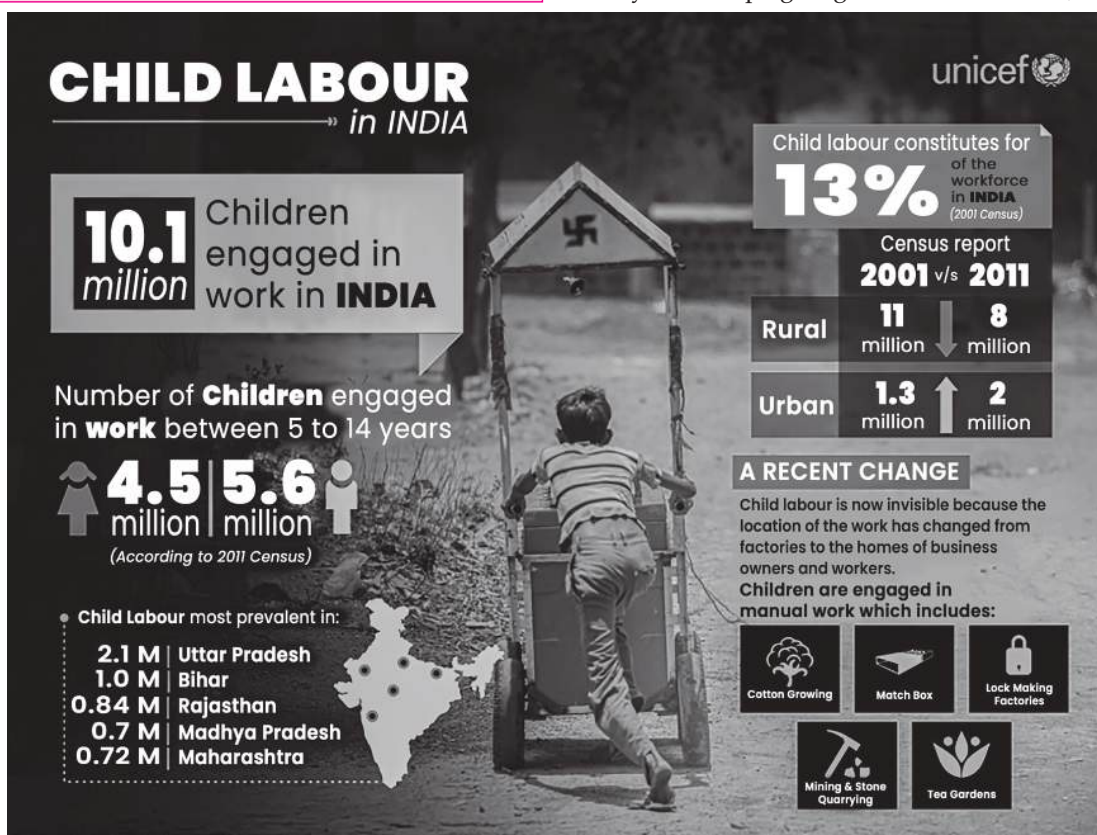
Q. Bureaucratization and regulatory oversight hinder the practical work of NGOs, particularly those of advocacy and human rights. Critically analyze. [15 Marks] [250 words]

**CHILD LABOUR IN INDIA**

**Why in News:** An Australian Parliamentary committee in its recent report has raised concerns over Child Labour in India.

**Child Labour in India**

- According to the **2011 Census, India has an estimated 10.1 million** child labourers, the highest number in South Asia (UNICEF).
- The **National Crime Records Bureau (NCRB)** reported **nearly 1000 child labour cases registered in 2021**, with the highest numbers in Telangana and Assam.
- The COVID-19 pandemic has further exacerbated the problem, with a significant rise in child labour documented by the Campaign Against Child Labour (CACL).



**Root Causes of Child Labour**

- **Adult unemployment and underemployment:** When adults struggle to find work, the burden often falls on children to contribute to the household income.
- **Lack of education and awareness:** Illiterate parents may be unaware of the legal and ethical ramifications of child labour.
- **Poor quality education and skill training:** Deficiencies in the education system lead to dropouts and push children towards labour.
- **Cultural and social factors:** Traditional practices involving children assisting in family businesses and the marginalization of certain communities contribute to the persistence of child labour.

- **Natural disasters and emergencies:** Events like pandemics and disasters increase children’s vulnerability to exploitation and force them to work for survival.

**Impact of Child Labour**

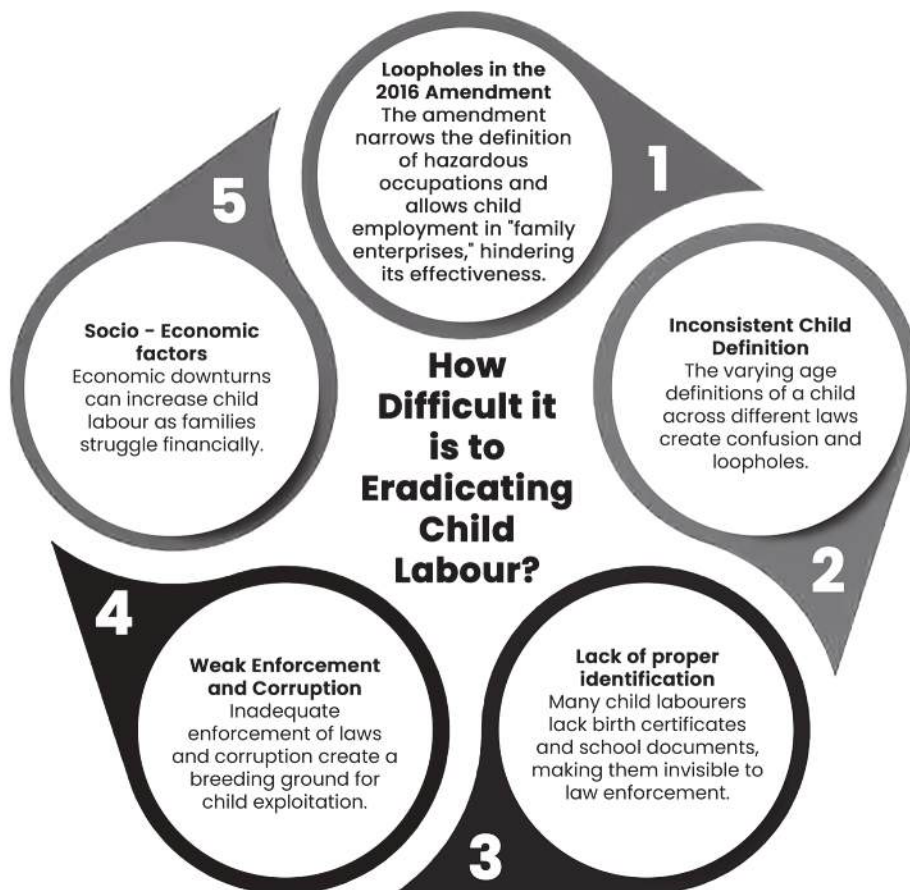
- **Education and skill development:** Children working full-time miss out on crucial education and skill development, hindering their future prospects.
- **Health and physical well-being:** Long working hours and hazardous working conditions negatively affect a child’s physical and mental health.
- **Perpetuation of poverty:** Child labour traps families in a cycle of poverty, as children cannot acquire education to break free.
- **Socio-economic development:** The presence of a large child labour force hinders a country’s socio-economic progress and may lead to trade sanctions due to human rights violations.

**Legal Framework to Combat Child Labour**

- **Article 21 A**
  - **Right to Education:** The State shall provide free and compulsory education to all children of the age of 6 to 14 years in such manner as the State, by law, may determine.
- **Article 24**
  - **Prohibition of employment of children in factories,**

etc.: No child below the age of 14 years shall be employed in work in any factory or mine or engaged in any other hazardous employment.

- **Article 39**
  - **The State shall, in particular, direct its policy towards securing:** (e) that the health and strength of workers, men and women, and the tender age of children are not abused and that citizens are not forced by economic necessity to enter avocations unsuited to their age or strength.
- **National Laws:** The Child Labour (Prohibition & Regulation) Act, 1986, prohibits employing children below 14 and regulates working conditions for adolescents (14-18 years) in non-hazardous occupations. The 2016 Amendment further strengthens these provisions.
- **Schemes:** The National Child Labour Project (NCLP) Scheme and the Pencil Portal by the Ministry of Labour and Employment aim to identify, withdraw, and rehabilitate child labourers.
- **International Provisions:** India has ratified core International Labour Organization (ILO) Conventions like Minimum Age (Convention 138) and Worst Forms of Child Labour (Convention 182).
  - The UN Convention on the Rights of the Child (UNCRC) also mandates protection from harmful work.



### Way Forward

- **Uniformity in Child Labour Laws:** Standardizing the definition of a child across all laws and extending free and compulsory education to 18 years are crucial steps.
- **Strict Enforcement and Accountability:** Strengthening law enforcement, increasing penalties for violators, and holding police accountable for non-registration of child labour cases are essential.
- **Social Protection Programs:** Robust social protection schemes and cash transfers can alleviate poverty, reducing the need for child labour.
- **National Child Tracking Mechanism:** Establishing a nationwide tracking system and district-level funds for immediate relief and rehabilitation of child labourers is necessary.
- **Raising awareness:** Community outreach programs by the government and NGOs can educate parents about the harmful effects of child labour.

### EXPECTED QUESTIONS FOR UPSC CSE

#### Prelims MCQ

Q. Consider the following statements:

1. Constitution of India prohibits child labour.
2. India has ratified International Labour Organization (ILO) Conventions on Worst Forms of Child Labour (Convention 182).
3. The Child Labour (Prohibition & Regulation) Act, 1986, prohibits employing children below 18.

How many of the above statements are correct?

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

Answer: b

#### Descriptive Question

Q. Elaborate the root causes and drivers of child labor in India? What are the legislative efforts and policies aimed at combating child labor in India? [15 Marks] [250 words]

## PROTECTION OF PERSONALITY AND PUBLICITY RIGHTS

**Why in News:** Recently, the Delhi High Court has issued a ruling on protecting the personality and publicity rights.

#### Key Details

- The court’s decision underscores the growing recognition and enforcement of personality rights in India, especially for celebrities.

- This case highlights the judicial measures being taken to prevent unauthorized commercial exploitation of personal attributes.

### Understanding Personality Rights

#### Definition and Importance

- Personality rights refer to the right of an individual to protect their personality under the umbrella of privacy or property rights.
- These can include specific poses, mannerisms, or any aspect of their persona.
- For celebrities, these rights are crucial as their names, images, and even voices can be misused for commercial gain by various entities without consent.

#### Reasons for Providing Personality Rights

- The primary rationale is that the owner of these distinct features should be the sole beneficiary of any commercial gain derived from them.
- Although Indian law does not explicitly mention personality rights, they are inferred from the right to privacy and property.

### How Personality Rights differ from Publicity Rights?

Components of Personality Rights	
<b>Personality rights encompass two main types:</b>	
<ul style="list-style-type: none"> <li>▪ <b>Right of Publicity</b> Prevents the unauthorized commercial use of one's image and likeness.</li> </ul>	<ul style="list-style-type: none"> <li>▪ <b>Right to Privacy</b> Protects against the public representation of one's personality without permission.</li> </ul>
Publicity Rights and Tort of Passing Off	
<b>Publicity rights often intersect with the tort of passing off, where an entity misrepresents its goods or services as being associated with another, thereby causing reputational or financial harm.</b>	
Legal Framework for Personality Rights in India	
<ul style="list-style-type: none"> <li>▪ While not explicitly mentioned in Indian statutes, personality rights are protected under the broader rights to privacy and property.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Celebrities can seek court injunctions against unauthorized use of their persona. Intellectual property concepts like passing off and deception are applied in such cases.</li> </ul>
Types of Injunctions	
<ul style="list-style-type: none"> <li>▪ <b>Ex-parte Injunction</b> Relief granted without hearing the other side.</li> </ul>	<ul style="list-style-type: none"> <li>▪ <b>Omnibus Injunction</b> Broad injunction covering any unauthorized use, even those not specifically mentioned in the plea.</li> </ul>
Criteria for Granting Injunctions	
<b>In the Titan case, the Delhi High Court outlined the basic elements required for an infringement of the right of publicity.</b>	
<ul style="list-style-type: none"> <li>▪ <b>Validity of the Right</b> The plaintiff must have an enforceable right in their identity.</li> </ul>	<ul style="list-style-type: none"> <li>▪ <b>Validity of the Right</b> The plaintiff must have an enforceable right in their identity.</li> </ul>
<ul style="list-style-type: none"> <li>▪ <b>Clear Association</b> For lesser-known celebrities, additional evidence is needed to establish the connection.</li> </ul>	

### Previous Cases on Personality Rights

- **Anil Kapoor Case:** Anil Kapoor sought protection for his name, photos, mannerisms, and associated works, claiming copyright protection as well.
- **Amitabh Bachchan Case:** In 2022, the Delhi High Court ruled in favor of Amitabh Bachchan, preventing unauthorized use of variations of his name and unique mannerisms.
- **Rajnikanth Case:** In 2015, the Madras High Court recognized personality rights for celebrities, affirming their right to protect their persona.

**Challenges**

- **Lack of Explicit Legal Provisions:** Indian laws do not explicitly mention personality rights, leading to reliance on judicial interpretation.
- **Enforcement Difficulties:** Policing unauthorized use, especially in the digital age, poses significant challenges.
- **Balancing Public Interest:** Courts must balance protecting personality rights with freedom of expression and public interest.

**Way Forward**

- **Legislative Clarification:** Enact explicit provisions for personality rights in Indian law.
- **Digital Monitoring:** Develop advanced monitoring tools to detect unauthorized use online.
- **Public Awareness:** Increase awareness among celebrities and the public about personality rights.
- **Stronger Enforcement Mechanisms:** Strengthen enforcement mechanisms to ensure swift action against violations.
- **International Collaboration:** Collaborate with international bodies to address cross-border infringements.

**EXPECTED QUESTIONS FOR UPSC CSE**

**Prelims MCQ**

Q. What is the primary rationale for providing personality rights?

(a) To ensure fair competition among celebrities

(b) To allow unrestricted use of a celebrity’s persona by the public

(c) To make the owner of distinct features the sole beneficiary of any commercial gain derived from them

(d) To promote the sharing of a celebrity’s persona for educational purposes

Answer: c

**Descriptive Question**

Q. While not explicitly mentioned in Indian statutes, personality rights are protected under the broader rights to privacy and property, critically evaluate. [15 Marks] [250 words]

**STREET VENDORS ACT - 2014**

**Why in News:** The Street Vendors Act (SVPA) of 2014 has faced several challenges in its implementation over the past decade.

**Key Details**

- **Street Vendors Act Anniversary:** The Street Vendors (Protection of Livelihood and Regulation of Street Vending) Act came into effect on May 1, 2014.
- **Challenges in Implementation:** Despite legal protections, street vendors face administrative hurdles, weak urban governance, and societal stigma, hindering effective implementation.
- **Call for Action:** Urgent need for decentralized support, capacity-building for Urban Local Bodies, and adaptation to new challenges like climate change and e-commerce competition.

**Provisions and Intent of the Act**

- The Act seeks to do the following review the standing and regulation of street vending as an essential component of our city life.
- It prescribes the establishment of Town Vending Committees (TVCs) that will be comprised of 40% street vendors where at least one-third of the members are women vendor.
- The Act includes components in relation to grievance apparatus and assures of providing vending certificates to all the established vendors.
- Provides that the States / Urban Local Bodies (ULB) conduct a survey to identify SVs at least once in every five years.

**Implementation Challenges**

- **Administrative**  
There continues to be higher levels of harassment and eviction of the vendors as they have not been able to change their old bureaucratic working mindsets nor aware of the existence of the act.
- **Governance**  
The Act has several stark gaps in its ability to interface with 74th Constitutional Amendment, and the Urban Local Bodies (ULBs) individually do not possess the power and utilities to implement its provisions in their entirety.
- **Societal**  
Before defining a set image of a ‘world-class city,’ it disregards street vendors within the ‘rationality of modernization’ discourse.

### Way Forward

- **Better Implementation:** Through top-down direction and management starting from the Ministry of Housing and Urban Affairs to ensure effectiveness in addressing the diverse needs and contexts of street vendors nationwide.
- **Access to Financial Benefits:** Street vendors should be provided with a diverse range of social and financial benefits during times of crisis.
- **Stakeholder partnership:** Street vendors should be involved in decision-making bodies such as Town Vending Committees (TVCs) to ensure their voices are heard for informed decision making.
- **At policy level:** Urban schemes, city planning guidelines, and policies need to be amended to include street vending.

#### EXPECTED QUESTIONS FOR UPSC CSE

##### Prelims MCQ

- Q. PM SVANidhi Scheme is launched by
- (a) Ministry of Housing & Urban Affairs
  - (b) Ministry of Commerce and Industry
  - (c) Ministry of Micro, Small & Medium Enterprises
  - (d) Ministry of Agriculture & Farmers' Welfare

Answer a

##### Descriptive Question

- Q. Elaborate the key obstacles hindering the effective implementation of the Street Vendors Act? What are the challenges in providing social security, access to credit, and other support services to street vendors as mandated by the Act? [15 Marks] [250 words]

### ECONOMIC ADVISORY COUNCIL TO THE PRIME MINISTER (PM-EAC) REPORT

**Why in News:** According to a new analysis by the Economic Advisory Council to the Prime Minister (PM-EAC), the percentage of Hindus in India has decreased, while the percentages of Muslims, Christians, and Sikhs have increased.

The PM-EAC report highlights that India's Hindu population share declined by 7.82% between 1950 and 2015, while the shares of Muslims, Christians, and Sikhs increased, reflecting a conducive environment for diversity.

### Key Details

The report, which compared data from 167 countries, notes that India's demographic changes align with global trends but differ from neighbouring countries where minority populations are shrinking.

The Population Foundation of India emphasized that media should avoid misinterpreting the data to incite fear, noting significant declines in fertility rates across all religious groups, with the highest drop among Muslims.

The recent report by the Economic Advisory Council to the Prime Minister (PM-EAC) outlines several significant findings concerning the demographic trends and social progress in India:

- **Demographic Shifts:** The decrease in their population shares as identified in the report shows they have reduced by 7 percent. According to his projections, it increased from 82% in 1950 to 2015. At the same time, the Muslim population remained a higher, albeit 9 percent of the population. 84% to 14.09% and the Christian population slightly increased from 2.24% to 2.36% during the same period.
- **Minority Populations:** The population densities of Sikhs and Buddhists also increased while, on the other hand, the Jain and Parsi communities saw a reduction. For example, the increase of the Muslim and Jain populations was marginal and their proportion decreased to 0.45% to 0.12%, now stands 36%, and the Parsi population shrunk down to 36% from 0.03% to 0.0004%.
- **Fertility Rates:** From the present study, it is revealed that the Total Fertility Rate or TFR is gradually coming down in all camps, which explains the desire of people to have a small family size. Thus, the TFR for Hindus declined from 3.3 in the year 1991 to 1.9 in 2024, and for Muslims, it was down by 4.4 to 2.4 over the same period.
- **Global Trends:** This report also provides an analysis of the demographic changes in India in a global perspective and it is true that many countries have witnessed changes in their majority in the recent years. For instance, many OECD countries experienced a steep decline in the proportion of their majority religious groups.
- **Social Progress:** However, according to the report, it is imperative to note that the social, economic, and political rights of minorities in India are protected, and they lead a decent life. Nevertheless, it also reveals important and concerning findings indicating that key states in India rank low on various aspect of social progress, implying the requirement of a more purposive attempt to diminish inequity.

### Way Forward

The PM-EAC report reveals a decline in India's Hindu population share by 7.82% and a rise in Muslim, Christian, and Sikh populations from 1950 to 2015, reflecting global trends. It highlights policy-driven diversity, noting the protected status of minorities. Accurate interpretation is crucial to avoid inciting fear or discrimination.

#### EXPECTED QUESTIONS FOR UPSC CSE

##### Prelims MCQ

- Q1. In the context of any country, which one of the following would be considered as part of its social capital?

- (a) The proportion of literates in the population
- (b) The stock of its buildings, other infrastructure and machines
- (c) The size of population in the working age group
- (d) The level of mutual trust and harmony in the society

Answer: d

**Descriptive Question**

Q. The recent report by the Economic Advisory Council to the Prime Minister (PM-EAC) outlines several significant findings concerning the demographic trends and social progress in India; Accurate interpretation is crucial to avoid inciting fear or discrimination. Critically analyze. [15 Marks] [250 words]

**INDIA'S INTERNET SHUTDOWNS**

**Why in News:** A report by virtual private network (VPN) tracker Top10 VPN revealed a concerning statistic - internet access was blocked for a staggering 7,956 hours in India, impacting an estimated 59.1 million users.

**Legal framework for Internet Shutdown in India**

- **Temporary Suspension of Telecom Services Rules, 2017:** This framework outlines the authority to order internet shutdowns, vesting power in the **Union Home Secretary or State Home Secretary**.
- **Section 144 of the CrPC, 1973:** This section, intended for maintaining public order, has been used to justify internet shutdowns despite the existence of the **2017 Telecom Suspension Rules**.
- **Review Committees:** The 2017 rules mandate the creation of review committees at the Union and State levels to oversee internet shutdown orders.

**Anuradha Bhasin vs. UoI (2020)**

- Supreme Court affirmed that the freedom to practice any profession or carry on any trade, business, or occupation via the internet is constitutionally protected under Article 19(1)(a) and Article 19(1)(g).

**Key Recommendations (Parliamentary Standing Committee, 2021):**

- **Selective Banning of Services:** Proposes selectively restricting the use of specific services rather than imposing complete internet bans.
- **Effectiveness of Internet Shutdowns:** Suggests conducting a study to evaluate the impacts and effectiveness of internet shutdowns in addressing public safety and emergencies.

**How can Internet Shutdown Impact the daily life of Human being?**

- 1 Economic Disruption**  
Businesses, e-commerce platforms, and individuals relying on online services suffer economic losses.
- 2 Educational Disadvantage**  
Students lose access to online learning resources, hindering their education.
- 3 Curtailment of Free Speech**  
Shutdowns restrict access to information and impede open communication.
- 4 Hindrance to Democracy**  
Limited access to information weakens democratic processes and can stifle dissent.
- 5 Social Isolation**  
Communication platforms and social media are inaccessible, hindering social interaction and connectivity.
- 6 Information Blackout**  
Citizens are deprived of access to news, information, and essential services, limiting their ability to make informed decisions.
- 7 Violation of Rights**  
Internet shutdowns violate freedom of expression (Article 19) and access to information, infringing upon human rights.

**Way Forward**

- **Strict Adherence to Legal Framework:** Ensure all internet shutdowns follow the procedures outlined in the Temporary Suspension of Telecom Services Rules, 2017.
- **Robust Review Mechanism:** Empower review committees with adequate resources and authority to effectively scrutinize internet shutdown orders.
- **Transparency and Accountability:** Make the justification for internet shutdowns publicly available and hold authorities accountable for misuse of this power.
- **Explore Alternatives:** Consider alternative measures like website blocking or content takedowns instead of resorting to complete internet shutdowns.
- **Promoting Digital Literacy:** Invest in educating citizens about the importance of a free and open internet and responsible online behavior.

**Conclusion**

Internet shutdowns have far-reaching negative impacts on communication, economy, society, and governance. Instead of resorting to shutdowns, **innovative approaches such as targeted interventions**, dialogue, and collaboration are needed to address security concerns while upholding fundamental rights and fostering inclusive development.

**EXPECTED QUESTIONS FOR UPSC CSE**

**Prelims MCQ**

Q. Which of the following statements about internet shutdowns in India is/are correct?

1. Internet shutdowns in India can be ordered under the Temporary Suspension of Telecom Services Rules, 2017.
2. The Supreme Court of India has held that internet access is a fundamental right under Article 19 of the Constitution.
3. The frequency of internet shutdowns in India is among the highest in the world.

Select the correct answer using the codes given below:

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

Answer: d

**Descriptive Question**

Q. Analyze the reasons behind the extensive internet shutdowns in India. What measures can be taken to address the issue of internet shutdowns in India and prevent their recurrence? [10 Marks] [150 words]

**TRANSFER OF PRIVATE PROPERTY**

**Why in News:** The recent ruling by a nine-judge bench of the Supreme Court, have brought debates concerning the interpretation of constitutional principles pertaining to private property and societal welfare.

**Key Details**

- The question raised before the Court is whether private properties can be considered “material resources of the community” under Article 39 (b) of the Constitution, which is part of the Directive Principles of State Policy (DPSP).
- The court must decide whether private property falls under this definition of “material resources.”

**The Debate**

- **Article 39(b):** This Directive Principle of State Policy (DPSP) mandates the state to strive for a distribution of “material resources of the community” that best serves the common good.
- **Potential Impact:** If the court decides private property can be taken, it could significantly impact property rights in India.

**Available Legal Provisions?**

**Article 31C**

*This article, introduced through a Constitutional amendment, protects laws enacted to fulfill Article 39(b) and (c) from challenges based on violation of fundamental rights (covered under Articles 14, 19).*

**Minerva Mills Case (1980)**

*The Supreme Court, in this landmark case, struck down parts of the 42nd Amendment that limited judicial review and gave precedence to DPSPs over fundamental rights. This case has a bearing on the current case, as the legal validity of Article 31C is also being debated.*

**What are the Arguments For and Against?**

**Arguments for Considering Private Property as Material Resources**

*Proponents argue that the state, under certain circumstances, should have the power to acquire private property for public good projects like infrastructure development or slum rehabilitation.*

**Arguments Against**

*Opponents argue that allowing the state to take private property would violate individual property rights and discourage investment. They believe the government should use eminent domain laws with proper compensation to acquire land when necessary.*

**Way Forward**

The Supreme Court’s decision will have a significant impact on the interpretation of property rights and the balance between individual rights and the state’s power to ensure the common good. Here are five possibilities for the way forward:

1. **Narrow Interpretation:** The court may narrowly define “material resources” to exclude private property, upholding strong individual property rights.
2. **Broad Interpretation:** The court could take a broader view, allowing the state to take private property under specific conditions and with proper safeguards.
3. **Clarification on Article 31C:** The court may clarify the legal validity of Article 31C in light of the Minerva Mills case.
4. **Focus on Eminent Domain Laws:** The court could emphasize the importance of using existing eminent domain laws with just compensation for land acquisition.
5. **Balancing Act:** The court might strive for a balanced approach, upholding property rights while allowing the

state some flexibility for acquiring land for critical public purposes.

This landmark case will be closely watched for its potential to reshape the landscape of property rights and the state's power to ensure the common good in India.

**EXPECTED QUESTIONS FOR UPSC CSE**

**Prelims MCQ**

Q. What does Article 39(b) of the Directive Principles of State Policy (DPSP) in the Indian Constitution direct?

- (a) To provide free and compulsory education for children
- (b) To promote international peace and security
- (c) To strive for a distribution of material resources of the community that best serves the common good
- (d) To protect and improve the environment and safeguard forests and wildlife

Answer: c

**Descriptive Question**

Q. How the property rights have changed over the time by the constitutional amendments in the India? Explore the historical context and state the importance of the recent supreme court case in this regard. [15 Marks] [250 words]

**INDIA'S ONLINE GAMING INDUSTRY**

**Why in News:** India is currently the largest gaming market in the world, boasting a user base of 568 million gamers and over 9.5 billion gaming app downloads in 2023.

**Key Details**

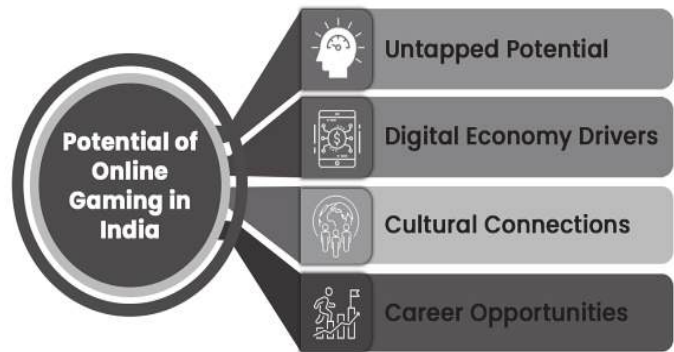
- The sector has grown at a CAGR of 28%, reaching INR16,428 crore in FY23.
- It is expected to attract investments worth INR22,931 crore between FY20 and FY24 YTD from both domestic and foreign sources.
- India's online gaming sector likely to reach INR33,243 crore by FY28.

**Notably, legal online gaming includes**

- **E-sports:** Organized electronic sports featuring

professional players, like PUBG and Call of Duty.

- **Fantasy Sports:** Selecting real-life athletes and earning points based on their performance (e.g., Dream 11).
- **Skill-Based Games:** Games that rely on mental prowess, such as online chess.



**Regulation of online gaming in India is a complex issue**

- **Jurisdictional Authority:** State legislatures hold exclusive power to make laws regarding gaming, as per Entry No. 34 of List II (State List).
- **Skill vs. Chance:** Most states differentiate between 'games of skill' (legal) and 'games of chance' (illegal). Examples include legislations in Meghalaya and Nagaland.
- **Central Laws:**
  - The Public Gambling Act, 1867, governs gambling but struggles to address the nuances of digital gaming.
  - The Lotteries Regulation Act, 1998, legalizes state-organized lotteries.
  - The Foreign Exchange Management Act (FEMA), 1999, prohibits income remittance from online gambling.
- **Landmark Judgement:** The Supreme Court, in *State of Andhra Pradesh v. K. Satyanarayana & Ors.*, ruled that games of skill are not gambling. However, a clear definition of a 'game of skill' remains elusive.
- **Recent Initiatives:**
  - The Ministry of Information and Broadcasting established a task force to regulate online gaming.
  - The IT (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021, promote self-regulation within the online gaming industry.
  - Clarifications regarding tax deductions on gaming winnings have been made.



## INTERNATIONAL RELATIONS

## INDIA-INDONESIA RELATIONS

**Why in News:** India and Indonesia is celebrating 75 years of friendship and cooperation, with strong ties across political, economic, maritime, and cultural spheres.

## Foundation and Key Aspects

## Historical Background

- The foundation for this partnership was laid in 1950 with the visit of the Indonesian President and solidified by the Treaty of Friendship in 1951.

## Political Cooperation

- Both nations were instrumental in the Bandung Conference of 1955, which led to the formation of the **Non-Aligned Movement (NAM) in 1961**.
- They further strengthened their relations by establishing a **Strategic Partnership in 2005**, which was later elevated to a Comprehensive Strategic Partnership. This reflects their shared vision for a multipolar world and a commitment to regional stability.
- Their cooperation extends to various international groupings like **G20, IORA, East Asia Summit**, and the United Nations, showcasing their alignment on global issues. Notably, Indonesia is a key partner in **India's Act East Policy**, which aims to enhance ties with Southeast Asian nations.

## Economic Partnership

- Trade relations were established in 1978** Indonesia has emerged as India's biggest trading partner within the ASEAN region. India, in turn, is Indonesia's second-largest buyer of crude palm oil. This economic partnership is mutually beneficial and contributes to the growth of both economies.
- In 2018, India and Indonesia elevated their relationship to a **"comprehensive Strategic Partnership."**
- Exports from India to Indonesia included petroleum products, motor vehicles and cars, sugar, ships, boats, and floating structures, and iron and steel.
- Imports from Indonesia to India includes coal, coke, and briquettes, vegetable oils, iron and steel, bulk minerals and ores, and cosmetics and toiletries.

## Maritime Cooperation

- Indonesia's strategic location between the Indian and Pacific Oceans makes it a crucial partner for India's maritime security interests.

- Under the **SAGAR (Security and Growth for All in the Region)** initiative, India is assisting Indonesia in developing port infrastructure, such as the Sabang port. This cooperation strengthens maritime connectivity and bolsters security in the Indo-Pacific. **Joint military exercises like Samudra Shakti and coordinated patrols (IND-INDO CORPAT)** further solidify their strategic partnership.

## Cultural Connect

- India and Indonesia share deep cultural ties rooted in Hinduism and Buddhism. These shared religious influences have fostered a sense of mutual respect and understanding, acting as a form of soft power that strengthens the people-to-people bond.



## Way Forward

*This comprehensive partnership between India and Indonesia holds immense potential for the future. Here are five key areas for further collaboration:*

**Enhancing Economic Cooperation**

Exploring free trade agreements, promoting investments in each other's economies, and fostering collaboration in sectors like infrastructure development and renewable energy can bring significant economic benefits.

**Boosting Maritime Security Cooperation**

Sharing intelligence, conducting joint patrols, and coordinating responses to maritime threats like piracy and terrorism are crucial for maintaining a secure Indo-Pacific region.

**Deepening Cultural and People-to-People Exchanges**

Promoting student exchange programs, cultural festivals, and tourism can further strengthen the bond between the two societies.

**Addressing Global Challenges**

Working together on issues like climate change, disaster management, and global health security can contribute to a more stable and prosperous world order.

**Collaborating on Technological Advancements**

Cooperation in areas like artificial intelligence, space technology, and digital innovation can benefit both nations and contribute to regional development.

**Conclusion**

By continuing to build on this strong foundation and exploring new avenues for cooperation, India and Indonesia can ensure a stable, secure, and prosperous future for their citizens and for the Indo-Pacific region as a whole.

**EXPECTED QUESTIONS FOR UPSC CSE**

**Prelims MCQ**

Q. Consider the following locations

1. 10-degree channel
2. Indira point
3. Sabang port

Arrange the above locations in north to south order

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

Answer: a

**Descriptive Question**

Q. How have political interactions between India and Indonesia evolved over time, and what are the key areas of collaboration between the two countries? [10 Marks] [150 words]

**INDO-NEPAL BORDER DISPUTE**

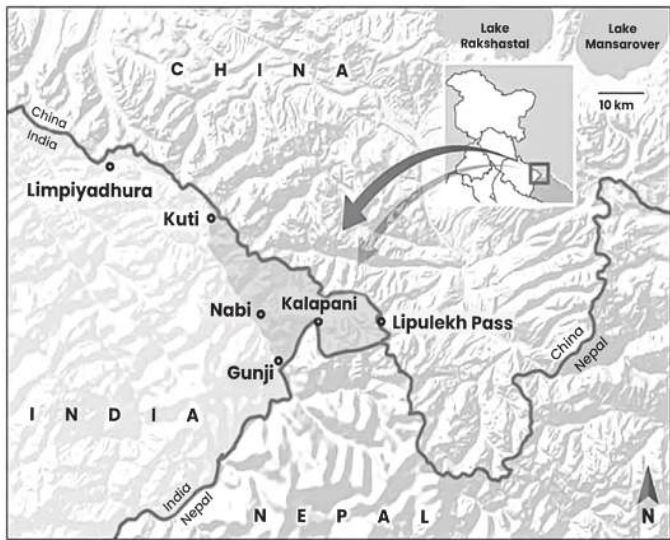
**Why in News:** Nepal declared that it would be producing a new Rs 100 banknote including a map of the disputed areas of **Lipulekh, Limpiyadhura, and Kalapani**.

**Key Details**

- In a revised political map of the nation published in May 2020, the Nepalese government showed **Kalapani, Limpiyadhura, and Lipulekh in Uttarakhand as Nepalese territory**.
- The Kalapani region is claimed by both Nepal and India.
- **The Kali River is the source of the name of the Kalapani region.** The river, known as **Mahakali in Nepal**, is just as important there as the Ganga River is in India.
- The river serves as **Nepal’s and India’s natural boundary**.
- India and Nepal have been at **odds over the origin of the Kali River**.
- India has already labeled **Nepal's claims as “artificial enlargement” and “untenable”**.

**Areas of the Border Conflict**

The 35-square-kilometer Kalapani-Limpiyadhura-Lipulekh Trijunction (also known as the Kalapani Region) is situated in northwest Nepal, close to the point where China, India, and Nepal converge.	Following the Anglo-Nepalese War, the Kingdom of Nepal and British India signed the Treaty of Sugauli in 1816.
India is in charge of the Kalapani valley, which is a portion of Uttarakhand’s Pithoragarh district. It is located along the path to Kailash Mansarovar.	The Kali (or Mahakali) River was named as Nepal’s western boundary in the treaty.
At a height of more than 20,000 feet, Kalapani has an exceptional location and acts as an observation point for that region.	Nepal ruled over the land east of the Kali River, while British India (modern-day India) annexed the land west of the river.
The border between India and Nepal is marked by the Kali River in the Kalapani area.	The disagreement about where the Kali River originated resulted in border disputes between India and Nepal, each of which produced maps to bolster its position.



**India’s Position**

India asserts that the Kali River rises from springs located significantly beneath the Lipulekh Pass, or the Lipulekh Pass itself, so placing the Kalapani region under Indian jurisdiction.

The territory north of these streams is not defined by the Sugauli Treaty.

According to nineteenth-century administrative and revenue records, Kalapani was considered to be on the Indian side and was included in the Pithoragarh district of Uttarakhand.

**Nepal’s Position**

- The Kali River is said to have its source in a stream northwest of Lipulekh, in Limpiyadhura.
- Therefore, Kalapani, Limpiyadhura, and Lipulekh are located in Nepal’s Dharchula district and fall to the east of the river.
- Following the 1962 India-China war, King Mahendra offered India the province of Kalapani in an effort to allay India’s security worries over alleged residual Chinese threats.

### Importance of India and Nepal for each other

- **Trade and Economy:** India is Nepal's largest trade partner and the largest source of foreign investments, besides providing transit for almost the entire third country trade of Nepal. (USD 7.76 Billion in 2021-22).
- **Strategic importance for India's national security:** Nepal shares border with 5 Indian states- Uttarakhand, Uttar Pradesh, West Bengal, Sikkim and Bihar.
- It is middle of India's 'Himalayan frontiers', and along with Bhutan, it acts as a northern 'borderland', in case of Chinese aggression.
- **Ecology and hydropower potential:** Arun-3 Hydro Electric Project and ongoing discussions on Pancheshwar Multipurpose Project, a key element of the Mahakali Treaty.
- **Connectivity:** Operationalization of a 35 km rail link from Jayanagar (Bihar) to Kurtha (Nepal).
- **Cultural and Economic Exchange:** India has signed three sister-city agreements for the twinning of Kathmandu-Varanasi, Lumbini-Bodhgaya and Janakpur-Ayodhya.
- **Defence Cooperation:** The Gorkha Regiments of the Indian Army raised partly by recruitment from hill districts of Nepal.
- India from 2011, every year undertakes a joint military exercise with Nepal known as Surya Kiran.
- **Multilateral Partnership:** India and Nepal share multiple multilateral forums such as BBIN, BIMSTEC, Non-Aligned Movement, and SAARC etc.
- **Development Assistance AND Humanitarian assistance in instances such as Earthquakes.**
  - After the April 2015 Nepal earthquake, the Government of India committed US\$1 billion for post-earthquake reconstruction projects in Nepal. The reconstruction of 50,000 houses at a cost of US\$100 million was completed in November 2021.
  - Under India's Vaccine Maitri initiative, it provided nearly 95 lakh (9.5 million) doses of vaccines to Nepal.

### Conclusion

The Indo-Nepal border dispute remains a complex issue, rooted in historical, geographical, and political factors. Despite occasional tensions, diplomatic efforts persist to seek an amicable resolution. Both nations recognize the importance of maintaining cordial relations and are committed to dialogue and negotiation to address the concerns and ensure stability along the border.

#### EXPECTED QUESTIONS FOR UPSC CSE

##### Prelims MCQ

Q. Consider the following regions

1. Limpiyadhura 2. Lipulekh 3. Kalapani

How many of the above regions are the cause of territorial

disputes between India and Nepal?

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

Answer

### Descriptive Question

Q. Why areas of Lipulekh, Limpiyadhura, and Kalapani are disputed? What are the potential implications of Nepal's action on regional stability and security? [15 Marks] [250 words]

## 30 YEARS AFTER APARTHEID

**Why in News:** South Africa recently commemorated 30 years since the end of apartheid, a brutal system of racial segregation that denied basic rights to the majority Black population.

### Understanding Apartheid

- Apartheid, meaning "separateness" in Afrikaans, was a system of legalized racial discrimination enforced from 1948 until its official dismantling in 1994.
- The National Party institutionalized this system, classifying South Africans into races - Black, White, Coloured, and Indian.
- Apartheid laws segregated living spaces (Group Areas Act, 1950), education (Bantu Education Act, 1953), and restricted marriage between races (Prohibition of Mixed Marriages Act, 1949).

### Nelson Mandela (1918 -2013)

- **Anti-apartheid leader:** Played a pivotal role in dismantling South Africa's system of racial segregation (apartheid).
- **Imprisonment and Release:** Sentenced to life imprisonment in 1964 for sabotage but released in 1990 after 27 years.
- **First Black President of South Africa:** Elected in 1994, marking the end of apartheid and a new era of democracy.
- **Symbol of Reconciliation:** Advocated for racial unity and forgiveness after decades of apartheid.
- **Nobel Peace Prize Laureate:** Awarded the Nobel Peace Prize in 1993 alongside F.W. de Klerk for their efforts to end apartheid.

**The Anti-Apartheid Movement (AAM)**

A long and arduous struggle led to the dismantling of apartheid. The Anti-Apartheid Movement (AAM) played a pivotal role in this fight. It can be broadly divided into three phases:

- **Non-violent Resistance:** The African National Congress (ANC), led by **Nelson Mandela**, spearheaded this phase. They employed non-violent protests like the **Defiance Campaign (1952)** to challenge apartheid laws.
- **Internationalisation:** The AAM gained momentum with international support from the Organization of African Unity (now African Union) and the United Nations. Notably, India became the first country to sever trade ties with the apartheid government in 1946.
- **Massive Resistance:** This phase saw widespread boycotts, demonstrations, and strikes, putting immense pressure on the apartheid regime.

Mahatma Gandhi's Influence		
<b>1</b>	<b>2</b>	<b>3</b>
The seeds of the AAM can be traced back to Mahatma Gandhi.	He established the first anti-colonial and anti-racial discrimination movement in South Africa with the Natal Indian Congress in 1894.	His philosophy of Satyagraha, meaning "truth force," inspired the non-violent resistance strategies employed by the ANC.

**Challenges Ahead**

- While apartheid was dismantled in 1994, South Africa still grapples with its legacy. Racial and economic inequalities persist, and the fight for true social justice continues.

**Way Forward**

To build a more equitable future, South Africa can focus on:

- **Addressing Inequality:** Continued efforts are needed to bridge the racial and economic divide through affirmative action programs and equitable resource distribution.
- **Education and Upliftment:** Investing in quality education for all, particularly in disadvantaged communities, is crucial for creating a skilled workforce and fostering social mobility.
- **Reconciliation:** Promoting dialogue and understanding between racial groups is essential for healing past wounds and building a truly unified nation.

**Conclusion**

South Africa's journey since the end of apartheid offers valuable lessons. As the nation reflects on its past, it must strive towards a future where equality and opportunity are truly enjoyed by all its citizens.

**EXPECTED QUESTIONS FOR UPSC CSE**

**Prelims MCQ**

Q. Consider the following statements about Nelson Mandela:

1. He played a pivotal role in dismantling South Africa's system of apartheid.
2. He was awarded the Nobel Peace Prize in 1993 for his efforts to end apartheid.
3. He was awarded the Bharat Ratna award in 1990

How many of the above statements are correct?

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

Answer: c

**Descriptive Question**

Q. What were the lasting legacies of apartheid on South African society, politics, and economy? How has South Africa progressed in terms of reconciliation and healing in the post-apartheid era? [15 Marks] [250 words]

**WORLD MIGRATION REPORT 2024**

**Why in News:** The International Organization for Migration (IOM) recently released its **World Migration Report 2024**.

**Key Details**

- The report reveals a staggering 650% surge in international remittances between 2000 and 2022, jumping from USD 128 billion to a whopping USD 831 billion.
- **Of the 831 billion in remittances, 647 billion were sent by migrants to low and middle-income countries.**
- This influx of funds often **surpasses foreign direct investment** in its contribution to a country's Gross Domestic Product (GDP).
- India stands out as a prime example, **receiving over USD 111 billion in remittances in 2022**, the highest globally.
- This marks a historic achievement for India, becoming the first country to surpass the significant **USD 100 billion mark**.
- Southern Asia, in particular, emerges as a major recipient region, with India, Pakistan, and Bangladesh ranking among the top ten.

**The International Organization for Migration (IOM)**

- IOM is a **key component of the United Nations System**, dedicated to fostering humane and well-organized migration for the collective good since 1951.
- With a **membership of 175 nations and operations spanning 171 countries**, it works alongside governmental, intergovernmental, and non-governmental entities to enhance the resilience of migrating populations, particularly those facing vulnerability.
- Its **headquarters are situated in Geneva, Switzerland**.

- **Social Exclusion and Discrimination:** Migrants may face prejudice based on nationality, ethnicity, or religion.
- **Mental Health Issues:** Displacement, separation from families, and uncertainty can lead to mental health problems.
- **Exploitation:** Migrants, particularly undocumented ones, are vulnerable to exploitation by traffickers or employers.
- **Housing and Shelter:** Finding affordable and safe housing is a challenge, especially in urban areas.

**Challenges and Concerns**

- The **report finds a record 117 million people displaced globally in 2022**, with 71.2 million internally displaced.
- The number of asylum seekers has also risen sharply since 2020.
- Migrants continue to comprise high proportions of the total populations in many Gulf Cooperation Council (GCC) States.
- In the **United Arab Emirates, Kuwait and Qatar, migrants made up 88 percent**, nearly 73 and 77 percent of the national populations, respectively.
- Most migrants work in sectors such as construction, hospitality, security, domestic work and retail.

**Need of the Hour**

- **Integration Policies:** Governments should promote social integration of migrants and reduce anti-migrant sentiment.
- **Mental Health Support:** Policies should address the social determinants of mental health and provide basic needs like housing and education.
- **Healthcare Worker Training:** Training healthcare workers to handle mental health issues among diverse migrant populations is crucial.
- **Human Rights Protection:** Strengthening national and international policies to protect migrants from discrimination and violence is essential.

**Conclusion**

Migration is a complex phenomenon with both positive and negative aspects. While remittances contribute significantly to developing economies, the human cost of displacement due to conflict, disasters, and other factors cannot be ignored.



**Difficulties Faced by Migrants**

- **Legal and Administrative Hurdles:** Obtaining visas, residency permits, or asylum status can be difficult.
- **Language and Cultural Barriers:** Communication issues hinder integration and access to services.
- **Economic Challenges:** Finding employment and economic stability can be tough, especially for those lacking skills or legal authorization to work.

**EXPECTED QUESTIONS FOR UPSC CSE**

**Prelims MCQ**

Q. Consider the following:

1. Recently India became first country to surpass \$100 bn mark in remittances
2. World Migration Report 2024 is published by International Organisation for Migration

Which of the statements given above is/are correct?

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

Answer: c

**Descriptive Question**

Q. "Despite the economic benefits, migration presents significant challenges." Do you agree? Justify your views. [15 Marks] [250 words]

## UN COUNTER-TERRORISM TRUST FUND

**Why in News:** India's recent contribution of \$500,000 to the U.N. Counter-Terrorism Trust Fund (CTTF) underscores the country's commitment to combating terrorism on a global scale.

### Key Details

- India's contribution brings its total financial support to the CTTF to \$2.55 million.
- These funds will specifically support UNOCT's programs on Countering Financing of Terrorism (CFT) and Countering Terrorist Travel Programme (CTTP) in Eastern and Southern Africa.

### The Ever-Changing Threat of Terrorism

- The definition of terrorism encompasses a wide range of threats, from organized operations in conflict zones to lone-wolf attacks and the use of unconventional weapons.
- Terrorists exploit advancements in technology for seamless communication, funding through virtual currencies, and radicalization via social media.

## CHALLENGES IN COMBATING A GLOBALIZED THREAT:

### EVOLVING TACTICS

- 1 Terrorist groups constantly adapt their methods, making them difficult to detect. Drones pose a new threat for cross-border activities.

### TRANSNATIONAL NATURE

- 2 Terrorism transcends borders, requiring international cooperation to disrupt networks and share intelligence.

### ADDRESSING ROOT CAUSES

- 3 Poverty, inequality, and extremist ideologies can breed terrorism, necessitating long-term solutions beyond security measures.

### BALANCING SECURITY AND RIGHTS

- 4 Balancing security measures with the protection of civil liberties and human rights remains a critical concern.

### CYBERSECURITY CONCERNS

- 5 The internet facilitates terrorist propaganda, recruitment, and coordination. Collaborative efforts are needed to counter online radicalization.

### FINANCING AND RESOURCES

- 6 Disrupting terrorist financing networks is difficult due to their use of informal channels, money laundering, and legitimate financial institutions.

### LONE ACTORS

- 7 The rise of homegrown terrorists and lone wolves, often with no direct links to established groups, presents a unique challenge for preventive measures.

## Global Measures to Counter Terrorism

- **UN Counterterrorism Framework:** The UN Security Council provides a legal framework for actions like preventing terrorist financing, stemming foreign fighter flows, and strengthening border security.
- **Financial Action Task Force (FATF):** FATF sets standards and promotes policies to combat money laundering and terrorist financing.
- **Global Counterterrorism Forum (GCTF):** This forum facilitates cooperation and capacity-building initiatives for global counterterrorism efforts.
- **Intelligence Sharing and Cooperation:** Bilateral and multilateral agreements enable countries to exchange information on terrorist threats and activities.
- **Aviation Security Measures:** Stringent security measures at airports and on aircraft have been implemented in response to the threat of aviation terrorism.
- **Cybersecurity Collaboration:** International initiatives promote information sharing, capacity building, and developing common standards to enhance cyber defenses.

## India's Fight Against Terrorism

India, a victim of terrorism for over three decades, has taken significant steps to combat it:

- **International Advocacy:** India regularly advocates for measures to prevent terrorists from acquiring weapons of mass destruction at the UN.
- **Legal Framework:** India is a party to all major international counterterrorism conventions and has enacted domestic laws like the Unlawful Activities (Prevention) Act (UAPA) to address terrorist activities and financing.
- **Diplomatic Efforts:** India consistently raises the issue of cross-border terrorism at bilateral, regional, and multilateral levels.
- **Strategic Partnerships:** India collaborates with countries like the US, Israel, and Gulf states for intelligence sharing, defense cooperation, and capacity building.
- **Technological Advancements:** Initiatives like drone regulations and expanding the National Investigation Agency's mandate to include cyber terrorism demonstrate India's focus on adapting to the changing threat landscape.

## Way Forward

1. **Sustained Global Cooperation:** Continued international collaboration is essential for intelligence sharing, financial disruption of terrorist networks, and capacity building in vulnerable regions.
2. **Addressing Root Causes:** Socio-economic development, promoting tolerance, and countering extremist narratives are vital to prevent radicalization and recruitment.

- Cybersecurity Measures:** Collaborative efforts are needed to develop robust cybersecurity infrastructure and counter online radicalization.
- Technological Advancements:** Continuous innovation and adaptation of technologies for surveillance, detection, and disruption of terrorist activities are crucial.
- Balancing Security and Rights:** Striking a balance between security measures and upholding human rights and civil liberties is essential for long-term success.

India's contribution to the UN CTTF signifies its commitment to a global fight against terrorism. By addressing the challenges and implementing a comprehensive approach, the international community can build a safer and more secure future.

**EXPECTED QUESTIONS FOR UPSC CSE**

**Prelims MCQ**

- Q. What is a common characteristic of lone wolf terrorists?
- They typically work with large groups
  - They seek personal fame rather than ideological goals
  - They operate without direct support or orders from a larger group
  - They are usually foreign nationals

Answer: c

**Descriptive Question**

- Q. Evaluate India's fight against terrorism. Give details of Indian counter-terror strategy. [15 Marks] [250 words]

**BIMSTEC CHARTER**

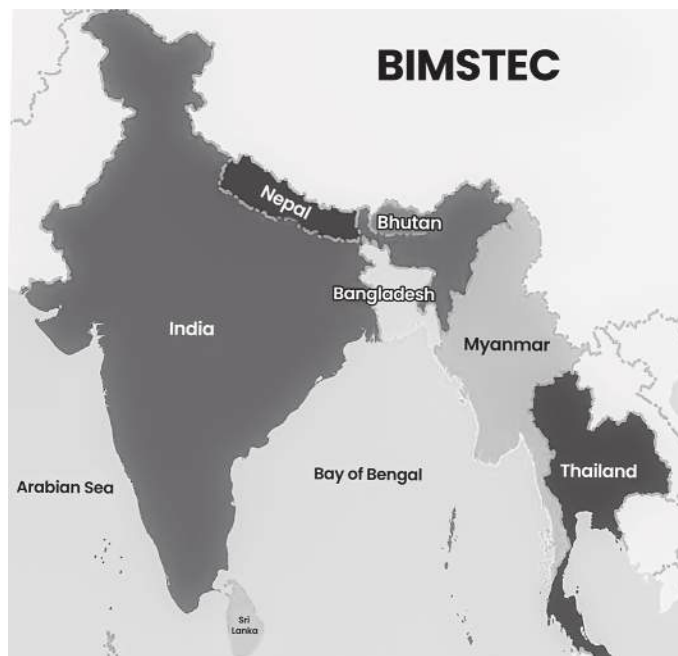
**Why in News:** The Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) achieved a significant milestone with the entry into force of its charter on May 20, 2024.

**About the BIMSTEC Charter**

- The Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (**BIMSTEC**) charter was signed and adopted during the **5th summit of the grouping in Sri Lanka, in 2022.**
- The BIMSTEC charter is a foundational document that establishes the organization's goals, principles, and structure.
- It grants BIMSTEC a legal personality, enabling it to engage in formal partnerships with other international organizations and admit new members and observers.

**Understanding BIMSTEC**

- Established in 1997** through the Bangkok Declaration.
- BIMSTEC is a regional forum comprising seven member states: **Bangladesh, Bhutan, India, Myanmar, Nepal, Sri Lanka, and Thailand.**
- The **organization's secretariat** is located in **Dhaka, Bangladesh.**
- BIMSTEC's primary objective is to foster economic development, social progress, and regional stability within the Bay of Bengal region.



**SIGNIFICANCE FOR INDIA**

- Strengthens Act East Policy and Neighbourhood First Policy:** BIMSTEC complements India's foreign policy initiatives by promoting regional cooperation in its eastern neighborhood.
- Bridge Between South and Southeast Asia:** BIMSTEC acts as a crucial link between South Asia and Southeast Asia, facilitating trade and connectivity.
- Alternative Platform:** BIMSTEC offers an alternative platform for regional cooperation, particularly after the decline of SAARC (South Asian Association for Regional Cooperation) since 2016.
- Countering China:** BIMSTEC offers a counterbalance to China's influence in the region, allowing India to build stronger alliances and promote regional stability.
- Security Collaboration:** Through BIMSTEC, India can enhance cooperation on security issues such as terrorism, piracy, and natural disasters, ensuring a safer and more secure neighborhood.

**Challenges**

- Slow Progress:** The ratification of the charter took 27 years after the organization's formation, highlighting the need for faster progress on future initiatives.
- Absence of Free Trade Agreement:** Currently, BIMSTEC members primarily engage in bilateral and multilateral trade agreements with non-members. Establishing a free trade agreement within BIMSTEC could significantly boost regional economic integration.



- Conduct refugee status determination for asylum seekers from non-neighboring countries before granting asylum.

## Way Forward



### Re-evaluation of the Bill

The UK government should re-evaluate the bill in light of ethical concerns and potential violation of international refugee law.

### Prioritization of Humane Treatment

Safeguarding the well-being and human rights of asylum seekers should be paramount, regardless of their entry status.



### Collaboration with UNHCR

The UK should collaborate with the UNHCR to ensure adherence to international refugee protection principles.

### Exploring Alternative Solutions

Focus on developing humane and effective solutions for managing asylum claims without resorting to potentially harmful policies.



### India's Potential Role

India, with its experience in handling refugees, could contribute to discussions on developing a more humane and rights-based global refugee protection framework.

## Conclusion

The UK's Rwanda policy raises significant ethical and legal concerns. While addressing migration challenges is crucial, **it must be done within the framework of international law and with due regard for human rights.**

## EXPECTED QUESTIONS FOR UPSC CSE

### Prelims MCQ

Q. Consider the following statements,

1. The 1951 Refugee Convention and its 1967 Protocol are key legal instruments outlining refugee rights and state obligations to protect them.
2. India is party to the 1951 Refugee Convention
3. India is not party to 1967 Protocol of Refugee Convention

How many of the above statements are correct?

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

Answer: (1 and 3 only)

## Descriptive Question

Q. "While addressing migration challenges is crucial, it must be done within the framework of international law and with due regard for human rights." Do you agree? Justify your views. [15 Marks] [250 words]

## INDIA AND BHUTAN RELATION

**Why in News:** India-Bhutan Joint Customs Meeting enhances trade cooperation.

### Key Details

- The 5th India-Bhutan JGC meeting focused on customs procedures, trade facilitation, and infrastructure development.
- Bilateral cooperation included capacity building, training, and promoting cross-border trade.
- Both countries aim to enhance connectivity, explore new opportunities, and adapt to technological advancements for mutual prosperity.

### Significance

- **Strategic Location:** Firstly, Bhutan's geographical positioning is strategic for India's strategic interests in the region, more so in view of the emergent Chinese threat.
- **Hydropower:** Bhutan provides clean hydropower energy to India; therefore, promoting energy reliability and relations.
- **Diplomatic Relations:** Bilateral relations build up political stability and trust which provides India and Bhutan with a stronger cooperation in the region.
- **Economic Collaboration:** There is an improvement in bilateral trade and tourism thus promoting economic development for both countries.
- **Cultural Bonds:** It is in view of the strong historical and certain cultural bond which enhances the people-to-people interactions and the bilateral relations.



# CHALLENGES IN INDIA-BHUTAN RELATIONS

## Chinese Influence

### Fact:

- ▶ China is investing heavily in infrastructure projects, including roads, railways, and extending diplomatic relations in Bhutan, by building roads in strategic areas like Doklam, raising threat for India.

### Impact:

- ▶ Which invariably impacts on the balance of power in the region and requires keen Indian foreign and defence policies.

### Fact:

- ▶ Bhutan economy is highly reliant on India export market where more than 80% of export commodities goes while on social/ financial investment side mostly on hydropower sector.

### Impact:

- ▶ While economic interdependence can be very beneficial, extreme cases such as this one can leave a country in a vulnerable position where it cannot support its own economy, and thus it will be easily driven by the demands of the international economy.

## Economic Dependency

### Fact:

- ▶ Bhutan has claimed strips of territory from China that remain unsettled at present, including Doklam, Jakarlung, and Pasamlung which are near the SCZ or the Siliguri Corridor.

### Impact:

- Such controversies can cause tension
- ▶ and may result in conflicts and that alters the stability of a specific region and matters which are related to security of India.

## Border Disputes

## Way Forward

India and Bhutan can strengthen ties by investing in infrastructure, tourism, and other sectors to boost Bhutan's economy and create jobs. Promoting cultural exchanges and visa-free movement will enhance mutual understanding. Strategic cooperation on security issues is vital. Direct flights, infrastructure support, and encouraging Indian businesses in Gelephu can further solidify this partnership.

## EXPECTED QUESTIONS FOR UPSC CSE

### Prelims MCQ

Q. Gelephu city is located in which one of the following country?

- (a) Nepal (b) Bhutan  
(c) China (d) Maldives

Answer: b


### Descriptive Question

Q. India-Bhutan relationship demonstrate India's commitment to its neighbourhood policy. comment? [10 marks] [150 words].

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The Indian EXPRESS

## DRAFT NORMS OF RBI FOR THE REGULATION OF PAYMENT AGGREGATORS

**Why in News:** The Reserve Bank of India (RBI) has taken a significant step towards enhancing regulations for **payment aggregators (PAs)**, particularly those facilitating **face-to-face transactions**.

### Key Details

The growing popularity of digital payments, especially offline transactions, has necessitated a more robust regulatory framework. The new guidelines aim to address concerns regarding:

- **Merchant onboarding:** Ensuring merchants operating through PAs are legitimate businesses and not involved in fraudulent activities.
- **Data security:** Protecting sensitive customer information collected during offline transactions.
- **Transparency:** Streamlining operations and ensuring PAs don't facilitate transactions for services not offered by the merchants.

### What is a payment aggregator?

- Payment aggregator is a third-party service provider that enables customers to make payment to merchants.
- It is only through these payment aggregators that customers are able to make payment via debit & credit cards, UPI, bank transfer. These payment aggregators include Amazon Pay, Razorpay, Paytm, Cashfree, PhonePe and GooglePay.
- The commercial banks do not require special authorisation from the RBI when they provide physical payment aggregator services as part of their normal banking relationship.
- All they need to do is to ensure that they comply with these instructions within three months from the date circular is issued.

## DRAFT NORMS OF RBI FOR THE REGULATION OF PAYMENT AGGREGATORS

THE PROPOSED REGULATIONS CAN BE BROADLY CATEGORIZED INTO THREE KEY AREAS.

### • Know Your Customer (KYC) and Due Diligence

The draft proposes stricter KYC norms for merchants onboarded by PAs.

- ▶ This includes verifying the physical presence and bank accounts of the merchants.

### • Regulation of Non-Banking PAs

The RBI is proposing separate authorization for non-banking entities offering offline PA services.

- ▶ These entities will need to maintain a minimum net worth of ₹15 crore, increasing to ₹25 crore by March 2028.

### • Data Storage and Security

The draft emphasizes data security. PAs, except for card issuers and networks, will be barred from storing card details for offline transactions after August 1, 2025.

- ▶ Only limited data like the last four digits and issuer name can be retained for transaction tracking.

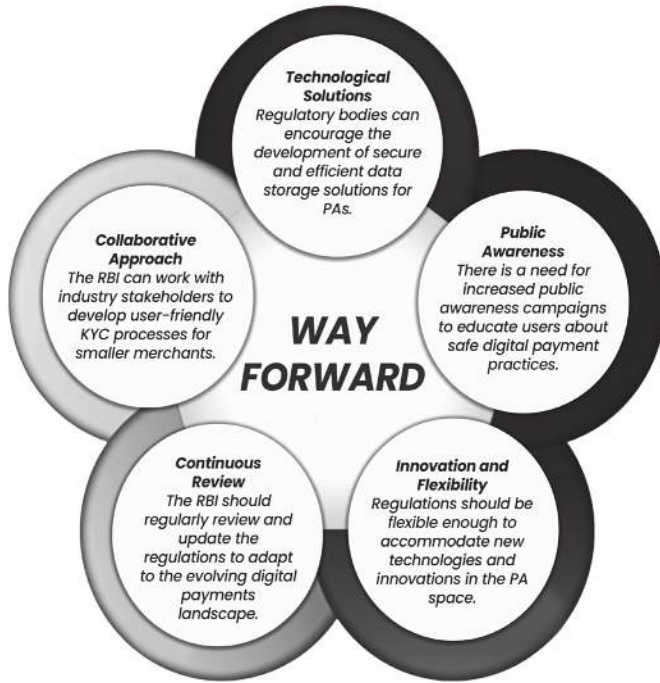
### Impact and Analysis

The RBI's move is expected to have a positive impact on the overall digital payments ecosystem:

- **Enhanced Security:** Stricter KYC and data storage regulations will minimize the risk of fraud and data breaches.
- **Increased Transparency:** Clearer regulations will ensure PAs function within defined parameters, promoting transparency in transactions.
- **Level Playing Field:** The new norms will create a level playing field for all players in the offline PA space.

### Challenges

- **Compliance Burden:** The increased KYC requirements may pose a challenge for smaller merchants, potentially hindering their digital adoption.
- **Technological Upgradation:** PAs might need to invest in technological infrastructure to comply with the data storage regulations.



By addressing these challenges and implementing the suggested steps forward, the RBI can ensure a secure, transparent, and thriving digital payments ecosystem in India, encompassing both online and offline transactions.

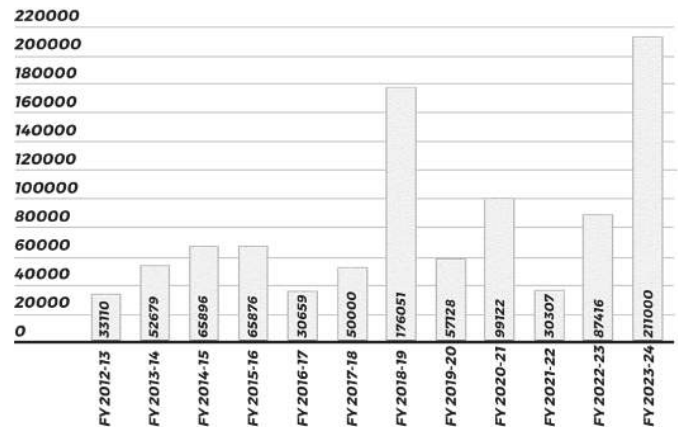
## RBI SURPLUS TRANSFER TO GOVERNMENT OF INDIA

**Why in News:** The Central Board of the Reserve Bank of India (RBI) approved Rs. 2.11 lakh crore surplus transfer to the Central Government for the accounting year 2023-24.

### Key Details

This represents a 141% increase over the previous year's (2022-23) dividend transfer of Rs. 87,416 crores. Additionally, the contingency risk buffer has been raised to 6.5% from the previous 6%.

**RBI SURPLUS TRANSFERS TO GOVT IN LAST 10 YEARS**



### EXPECTED QUESTIONS FOR UPSC CSE

#### Prelims MCQ

Q. With reference to payment aggregator (PA) in India, consider the following statements:

1. It is a third-party service provider that enables customers to make payment to merchants.
2. It is mandatory for commercial banks to obtain special authorisation from the RBI to provide physical PA services as part of their normal banking relationship.

Which of the statements given above is/are correct?

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

Answer: a

#### Descriptive Question

Q. Examine the potential impact of the RBI's enhanced regulations on payment aggregators (PAs). How does these measures affect consumer protection, market competition, and financial stability? [15 Marks] [250 words]

The primary sources of its surplus include:

#### Sources of Earnings

- Profits from foreign currency assets like bonds, treasury bills, and central bank deposits.
- Earnings from local, rupee-based government securities.
- Borrowing management for both central and state governments.
- Regulation of banks and non-banking financial bodies.
- Commission from overseeing government transactions and specific underwriting endeavours.

#### Expenditures

- Operating expenses.
- Currency printing.
- Staff remunerations.
- Transaction commissions for banks.
- Dealer compensations.
- Interest paid on deposits and borrowings.

### Mechanism for Transfer of Surplus by RBI

- The RBI transfers its surplus to the government under Section 47 of the Reserve Bank of India Act, 1934.
- The surplus calculation is based on the Economic Capital Framework (ECF) recommended by the Bimal Jalan committee, which advises the RBI to maintain a Contingent Risk Buffer (CRB) between 5.5% and 6.5% of its balance sheet.


### Reasons Behind the Increase in RBI Surplus

- **High Profits from US Treasury Bonds:** As of March 31, 2024, the RBI has invested \$240.6 billion in US Treasuries.
  - The high yields on these bonds, due to monetary policy tightening, have resulted in substantial interest income for the RBI from foreign assets.
- **Surge in Forex Holdings:** The sharp jump in the surplus amount can also be attributed to higher income from the forex holdings of the central bank. In FY24, the RBI's foreign exchange (forex) reserves surged by \$68 billion, the highest in five years.
- **Higher Earnings from Interest:** The shifting of domestic liquidity into deficit mode has contributed to the central bank's higher income.
  - When liquidity enters deficit, the RBI lends to banks, earning interest.
- **Increase in Gold Prices:** The increase in the price of gold has added to the overall expansion of the RBI balance sheet.
- **Intervention in Forex Market:** RBI's intervention in the forex market has contributed to higher incomes. For example, the RBI sold securities worth \$153 billion in the forex market in FY24.

#### Significance of the Record RBI Surplus Transfer to the Government


**Increased Capital Expenditure (CAPEX)**

The surplus transfer provides much-needed fiscal stimulus to the government to increase its allocations to infrastructure projects like roads, railways, and defence.




**Reduced Borrowing and Fiscal Consolidation**

The surplus transfer provides the government with a fiscal space of 0.3% of GDP, aiding in reducing borrowing and maintaining fiscal discipline. This helps ensure fiscal deficit reduction remains on track with the committed glide path of 4.5% by FY26.




**Boost to Bond Markets**

The surplus transfer has raised hopes among bond traders, leading to a potential correction in the yield of government securities.




**Meeting Revenue Shortfall**

The latest dividend payout from the RBI will be instrumental in compensating for any slippages in tax revenue



**Covering the Disinvestment Target**

The government has set an ambitious divestment target of ₹50,000 crore for FY25, significantly higher than the revised target for FY24. The surplus provides a safety revenue cover to the government in case of any potential miss this year



### Way Forward

- **Absorption of Excessive Liquidity:** RBI must absorb the excessive liquidity generated by the surplus transfer through open market operations and foreign exchange interventions.
- **Increasing Govt Tax-GDP Ratio:** The government must not constantly depend on transfers from the central bank or dividends from public-sector enterprises. Proper fiscal management must be undertaken to increase the government's tax-to-GDP ratio.

The immediate effect of the RBI transfer will be to simplify the fiscal calculations for the Ministry of Finance. However, the longer-term priorities of the RBI will remain focused on ensuring monetary and financial stability.

#### EXPECTED QUESTIONS FOR UPSC CSE

##### Prelims MCQ

- Q. Which of the following may result in an increase in the Reserve Bank of India (RBI) surplus?
1. When the price of gold increases sharply.
  2. When a banking system liquidity enters into 'deficit mode'.
  3. When there is an increase in the interest income from investments in foreign bonds and deposits.

Select the correct answer using the code given below:

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

Answer:

##### Descriptive Question

- Q. A robust framework for fiscal management should be developed to ensure sustainable economic growth and financial stability, critically examine. [10 marks] [150 words]

### WOMEN ENTREPRENEURS IN INDIA

**Why in News:** The Reserve Bank Innovation Hub (RBIH) released a white paper titled "At the Helm: Women Entrepreneurs Transforming Middle India."

#### Key Details

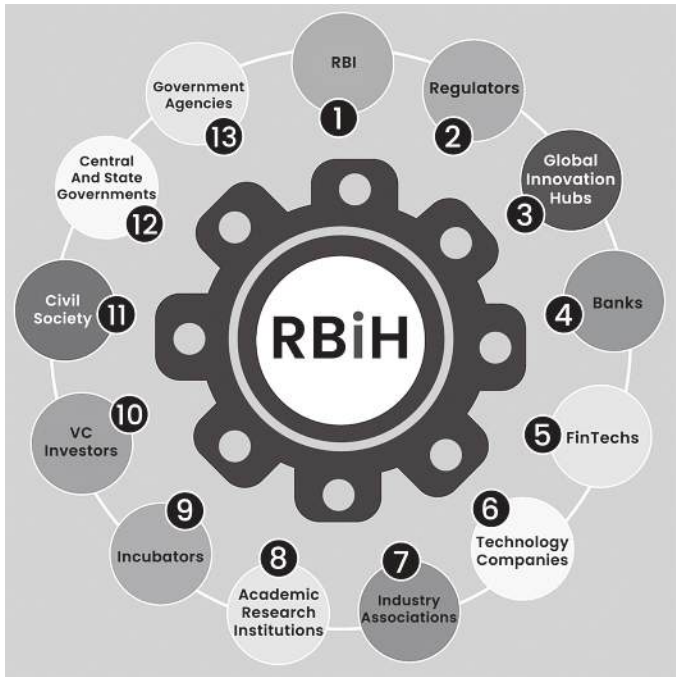
- This study sheds light on the challenges faced by women entrepreneurs in Tier 2 and Tier 3 cities, often referred to as "Middle India."
- 35% of respondents had to pause their entrepreneurial

ventures due to caregiving responsibilities. This underscores the significant burden of unpaid care work that disproportionately falls on women.

- **90.2% of respondents** identified as the primary decision-makers in their ventures. This statistic emphasizes the autonomy and leadership women bring to the entrepreneurial space in Middle India.

**Reserve Bank Innovation Hub**

- The Reserve Bank Innovation Hub is a wholly owned subsidiary of the Reserve Bank of India (RBI).
- It was set-up to promote and facilitate an environment that accelerates innovation across the financial sector.
- The RBIH has been registered as a section 8 company under Companies Act, 2013.



**Initiatives to provide impetus to women entrepreneurship in India**

- **Panjikaran se Pragati:** It is a joint integrated national campaign by the Ministry of MSME and Women Entrepreneurship Platform (WEP). It encourages women entrepreneurs across India to get Udyam registered and unlock the business opportunities.
- **Mentorship Platform for Women:** This is an initiative of NITI Aayog (launched at the 8th Global Entrepreneurship Summit in 2017). It aims to bolster the economic participation of women entrepreneurs both in early-stage enterprises and established businesses.
- **Unnati-Udyamita se Pragati:** It is a joint program of the Ministry of MSME and the Women’s Entrepreneurship Platform (WEP). The aims is to provide a comprehensive capacity building support through Women’s Entrepreneurship Platform (WEP).

## Which Are the Key Challenges Faced by Women Entrepreneurs?

- 1 Capital Gap**  
A mere 3% of surveyed women reported accessing external funding. This highlights the significant disparity in access to capital between genders.
- 2 Network Gap**  
The survey finds that marriage drives 87% of women’s migration. This can disrupt existing social networks, hindering access to mentors and business partners, and slowing career progression.
- 3 Care Gap**  
Caregiving responsibilities, including maternity leave, often delay entrepreneurial success for women.
- 4 Data Gap**  
The absence of gender-disaggregated data makes it difficult to formulate effective policies to support women entrepreneurs.
- 5 Visibility Gap**  
Societal undervaluation of women’s entrepreneurial pursuits leads to low visibility and limited recognition of their achievements.

### Way Forward

- 1. Data-Driven Decisions and Bridging the Capital Gap:** Implement initiatives like state-sponsored grants, female-focused incubators, and strengthening women’s business networks to facilitate access to capital.
- 2. Supporting Caregivers:** Introduce fiscal incentives, such as extended childcare leave with financial support, to ease the burden of caregiving on women entrepreneurs.
- 3. Safe Spaces and Mobility:** Create safe public spaces and digital platforms, alongside improved physical mobility infrastructure, to empower women entrepreneurs.

### Conclusion

Women entrepreneurs in Middle India are a powerful force for economic and social transformation. By addressing the challenges; they face and implementing the proposed policy recommendations, we can unlock their full potential and empower them to be the driving force behind a more inclusive and prosperous India.

**EXPECTED QUESTIONS FOR UPSC CSE**

**Prelims MCQ**

Q. Consider the following statements with reference to the Reserve Bank Innovation Hub (RBIH):

1. It is a wholly owned subsidy of Reserve Bank of India
2. It aims to accelerate innovation in financial sector

3. It is a Section 8 company under Companies Act, 2013  
How many of the above statements are correct?

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

Answer: c

**Descriptive Question**

Q. How conducive is the current environment for women entrepreneurs in middle India? Explain the barriers and challenges faced by women entrepreneurs in India? [15 Marks] [250 words]

**ETHYLENE OXIDE IN SPICES**

**Why in News:** The Spices Board of India (SBI) has mandated **Ethylene Oxide (ETO)** testing for all spice shipments destined for Singapore and Hong Kong as these countries suspended sales of certain Indian spice blends due to the detection of elevated ETO levels.

**Ethylene Oxide**

- **ETO Properties:** ETO is a colorless gas used as a sterilizing agent, disinfectant and fumigant.
- It is used in the spice industry to reduce microbial contamination but is considered carcinogenic if used beyond certain limits.
- Ethylene Oxide can poses health risk including irritation of the eyes, skin, throat, and lungs as well as potential long term effect on the central nervous system.
- Ethylene oxide is classified as a Group 1 carcinogen by the International Agency for Research on Cancer (IARC).
- Ethylene oxide (EtO) is banned from use in food products in India due to its carcinogenic properties.
- **Impact on Exports:** The presence of ETO residues above permissible limits can lead to export rejections, impacting India’s reputation as a reliable spice supplier.

**India’s Spice Industry**

- **Production and Exports:** India is the world’s largest producer, consumer, and exporter of spices.
- In 2023-24, India’s spice exports totalled USD 4.25 billion against 3.7 billion in 2022-23. Major export destinations include China, the USA, and Bangladesh.
- **Spices Produced:** India boasts a diverse spice profile, producing around 75 of the 109 varieties listed by the International Organization for Standardization (ISO). **Chillis, cumin, turmeric, ginger, and coriander** constitute a significant portion (76%) of India’s spice production. **Madhya Pradesh, Rajasthan, Gujarat, Andhra Pradesh, Telangana, and Karnataka** are leading producers.

**Spices Board of India**

- The Spices Board of India is a statutory body.
- Constituted in 1987 under the Spices Board act 1986.
- **Headquarter:** Cochin, Kerala.
- **Role:** Autonomous body responsible for the export promotion of the 52 scheduled species and development of Cardamom.
- **Ministry:** Ministry of Commerce and Industry



**Way Forward**

Ensuring the quality and safety of Indian spices is crucial for maintaining the country’s position as a global leader. Here are five key steps:

1. **Stricter Quality Control and Farmer Training:** Implementing rigorous quality control measures throughout the supply chain can minimize the risk of ETO contamination and other quality issues.
2. **Promoting Organic Spices:** Encouraging the production and export of organic spices can cater to the growing global demand for safe and sustainable food products.
3. **Investing in Research:** Investing in research on improved spice varieties, pest control methods, and post-harvest storage techniques can enhance overall efficiency and competitiveness.

By taking these steps, India can safeguard its reputation as a trusted supplier of high-quality spices and ensure the continued success of its spice export industry.

**EXPECTED QUESTIONS FOR UPSC CSE**

**Prelims MCQs**

Q1. Consider the following statements about the Spice Board of India ?

1. It functions as a statutory body.

- It operates under the Ministry of Agriculture & Farmers' Welfare.
- The headquarters of Spices Board of India is located in Kerala.

How many of the above statements are correct?

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

Answers: (1) and (2) only

Q2. Consider the following statements with reference to the Ethylene Oxide:

- It is a colorless gas used as a disinfectant
- It is a sterilizing agent used to reduce or eliminate microbial elements in spices
- Its use in spice Industry is strictly regulated due to its carcinogenic properties

How many of the above statement are correct?

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

Answers: c

**Descriptive Question**

Q. What is Ethylene Oxide (ETO). Why is it a concern in spice shipments? [10 Marks] [150 words]

**REVAMPING LOGISTICS FOR A BOOMING ECONOMY**

**Why in News:** Invest India, the national investment promotion agency, has set an ambitious target for India's logistics sector. By 2030, they aim to propel India into the top 25 countries according to the **Logistics Performance Index (LPI)** ranking.

**Understanding Logistics**

- Logistics refers to the all-encompassing management of the flow of goods, information, and services between the point of origin and the point of consumption. It includes activities like **transportation, warehousing, storage, value-added services**, and everything in between.
- A well-developed logistics infrastructure, comprising ports, multimodal logistics parks (MMLPs), and warehouses, is essential for streamlining this process.

**Benefits of an Efficient Logistics Sector**

- Smoother Supply Chains:** Streamlined logistics ensures efficient movement of goods, minimizing delays and lead times (the time it takes to complete a supply chain process). This is crucial for businesses to operate effectively and meet customer demands.
- Economic Integration:** Improved connectivity between regions and markets fosters economic integration, enabling businesses to reach new customers and expand their reach.
- Enhanced Business Competitiveness:** Reduced transportation, storage, and distribution costs translate to increased business competitiveness, allowing Indian companies to compete more effectively in the global market.
- Job Creation:** The logistics sector is a major job generator, creating opportunities in transportation, warehousing, distribution, and related services.

**Challenges**

- Fragmented Supply Chain:** The presence of numerous small and independent players creates a fragmented supply chain, hindering smooth operations and coordination.
- Regulatory Bottlenecks:** A complex regulatory framework and bureaucratic procedures can impede business operations and slow down logistics processes.
- Skill Gap:** A lack of qualified personnel with expertise in supply chain management can hinder the adoption of efficient practices and limit innovation.
- Inter-State Coordination:** Disparity in regulations and lack of coordination between states can lead to delays in shipments and increase transportation costs.



### Way Forward

- 1. Streamlining Regulations:** Simplifying regulations and streamlining bureaucratic procedures can expedite business operations and encourage investment in the sector.
- 2. Infrastructure Development:** Continued investment in building modern logistics infrastructure, including multimodal transportation networks, MMLPs, and automated warehouses, is crucial.
- 3. Skill Development Programs:** Implementing targeted skill development programs can create a skilled workforce equipped with the knowledge and expertise to manage complex supply chains effectively.
- 4. Technology Adoption:** Encouraging the adoption of technology solutions like blockchain and automation can optimize logistics processes and enhance efficiency.
- 5. Inter-State Cooperation:** Fostering better coordination between states on policies and regulations can ensure seamless movement of goods across borders and reduce delays.

By addressing these challenges and implementing strategic solutions, India can transform its logistics sector into a major driver of economic growth, create new job opportunities, and enhance the competitiveness of Indian businesses in the global market.

#### EXPECTED QUESTIONS FOR UPSC CSE

##### Prelims MCQs

Q1. Consider the following measures:

1. Skill Development Programs
2. Inter-State Cooperation
3. Technology adoption

How many of the above factors can lead to improvement of India's ranking in Logistic Performance Index?

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

Answer: c

Q2. Logistics Performance Index often seen in news is released by?

- (a) World Bank  
(b) World Trade Organization  
(c) International Monetary Fund  
(d) World Economic Forum

Answer: a

#### Descriptive Question

Q. Elaborate the current challenges faced by India's logistics sector? What policy and regulatory reforms are needed to enhance India's logistics competitiveness? [15 Marks] [250 words]

### INDIA'S TOURISM SECTOR

**Why in News:** The Indian tourism sector is projected to contribute USD 512 billion to India's GDP by 2028 **as per Invest India.**

India has climbed to the 39th position on the World Economic Forum's Travel & Tourism Development Index 2024, while US has topped the list.

#### Robust Growth and Strategic Investments

- **100% FDI:** India allows complete foreign direct investment (FDI) for tourism construction projects, including hotels, resorts, and recreational facilities. This signifies a welcoming business environment for international players.
- **Global Ranking:** India secured the **6th** position globally in terms of travel and tourism's contribution to GDP in 2022. This highlights the sector's crucial role in the Indian economy.

#### What is the Significance of Tourism?

- **Economic Benefits:** Tourism is a major job generator, with an estimated 53 million jobs projected by 2029. Additionally, it increases foreign exchange earnings, boosting the national economy.
- **Social Benefits:** Tourism fosters cultural exchange, promoting understanding and respect between communities. Improved infrastructure due to tourism development can enhance the quality of life for residents.
- **Cultural Benefits:** A thriving tourism industry can help revive and preserve India's rich cultural heritage and intangible traditions.

#### Growth Drivers

- **Ease of Travel:** Initiatives like e-Tourist visas have simplified the travel process, attracting more visitors.
- **Rising Middle Class:** A growing middle class with increased disposable income presents a significant domestic tourism market.
- **Medical Tourism:** India's reputation for affordable, quality healthcare with highly skilled professionals makes it a prime destination for medical tourists.

#### Challenges

- **Ecological Impact:** Unchecked tourism can lead to environmental degradation and strain natural resources. Sustainable practices are essential for long-term growth.

- **Infrastructure Limitations:** Inadequate infrastructure, accessibility issues, and safety concerns can deter tourists. Upgrading infrastructure is crucial.
- **Skilled Manpower Shortage:** The lack of trained and skilled manpower can hinder the industry's ability to provide high-quality services. Investment in tourism education and training is necessary.
- **Environmental Sustainability:** Lack of sustainable practices and environmental degradation in popular tourist spots pose long-term threats to the natural beauty and appeal of these destinations.
- **Cultural Preservation:** Challenges in preserving cultural heritage due to rapid urbanization, commercialization, and cultural homogenization can diminish the unique experiences that attract tourists.
- **Regulatory Challenges:** Cumbersome bureaucracy, complex regulations, and inconsistent policies hinder tourism development and investment in infrastructure and services.
- **Quality of Services:** Varied standards and quality of services in accommodation, transportation, and tour operations can lead to dissatisfaction among tourists and impact India's tourism image.

## Initiatives Taken to Promote Tourism Sector

Swadesh Darshan 2.0 adopts a destination and tourism-centric strategy to develop sustainable tourism destinations.

The National Mission on Pilgrimage Rejuvenation and Spiritual Heritage Augmentation Drive (PRASHAD) scheme is aimed at safeguarding India's ancient civilizational heritage.

The Incredible India Tourist Facilitator Certification Program seeks to establish a well-trained and professional pool of Tourist Facilitators nationwide.

The Dekho Apna Desh initiative aims to encourage domestic tourism.

The "Incredible India" campaign is a flagship initiative by the Ministry of Tourism aimed at promoting India as a preferred tourist destination both domestically and internationally.

### Way Forward

- **Sustainable Practices:** Promoting eco-tourism, responsible waste management, and community involvement can ensure tourism's long-term sustainability.
- **Infrastructure Development:** Investing in transportation networks, improved amenities at tourist destinations, and enhanced accessibility can significantly improve the tourist experience.

- **Skill Development:** Creating targeted training programs and vocational courses can address the shortage of skilled professionals in the tourism sector.
- **Safety and Security:** Implementing robust safety measures and ensuring tourist security will make India a more attractive destination.
- **Marketing and Promotion:** Effective marketing campaigns highlighting India's unique cultural heritage, diverse experiences, and improved infrastructure can attract a wider range of tourists.

### Conclusion

With concerted efforts in infrastructure development, safety measures, environmental conservation, and regulatory reforms, India can overcome these challenges and realize its potential as a leading tourist destination, offering unique experiences while preserving its natural and cultural heritage.

### EXPECTED QUESTIONS FOR UPSC CSE

#### Prelims MCQs

Q.1 Consider the following initiatives:

- (1) Swadesh Darshan
- (2) Dekho Apna Desh
- (3) Incredible India

How many of the above initiatives are launched by Ministry of Culture?

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

Answer: d

Q.2 Travel & Tourism Development Index is released by:

- (a) The World Bank
- (b) The World Economic Forum
- (c) United Nations World Tourism Organization
- (d) World Association for Hospitality and Tourism Education and Training

Answer: b

#### Descriptive Question

Q. What factors are driving the promising trajectory of the Indian tourism sector? Enumerate the implications of the projected growth of the tourism sector for regional development and economic diversification. [15 Marks] [250 words]

## GLOBAL VALUE CHAINS (GVCs)

**Why in News:** NITI Aayog CEO held that Lower tariffs are essentials for India to become part of GVC.

### Global Value Chains (GVCs)

- Global Value Chains (GVCs) refer to the international dispersion of production processes across multiple countries, where different stages of production are carried out in various locations.
- This interconnected network involves the movement of goods, services, and information among different actors, including suppliers, manufacturers, and distributors, contributing to the creation of a final product.

### Measures Taken for Integration with GVC

- **Production Linked Incentives Scheme:** Offers incentives to manufacturers based on incremental sales, promoting integration with GVCs.
- **Consolidation of Labor Laws and Logistics Improvement:** Streamlining labor laws and enhancing logistics performance index to facilitate smoother integration into GVCs.
- **Infrastructure Development Initiatives:** Projects like Bharatmala and Sagarmala aimed at improving infrastructure to support GVC participation.
- **Liberalization of Foreign Direct Investment Norms:** Relaxation of FDI norms to attract foreign investment and encourage collaboration with global partners in GVCs.

### Benefits of GVC Participation

- **Growth of Competitive Domestic Companies:** Integration exposes domestic companies to global competition, fostering innovation and efficiency, enabling them to compete on the world stage.
- **Increased Foreign Exchange Earnings:** Export-oriented production within GVCs generates valuable foreign exchange reserves, boosting the Indian economy.
- **Enhanced Development:** GVC participation can lead to faster economic growth, import of advanced skills and technologies, and job creation.
- **Efficiency:** GVCs allow firms to access specialized inputs and resources from different countries, optimizing production processes and reducing costs.
- **Market Access:** Participation in GVCs provides access to larger markets and diverse consumer bases, facilitating export opportunities and market expansion.
- **Innovation:** Collaboration within GVCs fosters knowledge sharing and technological exchange, stimulating innovation and competitiveness.
- **Risk Diversification:** GVCs enable firms to diversify risks by spreading production activities across multiple countries, reducing vulnerability to disruptions and market fluctuations.

## Challenges in India's GVC Integration



### Limited Trade Bloc Participation

India's absence from major trade blocs like the South Asian Association for Regional Cooperation (SAARC) and the Regional Comprehensive Economic Partnership (RCEP) restricts access to wider markets and preferential trade terms.



### Legacy of Protectionism

India's historical inward-looking industrial policies, exemplified by the "License Raj" era and import substitution strategies, have created impediments to a more open and trade-friendly environment.



### Skill Gaps

The pace of reskilling and upskilling the Indian workforce to meet the demands of high-tech GVC segments remains slow. This limits India's ability to attract leading GVC firms.



### Lagging Integration with Lead Firms

In certain sectors, like garments, neighboring countries like Bangladesh outperform India due to their stronger alignment with GVC lead firms – the companies that orchestrate production across different countries.

### Way Forward

- **Trade Facilitation:** Streamlining ports and customs operations, reducing bureaucracy, and improving turnaround times are crucial for efficient GVC participation.
- **Free Trade Agreements:** Fast-tracking negotiations and concluding free trade agreements with key economic partners can open new markets and provide a level playing field for Indian companies.
- **Quality Standards:** Ensuring adherence to stringent international quality standards and certification systems is vital to gain the trust of GVC lead firms and secure a place in high-value chains.
- **Strategic Targeting:** Focusing on specific high-value segments like electronics and defense can leverage India's emerging technological prowess and attract investment in these sectors.
- **Digital Transformation:** Accelerating e-governance and e-compliance in trade procedures can streamline processes and enhance transparency, making India a more attractive GVC partner.

### EXPECTED QUESTIONS FOR UPSC CSE

#### Prelims MCQ

- Q. Consider the following statements with reference to Global Value Chain (GVC)
1. It is a system of tariffs and trade barriers imposed by countries to protect their domestic industries
  2. It ensures access to a global market
  3. It fosters knowledge sharing and technological exchange

How many of the above statements are correct?

- (a) Only one
  - (b) Only two
  - (c) All three
  - (d) None
- Answer: (2 and 3 only)

**Descriptive Question**

Q. Examine the role of India in global manufacturing networks within the framework of Global Value Chains (GVCs). What are the key sectors where India holds a competitive advantage, and what policy measures are needed to further integrate India into GVCs? [15 Marks] [250 words]

**SHRIMP FARMING IN INDIA**

**Why in News:** India has strongly refuted allegations of human rights and environmental abuses in some shrimp hatcheries, growing ponds, and peeling sheds, raised by a Chicago based human rights group.

**About India’s shrimp production and exports**

- In 2022-23, **India’s sea food exports stood at \$8.09 billion**, and shrimps accounted for a bulk of these exports at \$5.6 billion. (**More than 69%**)
- Frozen shrimp is India’s largest exported seafood item.
- India has emerged as **one of the world’s largest shrimp exporters** and its share in the U.S. market has risen to **40%** in 2022-23, with shipments worth \$2.4 billion, far ahead of competitors like Thailand, China, Vietnam, and Ecuador.

**OTHER INITIATIVES FOR SHRIMP PRODUCTION AND EXPORT**

Under **SAIME** (Sustainable Aquaculture in Mangrove Ecosystem) initiative, farmers have taken up **cultivation of shrimp at 30 hectares in West Bengal**. Additionally, they are restoring mangroves.

**MPEDA** developed a certification scheme for aquaculture products called ‘Shaphari’ based on **FAO’s technical guidelines on aquaculture certification**.

**National Residue Control Programme** is a **statutory requirement for export to European Union countries**. It is **regulated and carried by MPEDA**. Under **NRCP**, **definite sampling schedule and sampling strategies are drawn every year** for monitoring the residues of substances like **Antibacterial/Veterinary Medicinal Products** and environmental contaminants.

- The entire value chain for India’s shrimp exports is certified by the **Marine Products Export Development Authority (MPEDA)**
- About a lakh shrimp farms in **Andhra Pradesh** alone account for **almost 70%** of India’s shrimp output.

- **Andhra Pradesh, West Bengal, Odisha, Gujarat and Tamil Nadu are India’s major shrimp producing States**, and around **95%** of the cultured shrimp produce is exported.
- **Women** are reckoned to account for **70% of the eight million-odd jobs** in the sector, including two lakhs in hatcheries and aquaculture farms, and the rest in processing and freezing units.

**About MPEDA (Marine Products Exports Development Authority)**

- MPEDA is a **nodal coordinating, state-owned agency** engaged in fishery production and allied activities.
- It was **established in 1972** under the **Marine Products Export Development Authority Act (MPEDA), 1972**.
- It functions under the **Union Ministry of Commerce and Industry**.
- It is **headquartered** in Kochi, Kerala.
- Its mandate is to **increase exports of seafood** including fisheries of all kinds, **specifying standards, marketing, processing, extension and training** in various aspects.

**Conclusion**

India remains a competitive supplier of value-added shrimp to the world due to its low cost of labour and the scale of economy it has managed to achieve by becoming one of the largest global producers of farmed shrimp. The established capacity of hatcheries, feed mills and processing plants will support future expansion.

**EXPECTED QUESTIONS FOR UPSC CSE**

**Prelims MCQ**

Q. Consider the following statements:

1. Frozen shrimp is India’s largest exported seafood item.
2. Andhra Pradesh alone accounts for almost 70% of India’s shrimp output followed by west Bengal and Odisha.
3. Under Sustainable Aquaculture in Mangrove Ecosystem initiative, farmers have taken up cultivation of shrimp at 30 hectares in Andhra Pradesh.

How many of the above statements are correct?

- (a) Only one
  - (b) Only two
  - (c) All three
  - (d) None
- Answer: (1 and 2 only)

### Descriptive Question

Q. What is the importance of shrimp production for India. Discuss the important initiatives for shrimp production and export taken by the government. [10 Marks] [150 words]

## E-COMMERCE BOOM IN INDIA

**Why in News:** India's e-commerce sector is on a phenomenal growth trajectory, projected to reach a staggering **\$325 billion by 2030** according to **Invest India**, the national investment promotion agency. This surge will propel India to the position of the **world's third-largest online retail market by 2030**.

### Current Landscape and Business Models

As of 2022, the Indian e-commerce market stands at \$70 billion, accounting for roughly 7% of the country's total retail sector and has the potential to expand up to \$111 billion by 2024 and \$200 billion by 2026, with a CAGR of 20–22 percent.

While China exported \$200 billion worth of goods through e-commerce in 2022, India exported only \$2 billion, and a key reason for this gap is the cumbersome compliance process associated with exports, especially when it comes to payment reconciliation.

### Two key models dominate the e-commerce landscape

- **Inventory-Based Model:** Here, the e-commerce platform owns the inventory of products and directly sells them to consumers. This model, however, does not allow Foreign Direct Investment (FDI).
- **Marketplace Model:** This model functions as an online platform connecting buyers and sellers. Major players like Amazon operate under this model, and it permits 100% FDI under the automatic route.

### Growth Drivers



#### Rising Internet Penetration

With an internet penetration rate of **52.4% as of January 2024**, the potential customer base for online shopping is rapidly expanding.



#### Digital Infrastructure Push

Government initiatives promoting digital infrastructure, such as **e-KYC (electronic Know Your Customer)** and **Unified Payments Interface (UPI)**, are creating a smoother and more secure online transaction environment.



#### Rural E-commerce Boom

A significant shift is predicted towards rural-led e-commerce growth. **By 2026, over 60%** of the demand is expected to originate from tier 2-4 towns and rural areas.

### Challenges

- **Digital Divide:** A significant digital divide persists across regions, with limited internet access in some rural areas. Bridging this gap is crucial for inclusive growth.
- **Piracy and Counterfeiting:** Measures to curb the sale of counterfeit products online are essential to protect consumers and legitimate businesses.
- **Dominance of Foreign Entities:** Concerns exist regarding the dominance of foreign e-commerce giants like Amazon. Fostering a level playing field and encouraging domestic players are crucial for a healthy e-commerce ecosystem.
- **Payment Solutions:** Promote the adoption of digital payment systems and enhance security measures to increase consumer trust and facilitate cashless transactions.
- **Consumer Protection:** Implement measures to combat counterfeit products and improve consumer protection laws to enhance trust in e-commerce platforms.
- **Market Competition:** Encourage fair competition and create opportunities for smaller e-commerce players through policies that promote innovation and entrepreneurship.
- **Supply Chain Optimization:** Invest in technology and infrastructure to optimize supply chain management, reduce costs, and improve delivery efficiency.
- **Customer Experience:** Enhance customer service infrastructure and streamline return processes to improve the overall online shopping experience.
- **Cybersecurity Measures:** Strengthen cybersecurity measures and educate businesses and consumers about online security best practices to mitigate risks of fraud and data breaches.

### Way Forward

- **Bridging the Digital Divide:** Government and private initiatives can expand internet access and promote digital literacy in rural areas.
- **Strengthening Digital Infrastructure:** Continued investment in digital infrastructure will improve connectivity and facilitate online transactions.
- **Promoting Domestic Players:** Policies and initiatives can be designed to support the growth of domestic e-commerce companies.
- **Addressing Counterfeiting:** Robust mechanisms to identify and remove counterfeit products from online platforms are essential.
- **Consumer Protection:** A strong regulatory framework to protect consumer rights and ensure data security is necessary.

By addressing these challenges and capitalizing on its growth drivers, India's e-commerce sector has the potential to become a major engine of economic growth and create vast opportunities for consumers, businesses, and rural communities alike.

- This trend is particularly evident in the **India-ASEAN FTA**, where imports have outpaced exports.
- Despite this imbalance, India ranks **17th** globally in merchandise exports but **8th in merchandise imports**.

**EXPECTED QUESTIONS FOR UPSC CSE**

**Prelims MCQ**

Q. With reference to e-commerce, consider the following models:

1. Currently, India is world's third-largest online retail market.
2. India exports more e-commerce goods than China due to its higher internet penetration.

Which of the statements given above is/are correct?

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

Answer: d

**Descriptive Question**

Q. Explain how can e-commerce platforms address the needs and preferences of India's diverse consumer base. What are the implications of India becoming the world's third-largest online retail market by 2030? [15 Marks] [250 words]

**'FIVE-YEAR REVIEW OF INDIA'S MERCHANDISE TRADE' REPORT**

**Why in News:** A recent report by the **Global Trade Research Initiative (GTRI)** sheds light on the impact of international disruptions and domestic hurdles on India's trade performance.

- It also critically examines the role of Free Trade Agreements (FTAs) in shaping India's global trade dynamics.

**Key Details**

- The report reveals an asymmetry in India's trade with FTA partners:
  - Merchandise imports from FTA partners grew by around **38%**.
  - Merchandise exports to FTA partners grew by **only 14.5%**.

**Understanding Free Trade Agreements (FTAs)**

- FTAs are international treaties between two or more countries aiming to:
  - Reduce or eliminate trade barriers, such as tariffs and quotas.
  - Facilitate smoother trade and investment flows between participating nations.
- FTAs can encompass various areas, including trade in goods, services, intellectual property rights (IPRs), and more.

**Free Trade Agreements (FTAs) and India**

India signed 14 FTAs, including with EFTA, aiming to boost exports. Since 2014, three agreements were made with Mauritius (2021), UAE (2022), Australia (2022) and the latest edition in the list is European Free Trade Association (EFTA) (2024).

The European Free Trade Association (EFTA) members are Iceland, Liechtenstein, Norway, and Switzerland.

**Surjit Bhalla Committee Recommendations on FTAs (2019):**

- **Holistic Approach:** Integrate trade in goods, services, and investment for a comprehensive trade strategy.
- **Tackling NTBs:** Implement a program on technical regulations aligned with international standards to address non-tariff barriers.
- **MSME Support:** Provide institutional support to Micro, Small & Medium Enterprises (MSMEs) to utilize FTAs effectively, considering international obligations.
- **Data-Driven Analysis:** Develop an objective database to track FTA utilization and measure their impact.
- **Enhanced Coordination:** Improve inter-ministerial coordination, conduct state-wise outreach programs, and establish institutional mechanisms for stakeholder consultation.
- **Strategic Trade Remedies:** Utilize trade remedies like **anti-dumping and countervailing duties** available under FTAs.

# Challenges in Utilizing FTAs

India faces several hurdles in maximizing the benefits of FTAs

<p><b>1 Low FTA Utilization</b> India's utilization rate of FTAs is around 25%, significantly lower than the 70-80% rate achieved by developed countries.</p>	<p><b>2 High Compliance Costs</b> Complex certification processes and stringent rules of origin can add to the cost of exporting through FTAs.</p>	<p><b>3 Non-Tariff Barriers (NTBs)</b> Partner countries like Japan may impose stringent standards, sanitary and phytosanitary measures, and technical barriers that hinder Indian exports.</p>	<p><b>4 Limited Awareness</b> Many Indian exporters lack adequate knowledge about FTAs and their potential benefits, hindering their ability to take advantage of these agreements.</p>
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## Way Forward

To enhance its trade performance through FTAs, India can implement the following measures.

<p><b>Simplifying FTA Processes</b> Streamlining certification procedures and relaxing rules of origin can make FTAs more user-friendly for Indian exporters.</p>	<p><b>Negotiating Tariff Reductions</b> India should seek more balanced tariff reductions in future FTAs to ensure reciprocity and promote exports.</p>
<p><b>Addressing NTBs</b> Engaging with partner countries to reduce non-tariff barriers is crucial for creating a level playing field for Indian goods.</p>	<p><b>Enhancing Awareness</b> Initiatives to educate exporters about the benefits and intricacies of existing FTAs can encourage wider participation.</p>
<p><b>Strategic Trade Negotiations</b> India can prioritize FTAs with countries that offer larger markets and greater potential for export growth.</p>	

### Conclusion

By addressing these challenges and adopting a strategic approach, India can leverage FTAs to boost its exports, strengthen its global trade position, and achieve sustainable economic growth.

### Descriptive Question

Q. Discuss international disruptions and domestic hurdles on India's trade performance. Enumerate the measures India should implement to enhance its trade performance through FTAs. [15 marks] [250 words]

### EXPECTED QUESTIONS FOR UPSC CSE

#### Prelims MCQ

Q. With which of the following has India signed free trade agreements (FTAs) in the last five years?

1. Mauritius
2. UAE
3. Australia

Select the correct answer using the code given below:

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

Answer: c

## INTERNATIONAL YEAR OF MILLETS

**Why in News:** The Food and Agriculture Organisation (FAO) held the closing ceremony for the International Year of Millets 2023-24 in Rome.

### About the International Year of Millets

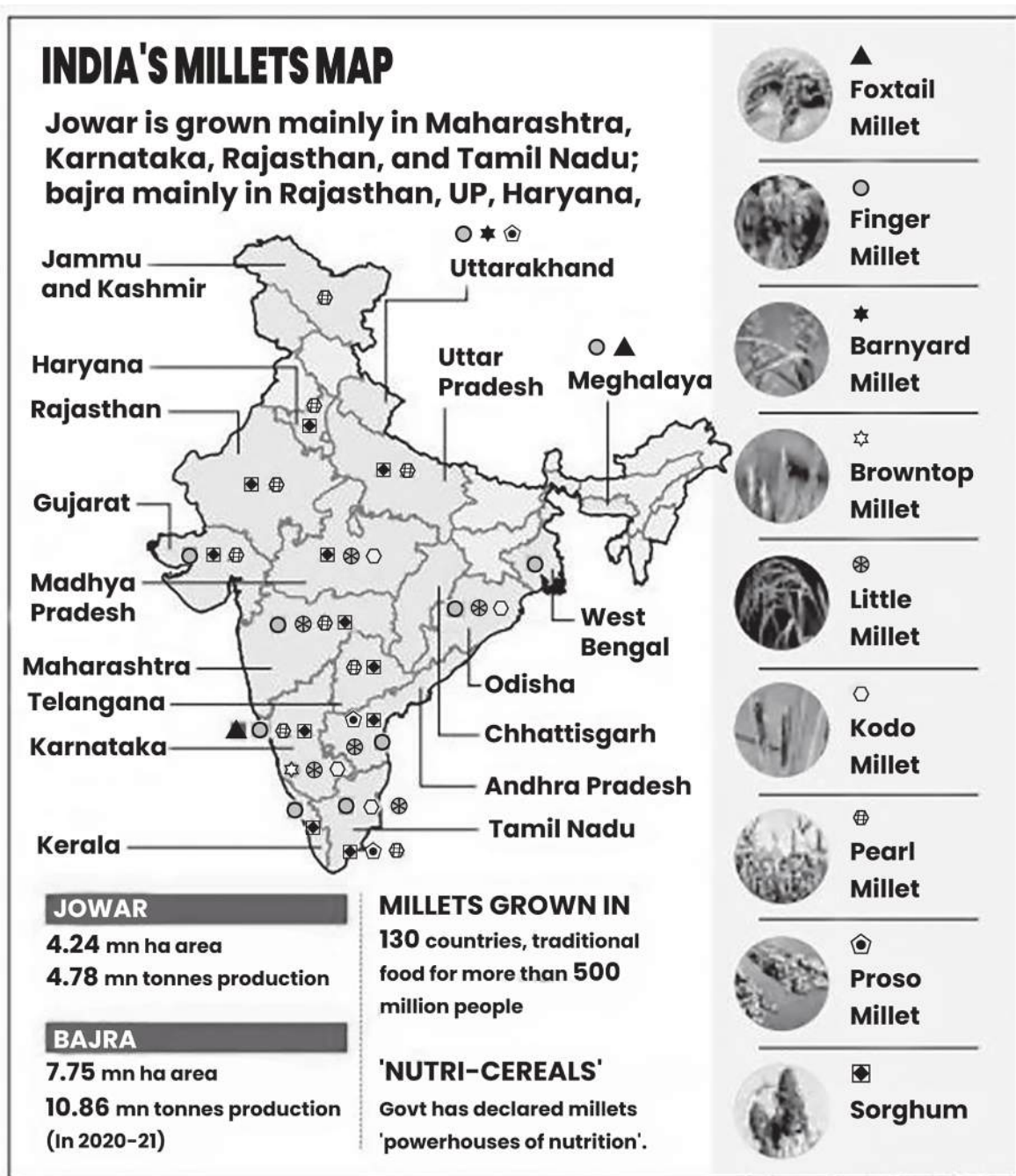
- In March 2021, at the 75th session of the United Nations General Assembly, India proposed declaring 2023 as the International Year of Millets.
- The proposal received support from 70 countries.

### Understanding Millets and Their Climatic Requirements

#### Millets Overview

- Millets are small-seeded grasses belonging to the Poaceae family, cultivated as cereal crops for human consumption and animal fodder.

- They have lost prominence due to the Green Revolution's focus on other cereals.
- **Types of Millets** Millets are categorized into major and minor types:
  - **Major Millets:** Sorghum (Jowar), Pearl (Bajra), Finger (Ragi)
  - **Minor Millets:** Barnyard (Sanwa), Proso (Chenna/Barri), Foxtail (Kakum), Kodo, Brown Top, Little (Kutki/Shavan)



**Climatic and Soil Requirements**

- Millets thrive in warm temperatures (20 C to 30 C) and are sensitive to frost.
- They require annual rainfall between 30-50 cm and grow well in alluvial, loamy, and sandy soils with good drainage.
- Millets are efficient water users and are ideal for regions with low moisture.

**Significance of the International Year of Millets**

- **Global Promotion:** The International Year of Millets significantly raised awareness and promoted millets globally.
- **Commercialization** The year saw increased commercialization with numerous products featuring millets, leading to 1,000 startups in millet production.

- **Knowledge Dissemination** The campaign spread knowledge about the nutritional and environmental benefits of millets, promoting food security and climate resilience.
- **Value Chain Strengthening** New food trends and ready-to-eat millet products were introduced, enhancing the millet value chain and providing better price realization for farmers.

## BENEFITS OF MILLETS

### Nutritional and Health Benefits

- |  |   |
|--|---|
| <p><b>1 Higher Nutritional Value</b><br/>Millets are rich in protein, fat, and dietary fiber compared to fine cereals.</p>   | <p><b>2 Micronutrient Rich</b><br/>Millets contain higher amounts of calcium, iron, zinc, and vitamins.</p>   |
| <p><b>3 Disease Prevention</b><br/>They are gluten-free, non-allergenic, and have a low Glycaemic Index, reducing risks of diabetes and cardiovascular diseases.</p> | <p><b>4 Child Development</b><br/>Studies show millets enhance growth in children when included in meals.</p> |

### Food Security

- 1 Combating Hunger**  
Millets are crucial for food security, ranking sixth in global cereal production.
- 2 Climate Resilience**  
They withstand climatic stresses, pests, and diseases, and have long shelf life.

### Environmental Benefits

- 1 Drought Resistance**  
Millets require less water and can grow in dry areas with minimal fertilizers.
- 2 Short Growing Season**  
Suitable for regions with low rainfall.

### Economic and Social Benefits

- |  |  |
|--|--|
| <p><b>1 Stable Income for Farmers</b><br/>Millets are less susceptible to climatic variations.</p>   | <p><b>2 Low Initial Investment</b><br/>Millet farming requires minimal capital.</p>                    |
| <p><b>3 Sustainable Development Goals</b><br/>Millets contribute to achieving SDGs related to hunger, health, and sustainable agriculture.</p> | <p><b>4 Gender Equality</b><br/>Millets can reduce nutrition gaps and support women's empowerment.</p> |

### Steps Taken to Promote Millet Production

- **National and International Recognition**
  - ▶ **National Year of Millets** : 2018 was observed as the National Year of Millets in India.
  - ▶ **International Year of Millets** : The UN adopted India's resolution to mark 2023 as the International Year of Millets.

### Government Initiatives

- |   |  |
|---|--|
| <p><b>1 NFSM Guidelines</b><br/>Focus on 212 millet districts with incentives for quality seed production and research.</p> | <p><b>2 Agricultural Infrastructure Fund</b><br/>US\$ 14 billion investment to support millet entrepreneurs.</p> |
| <p><b>3 FPOs Programme</b><br/>Promoting 10,000 Farmer Producer Organizations for effective market participation.</p>       | <p><b>4 ODOP Initiative</b><br/>Identifying 27 millet-focused districts to streamline supply chains.</p>         |
| <p><b>5 State Initiatives</b><br/>Odisha's Millet Mission supports small farmers' input and marketing needs.</p>            |  |

### Challenges in Millet Production

- **Monocropping and Reduced Cultivation**
  - **Green Revolution Impact:** Shift to wheat-paddy cycle reduced millet cultivation from 37 million hectares to ~14 million hectares.
  - **Declining Production:** Millet production and acreage dropped in 2023-24.
- **Economic and Consumption Barriers**
  - **Lower Remuneration:** Millet returns are less compared to other cereals.
  - **Declining Intake:** Millet consumption is declining despite increasing awareness.
- **Supply and Processing Issues**
  - **Inconsistent Supply and Demand, Processing Challenges:** Variation in size and low shelf life of processed millets.
  - **Ease of Consumption:** Millets lack the gluten proteins that make wheat products more desirable.
  - **PDS Preference:** Preference for rice and wheat in the Public Distribution System.

Millets hold the promise of a sustainable and nutritious food future. By addressing the current challenges and implementing strategic policies, millets can play a crucial role in achieving global food security and environmental sustainability.

**EXPECTED QUESTIONS FOR UPSC CSE**

**Prelims MCQ**

Q. Consider the following statements about Millets:

- 1. They are small-seeded grasses belonging to the Poaceae family.
- 2. 2023 was declared as the International Year of Millets at the 70th session of the United Nations General Assembly.

How many of the above statements are correct?

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

Answer: a (1 only)

**Descriptive Question**

Q. Millets hold the promise of a sustainable and nutritious food future, Elaborate. Also discuss the benefits of millets in various aspect of life. [15 marks] [250 words]

**THE PERIODIC LABOUR FORCE SURVEY (PLFS)**

**Why in News:** The Ministry of Statistics and Programme Implementation (MoSPI) recently released the Periodic Labour Force Survey (PLFS) for the first quarter (Q1) of 2024.

**Understanding the PLFS**

- It was launched in 2017, the PLFS bridges the gap in data collection on employment and unemployment.
- It provides crucial indicators like Worker Population Ratio (WPR), Labour Force Participation Rate (LFPR), and Unemployment Rate (UR) at short intervals, particularly for urban areas.

**Key Findings of the Q1 2024 PLFS**

- **Unemployment Rate (UR):** Overall urban unemployment dipped marginally from 6.8% (Q1 2023) to 6.7% (Q1 2024). However, unemployment among men inched up from 6.0% to 6.1%, while it showed a welcome decline for women (9.2% to 8.5%).
- **Labour Force Participation Rate (LFPR):** This metric witnessed a positive uptrend across genders. The national urban LFPR rose from 48.5% to 50.2%, with a significant

increase for females (22.7% to 25.6%). This indicates a growing willingness to participate in the workforce.

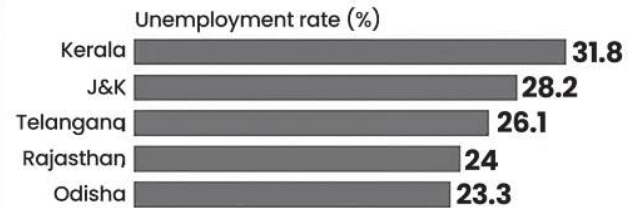
- **Worker Population Ratio (WPR):** Similar to LFPR, WPR also exhibited an upward trend, rising from 45.2% to 46.9% nationally in urban areas. This suggests a corresponding growth in the employed population.

**State-wise Disparity in Unemployment**

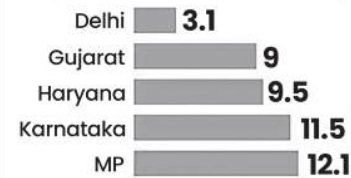
- The PLFS data unveils significant regional disparities.
- While Delhi boasts the lowest unemployment rate (3.1%), states like Kerala (highest in 15-29 age group) and Jammu & Kashmir (highest for women) grapple with considerably higher joblessness.
- Three states (Delhi, Gujarat, Haryana) managed to keep unemployment rates in single digits.

**J&K TOPS IN FEMALE UNEMPLOYMENT**

**States with the highest unemployment rates in 15-29 years age group in Jan-Mar 2024**



**States with lowest unemployment rates**



(Jan-Mar 2024)

High female unemployment rate		High male unemployment rate	
J&K	48.6	Kerala	24.3
Kerala	46.6	Bihar	21.2
Uttarakhand	39.4	Odisha	20.6
Telangana	38.4	Rajasthan	20.6
Himachal Pradesh	35.9	Chhattisgarh	19.6
Low female unemployment rate		Low male unemployment rates	
Delhi	5.7	Delhi	2.5
Gujarat	10.9	Gujarat	8.5
Madhya Pradesh	13.5	Karnataka	10.1
Haryana	13.9	Himachal Pradesh	10.2
Karnataka	15	Madhya Pradesh	11.7

**Employment Types in India**

- **Wage Employment:** This form arises from employer demand for labour, encompassing everything from daily wage work to high-paying corporate jobs.
- **Self-employment:** Here, labour supply and demand coincide, with the worker employing themselves.

## GOVERNMENT INITIATIVES FOR BOOSTING EMPLOYMENT

Recognizing the importance of employment generation, the government has implemented various

### Atmanirbhar Bharat Rojgar Yojana

Incentivizes creation of new jobs with social security benefits, aiming to mitigate pandemic-induced job losses.

### Pradhan Mantri Rojgar Protsahan Yojana (PMRPY)

Similar to ABRY, it incentivizes creation of new jobs by employers.

### National Career Service (NCS)

Provides a platform for job matching, career counselling, and skill development guidance.

### Mahatma Gandhi National Rural Employment Guarantee Act

Ensures 100 days of guaranteed wage employment in rural areas.

### Way Forward

While the PLFS data suggests cautious optimism, addressing regional disparities and the gender gap remains crucial. Here is five key steps India can take to improve its employment scenario:

- 1. Skill Development:** To meet industry demands and improve employability.
- 2. Entrepreneurship Promotion:** By providing easier access to credit and fostering a supportive business environment.
- 3. Infrastructure Development:** Invest in infrastructure development projects, would create employment opportunities in various sectors.
- 4. Bridge the Digital Divide:** To ensure equal access to information and job opportunities across regions and demographics.

By implementing these measures, India can create a more inclusive and robust employment landscape, fostering economic growth and social development.

### EXPECTED QUESTIONS FOR UPSC CSE

#### Prelims MCQ

Q. Periodic Labour Force Survey (PLFS) in India is released by?

- (a) Ministry of Labour and Employment
- (b) Ministry of Commerce and Industry

(c) Ministry of Statistics & Programme Implementation

(d) Ministry of Skill Development and Entrepreneurship

Answer: C

### Descriptive Question

Q. Why are significant regional disparities in unemployment rates in India as revealed by Periodic Labour Force Survey (PLFS)? Also discuss government initiatives for boosting employment in Indian economy. [10 marks] [150 words]

## REVOLUTIONIZING INDIA'S AGRICULTURAL LANDSCAPE

**Why in News:** The Government of India has been actively embracing technological advancements in the agricultural sector, recognizing the potential of AgriTech to transform farming practices and enhance productivity.

- AgriTech, a term encompassing agricultural technology, represents a paradigm shift in farming methodologies.
- It leverages innovative technologies like precision farming, digital traceability, and market linkages to revolutionize various stages of agricultural production.

### Status In India

- India has witnessed a significant surge in **AgriTech startups in recent years, buoyed by factors such as digital penetration**, disruptions in supply chains due to the pandemic, increased consumer demand for quality produce, and heightened interest from investors.
- The number of **recognized AgriTech startups stands at approximately 2800**, indicating a robust ecosystem fostering innovation in agriculture.

### India's Agriculture Sector

- The agricultural sector, which is estimated to constitute 18 percent of India's GVA in FY24, is the bedrock of the nation's economy.
- The total food grains production for FY23 was 329.7 million tonnes, marking a rise of 14.1 million tonnes compared to the previous year.
- India ranks second-largest producer of fruits, vegetables, tea, farmed fish, sugarcane, wheat, rice, cotton, and sugar.
- India has witnessed substantial surge in agriculture exports, reaching ₹4.2 lakh crore in FY23, surpassing the previous year's records.

## NEED AND IMPORTANCE

Given that over 70% of India's rural population relies on agriculture for their livelihood, the imperative for innovation in the sector cannot be overstated.

AgriTech interventions, including satellite-based data for optimal farming practices, hold the promise of improving yields, enhancing income, and reshaping the agricultural landscape for the better.

## STEPS TAKEN

The Indian government has taken proactive measures to support AgriTech startups, including the allocation of a significant budget for an accelerator fund aimed at fostering innovation in the sector.

Initiatives like the Digital Agriculture Mission (DAM) and the National Agricultural Market (e-AM) scheme aim to provide technological infrastructure and financial support to agri-tech enterprises.

Furthermore, incentives for drones and AI in farming underscore the government's commitment to leveraging technology for agricultural development.

### Agriculture Accelerator Fund

- Announced during the presentation of Union budget 2023-24, an Agriculture Accelerator Fund aims to encourage agri-startups by young entrepreneurs in rural areas.
- It aims at bringing innovative and affordable solutions for challenges faced by farmers.
- Under this scheme, Rs 1 lakh crore was to be disbursed by the financial year 2025-26 and the interest subvention and credit guarantee assistance given till the year 2032-33.

### Analysis and Challenges

- Despite the strides made in AgriTech, challenges persist, including the lack of integrated databases, small landholdings, and reluctance among farmers to adopt new technologies.
- Addressing these challenges necessitates concerted efforts to streamline data collection, improve access to technology, and enhance agricultural literacy among farmers.

### Way Forward

1. **Enhanced Data Integration:** Establishing comprehensive databases and formal channels for data aggregation will facilitate informed decision-making and address bottlenecks in implementation.

2. **Promoting Tech Literacy:** Investing in programs to enhance digital literacy among farmers will foster greater acceptance and adoption of AgriTech solutions.
3. **Encouraging Collaborations:** Facilitating partnerships between AgriTech startups, government agencies, and agricultural communities will drive innovation and scalability.
4. **Tailored Policy Interventions:** Designing policies that incentivize AgriTech adoption while addressing the unique challenges faced by smallholder farmers will be crucial for sustainable growth.
5. **Continued Investment:** Sustained investment in research and development, infrastructure, and skill development initiatives will be pivotal in unleashing the full potential of AgriTech to transform India's agriculture sector.

### Conclusion

AgriTech holds the key to unlocking unprecedented growth and sustainability in India's agriculture sector. By embracing technological innovations and fostering a conducive ecosystem, India can chart a course towards agricultural prosperity, benefiting farmers and stakeholders alike.

### EXPECTED QUESTIONS FOR UPSC CSE

#### Prelims MCQ

- Q. With reference to agriculture sector in India, consider the following statements:
1. India is the world's largest producer of rice and cotton.
  2. Currently, the share of agriculture in total Gross Value Added (GVA) of India economy is more than 25 percent.
  3. Agriculture Accelerator Fund was announced during Union Budget 2023-24 to encourage agri-startups by young entrepreneurs in rural India.

How many of the above statements are correct?

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

Answer: a (3 only)

#### Descriptive Question

- Q. What are the key challenges for the adoption of agritech solutions in India's agricultural sector? How can they be addressed? [10 marks] [150 words]

## URBAN HEAT ISLANDS

**Why in News:** The study conducted by NIT Trichy has identified that there is a significantly higher concentration of pollutants in the urban areas compared to the rural areas.

Aerosols, Carbon monoxide (CO), and ozone (O<sub>3</sub>) has directly impacted the UHI phenomenon.

### What are the Urban Heat Islands?

An urban heat island (abbreviated as UHI) is where the temperature in a densely populated city is as much as 2 degrees higher than suburban or rural areas.

- **Heat Concentration:** Cities experience significantly



### What are the Impacts of the Urban Heat Islands?



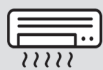
Increased temperatures lead to higher energy consumption for cooling, putting a strain on power grids. More importantly, UHIs exacerbate heat waves, leading to respiratory problems, sunstroke, dehydration, and fatigue.

The NIT Trichy study reveals a strong correlation between UHIs and higher concentrations of pollutants like aerosols, carbon monoxide (CO), and ozone (O<sub>3</sub>). This can worsen respiratory problems and create a vicious cycle, as air pollution can trap heat further intensifying the UHI effect.



Urban sprawl and lack of green spaces exacerbate UHI effects by intensifying heat absorption and reducing cooling opportunities.

Low-income communities often bear the brunt of UHI effects due to limited access to air conditioning and green spaces. UHI exacerbates existing social inequalities by disproportionately impacting vulnerable populations.



Higher temperatures in urban areas lead to increased demand for air conditioning, which strains energy resources and raises electricity bills. Elevated energy consumption contributes to greenhouse gas emissions and worsens climate change.

warmer temperatures compared to surrounding rural areas, sometimes by 5°C to 10°C.

- **Causes:** Several factors contribute to UHIs, including:
  - **Reduced Natural Landscapes:** Urban areas are dominated by hard surfaces like roofs, roads, and buildings. These absorb and retain heat, unlike natural landscapes with vegetation that provides shade and promotes evaporative cooling.
  - **Urban Geometry:** Tall buildings and dense construction can trap heat between structures, hindering natural heat release.
  - **Human Activities:** Vehicles, air conditioners, and industrial processes all generate heat, further intensifying the UHI effect.

### What are the solutions to tackle Urban Heat Island?

- **Cool Materials:** Replacing traditional dark rooftops and pavements with high-albedo materials that reflect sunlight can significantly reduce heat absorption in urban areas.
- **Urban Greenery:** Planting trees, creating green roofs, and incorporating urban parks and gardens can provide shade, promote evapotranspiration, and lower ambient temperatures.
- **Urban Planning:** Promoting compact, walkable cities with mixed-use development can reduce reliance on cars, a major source of heat and pollution.
- **Energy Efficiency:** Encouraging energy-efficient buildings and appliances can lower heat generation from air conditioning and other utilities.
- **Public Awareness:** Educating citizens about UHIs and promoting sustainable practices like carpooling and using public transport can contribute to reducing the urban heat burden.

**Conclusion**

The urban heat island effect presents significant challenges to urban areas, impacting both human health and the environment. However, through strategic planning, policy implementation, and community involvement, cities can mitigate these effects and create more livable and sustainable urban environments for current and future generations.

**EXPECTED QUESTIONS FOR UPSC CSE**

**Prelims MCQ**

Q. Which of the following is/are correct in context of Urban Heat Islands?

1. It is significantly warmer compared to surrounding rural areas
2. Tall buildings and dense concentrations are important reasons for formation of heat islands
3. Vehicles, air conditioners, and industrial processes all generate heat, further intensifying the Urban Heat Island effect

How many of the above statements are correct?

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

Answer: c

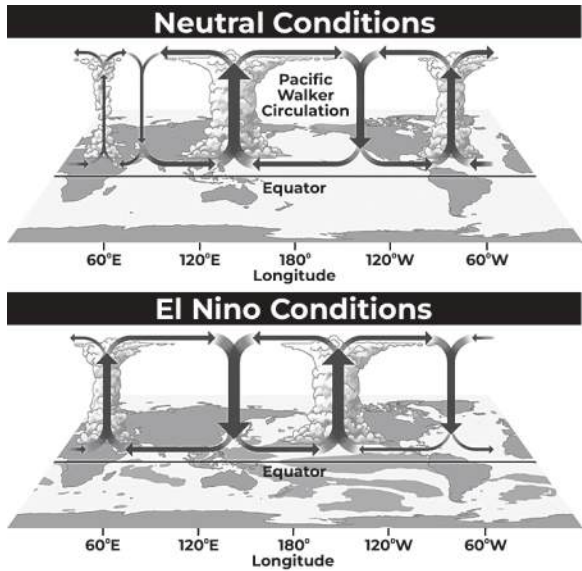
**Descriptive Question**

Q. Discuss in detail the causes of urban heat island effect? Evaluate the impact of it on the various aspects of life also suggest some solutions to tackle the rising heat island effect in India. [15 Marks] [250 words]

**LA NINA**

**Why in News:** The oscillation between El Nino and La Nina is not only important for farmers in India, but globally. It is also significant because it brings above normal rainfall, causing a flood-like situation during the four-month monsoon season that begins in June.

**El Nino Southern Oscillation Cycle (ENSO):** It refers to the wide ranging temperature variation in the sea surface temperature in the central and eastern tropical Pacific ocean. It is a recurring phenomenon that impacts the Indian climate as well as global climate patterns. El Nino and La Nina are two extremes of the ENSO cycle.



**El Nino**

- It means 'the boy' or 'christ child' in spanish. When the sea surface temperature of the central and eastern Pacific Ocean becomes warmer than the normal condition then the El Nino conditions are said to be emerging.
- In a normal year, trade winds push warm water from the Americas to Asia. However, in an El Nino condition, these trade winds weaken, and there is a reversal of trade winds that push warm water towards the Americas. Hence, there is an accumulation of warm water along the coast of Central and South America.
- There is an atmospheric Low Pressure condition in the eastern Pacific Ocean and atmospheric High Pressure condition over the western Pacific Ocean.

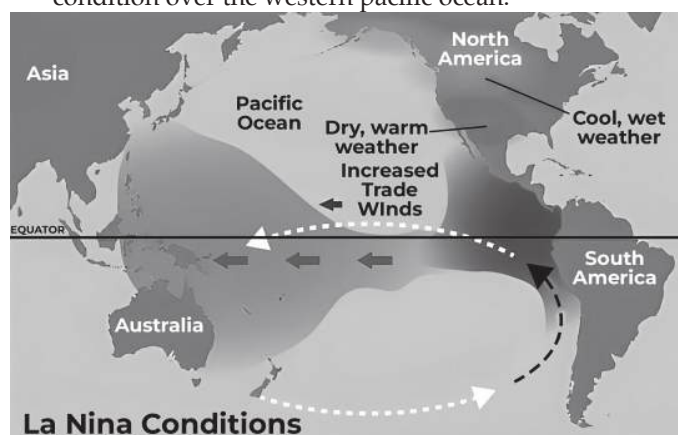
**Impact of El Nino**

- Since there are low pressure conditions over the equatorial eastern pacific there is increased rainfall and flooding in the US Gulf coast and Southeastern US. Whereas there are high pressure conditions over the equatorial western pacific which is associated with drought like conditions in Australia and the Indonesian archipelago.
- The El Nino phenomenon has an impact on the Indian monsoon as well. In an El Nino year, in India, extreme heat conditions and suppressed or below normal rainfall during the monsoon are witnessed. For example, in 2014, which was an El Nino year, rainfall was 12% less than normal during the June to September months.
- El Nino also suppresses upwelling of deeper water off the coast of South America. In a normal year, cold water from the deep ocean comes to the surface to replace the warm water that is being transported towards Asia. This cold water brings phytoplankton from the deep ocean to the surface and that is consumed by fish. However, in an El Nino year upwelling reduces so does the fish stock.

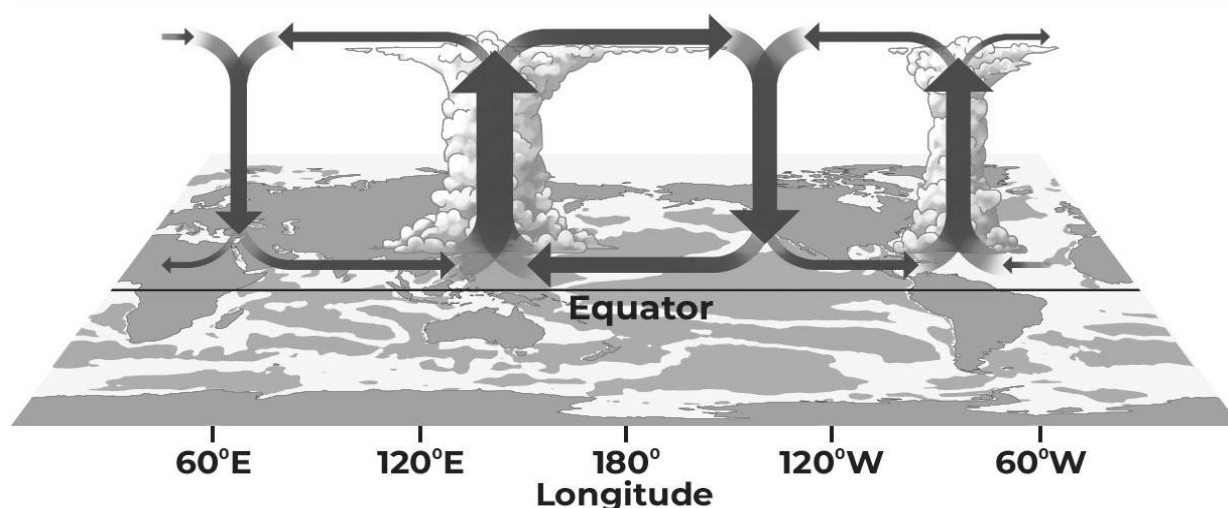
### La Nina

- In Spanish, it literally means 'little girl'. It is also known as 'El Viejo' or the cold event.
- It is the other extreme of the ENSO cycle. In this event, trade winds are stronger than in a normal year.
- Because of this, an even larger amount of warm water is transported from the west coast of the western equatorial Americas towards Asia. This results in the accumulation of cold water off the western coast of the Americas.
- There is greater upwelling of nutrient rich water during the La Nina event.
- There is an atmospheric High Pressure condition in the eastern pacific ocean and atmospheric Low Pressure

condition over the western pacific ocean.



## El Nino Conditions



### Impact of La Nina

- The La Nina event is associated with dry conditions in the Southern USA, droughts in Peru and Ecuador, and heavy rainfall in Australia.
- La Nina has a positive effect on the Indian monsoon. In the La Nina year, there is higher than normal rainfall in India.
- It has been witnessed that there is an increased formation of cyclones and hurricanes in the Bay of Bengal during the La Nina event.
- Due to the significantly higher upwelling of nutrient rich water off the coast of the Americas, there are healthy fish stocks available in the Pacific Ocean.

#### Triple Dip La Nina

- For the first time in this century, La Nina continued for three consecutive years, starting in September 2020. This is known as 'triple dip' La Nina.
- This was only the 6th time that such an event took place since 1950.

### Conclusion

El Nino Southern Oscillation (ENSO) cycle has a major impact not only on India but also on the global weather pattern. The effects of El Nino and La Nina on the Indian monsoon are significant. The monsoon has wide ranging effects on the Indian economy particularly in the agriculture sector. Hence, it is imperative to study and monitor major global circulations, such as ENSO, so that mitigation strategies can be developed to minimise the hazardous effects.

#### EXPECTED QUESTIONS FOR UPSC CSE

##### Prelims MCQ

Q. Consider the following statements:

**Statement I:** La Nina has no effect on the monsoon of India.

**Statements II:** La Nina is characterised by unusually cold ocean temperature in the equatorial Pacific Ocean.

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

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

Answer: d

**Descriptive Question**

Q. Explain how the La-Nina event affects the pattern of monsoons in India? [10 Marks] [150 Words]



**Causes of the forest fires**

Forest fires erupt due to a combination of natural and human-induced factors.

**FOREST FIRES IN INDIA**

**Why in News:** Recently, the devastating forest fires in Uttarakhand have brought widespread attention to the extensive destruction caused by them.

According to the Global Forest Watch (GFW), India has lost 38,100 hectares of tree cover to forest fires from 2001 to 2023.

**Understanding Forest Fires**

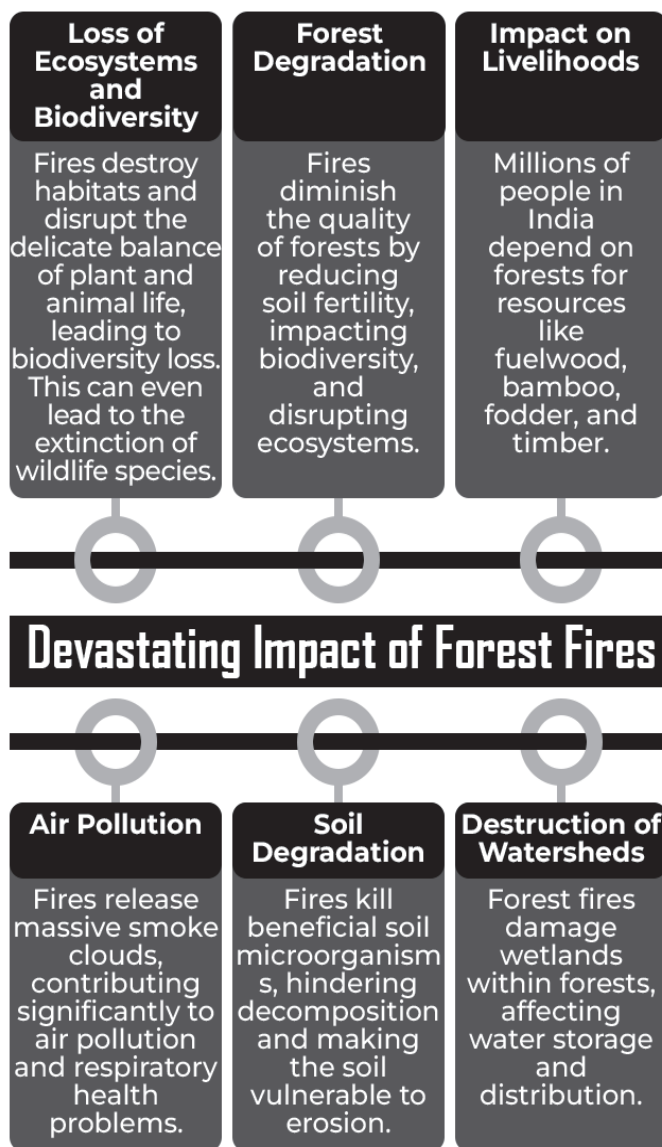
- A **forest fire is an uncontrolled blaze** that burns vegetation and organic matter within a forest.
- India’s forest fire season typically lasts from **November to June**, with a peak period between **late February and April**.
- According to the **India State Forest Report (ISFR) 2019**, over **21%** of India’s geographical area is classified as forest, with regions like Assam, Mizoram, and Tripura identified as **extremely fire-prone**. Nearly **4%** of the country’s forest cover is extremely prone to fire, whereas **6%** of forest cover is found to be very highly fire prone.
- Forest Survey India analysis in **ISFR 2021** found that states in northeastern India showed the highest tendency for forest fires. Parts of western Maharashtra, southern Chhattisgarh, central Odisha and regions in Andhra Pradesh, Telangana and Karnataka also showed **patches of extremely and very highly fire-prone zones**.
- Dry deciduous forests are particularly susceptible to severe fires, while evergreen, semi-evergreen and montane temperate forests are comparatively less prone (India State of Forest Report 2015)

**Natural Causes**

- Lightning**  
Strikes can ignite trees, rocks, or power cables, triggering wildfires.
- Volcanic eruptions**  
Hot lava expelled during eruptions can start wildfires in nearby areas.
- Heat patterns**  
Rising temperatures and decreasing humidity due to global warming create ideal conditions for fires to ignite and spread rapidly.
- Lack of soil moisture**  
Dry soil, as witnessed in the recent Uttarakhand fires, increases the risk of wildfires.
- Natural availability of combustible materials**  
Dry leaves, wood, and other organic matter act as fuel for forest fires.

**Anthropogenic Causes**

- Smoking**  
Improperly discarded cigarette butts are a leading global cause of wildfires.
- Unattended campfires**  
Leaving campfires unattended during camping or outdoor activities can spark wildfires.
- Burning debris**  
Burning waste materials is a common practice in some regions, but it can easily escalate into forest fires, as seen in the recent Simlipal Forest fire.
- Slash and burn cultivation**  
This agricultural practice, prevalent in Northeast India, involves burning vegetation to clear land, often leading to wildfires spreading beyond intended areas.



### Government Initiatives to Combat Forest Fires

- **Forest Fire Alert System (FFAS):** Developed by the Forest Survey of India (FSI), this system provides real-time monitoring of wildfires using MODIS (Moderate Resolution Imaging Spectroradiometer) sensors.
  - This data is disseminated through email and SMS alerts to various levels of forest officials and local communities.
- **National Master Plan for Forest Fire Control:** This plan outlines a coordinated and integrated fire management program to prevent and control forest fires.

### Way Forward

- **Forest Control Manuals:** Develop clear and concise forest fire control manuals for field staff to ensure early detection, reporting, and suppression of fires.
- **Comprehensive Forest Fire Policy:** Formulate a cohesive policy framework that addresses wildfire management

strategies and incorporates the challenges posed by climate change.

- **Indigenous Knowledge Integration:** Utilize the traditional knowledge and techniques of local communities for comprehensive fire management.
- **Technological Advancements and Infrastructure Development:** Employ modern firefighting techniques like radio-acoustic sound systems for early fire detection and Doppler radar for better monitoring.
  - Develop a National Fire Danger Rating System (NFDRS) and a Fire Forecasting System to enable faster response and control.

By implementing these solutions and fostering collaboration between government agencies, local communities, and environmental organizations, India can move towards a future with healthier forests and a reduced risk of devastating wildfires.

### EXPECTED QUESTIONS FOR UPSC CSE

#### Prelims MCQ

Q. Consider the following statements:

- Statement - I** States in northeastern India do not exhibit the highest tendency for forest fires.
- Statement - II** Northeast India experiences a humid subtropical climate.

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

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

Answer: d

#### Descriptive Question

Q. Elaborate the primary causes of the forest fires? What role did weather conditions play in the spreading of forest fires also give some solutions to tackle it. [15 Marks] [250 words]

## INTERNATIONAL FOREST GOVERNANCE IN FOCUS

**Why in News:** The International Union of Forest Research Organizations (IUFRO) has released a timely report titled "International Forest Governance: A Critical Review of Trends, Drawbacks, and New Approaches."

### Key Details

- This report, the first global synthesis on International Forest Governance (IFG) since 2010, sheds light on critical developments and challenges in managing the world's forests.
- A key concern highlighted in the report is IFG's limited success in curbing deforestation.
- Despite international efforts, the Food and Agriculture Organization (FAO) estimates the deforestation rate at a concerning 10 million hectares annually as of 2020.

### IFG (International Forest Governance)

- It encompasses the policy, legal, and institutional structures governing international forest decision-making. Its participants include:
- Key Institutions: The UNFF, a constituent commission of the UN Economic and Social Council (ECOSOC) with representation from all member states.
- The Collaborative Partnership on Forests (CPF), established to aid the endeavors of the UNFF.
- International conventions pertaining to forests, such as the Convention on Biological Diversity (CBD) and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).
- Regional agreements like the Amazon Cooperation Treaty.

### Commodification and Short-Term Gains

The report identifies a worrying trend: the increasing commodification of forests for their carbon sequestration potential due to the urgency of the climate crisis.

While carbon markets and biodiversity offset schemes offer promise, a focus on short-term economic gains can come at the expense of long-term sustainability and equitable distribution of benefits.

This phenomenon, referred to as "climatization of forests," requires careful consideration to ensure forests are valued for their holistic ecological and social contributions.

The report emphasizes the limited role of community-led and philanthropic financing mechanisms in IFG.

### Limited Role of Community Financing

Expanding these financing avenues is crucial for empowering local communities and ensuring long-term forest stewardship.

### Recommendations

The IUFRO report proposes five key recommendations to strengthen International Forest Governance:

1. **Pricing Environmental and Social Externalities:** Accounting for the true cost of deforestation.
2. **Recognizing and Managing Public Goods:** Forests provide essential public goods like clean air and water.
3. **Establishing Alternative Funding Schemes:** Diversifying funding sources beyond traditional government budgets is essential.
4. **Adopting a Polycentric Governance Approach:** A polycentric approach, where decision-making occurs at multiple levels (local, national, and international), can foster greater collaboration and adaptation to local contexts.
5. **Enhancing Interdependence and Coordination:** Effective communication and collaboration across all levels of governance.

### Conclusion

The IUFRO report provides a valuable roadmap for improving International Forest Governance. By addressing the shortcomings identified in the report and implementing the proposed recommendations, we can move towards a future where forests are sustainably managed for the benefit of present and future generations.

### EXPECTED QUESTIONS FOR UPSC CSE

#### Prelims MCQ

- Q. 'International Forest Governance' report published by:
- (a) International Union of Forest Research Organizations
  - (b) World Economic forum
  - (c) United Nations Framework Convention on Climate Change
  - (d) World Bank

Answer: a

#### Descriptive Question

- Q. Illustrate the major drawbacks or challenges currently faced by the international forest governance. What new approaches or strategies does the report suggest for improving international forest governance? [15 Marks] [250 words]

## SUNDARBANS UNDER THREAT

**Why in News:** A recent study by the Bose Institute, Kolkata, and the Indian Institute of Technology (IIT), Kanpur, has highlighted the detrimental impact of air pollutants on Sundarban mangroves ecosystem.

### Key Details

- **Pollutant Sources:** The study identifies two key sources of air pollution affecting the Sundarbans:
  - **Long-range transport:** Pollutants rich in black carbon, primarily from industrial and vehicular emissions in Kolkata and the vast Indo-Gangetic Plain, travel long distances and settle on the Sundarbans.
  - **Local sources:** Activities within the Sundarbans, such as biomass burning and emissions from diesel-powered boats, further contribute to air pollution.
- **Impact on Mangroves:** These pollutants, particularly fine particulate matter (PM2.5) with acidic components and heavy metals, lead to the generation of Reactive Oxygenated Species (ROS).
  - ROS are highly reactive molecules that damage mangrove cells, hindering their growth and survival.
  - A first-ever, large-scale assessment using the IUCN Red List of Ecosystems (RLE) reveals a critical situation for mangrove ecosystems globally.

### Key Findings

- Globally, **50% of assessed mangrove ecosystems** are at risk of collapse, with nearly 20% categorized as Endangered or Critically Endangered.
- Climate change poses a significant threat, endangering one-third of mangroves and potentially leading to the submergence of **25% of global mangrove area by 2050**.
- This loss would translate to a staggering **1.8 billion tonnes** of lost carbon storage and endanger 2.1 million lives due to increased coastal flooding.

### The Sundarbans

**Location and Recognition:** Spanning the border of India and Bangladesh, the Sundarbans thrive on the Ganges, Brahmaputra, and Meghna rivers' vast delta emptying into the Bay of Bengal. This unique ecosystem holds several accolades:

World's largest mangrove forest

UNESCO World Heritage Site

Biosphere Reserve

Wetland of International Importance (Ramsar Convention)

**Ecological Significance:** The Sundarbans are a haven for rich biodiversity, including the majestic Bengal Tiger and the endangered Gangetic Dolphin. They play a critical role in:

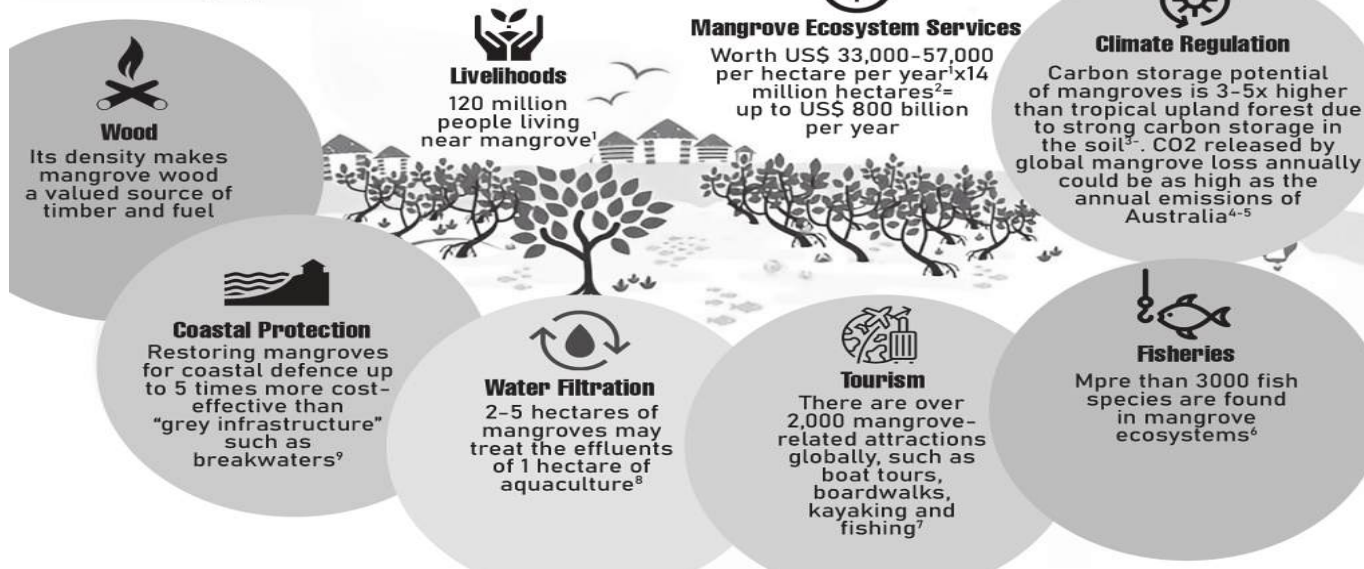
**Climate change mitigation:** By sequestering significant amounts of carbon dioxide.

**Coastal protection:** Acting as a natural barrier against cyclones and tidal erosion.

**Livelihood support:** Millions of people depend on the Sundarbans for fishing, honey collection, and other

## ECOSYSTEM SERVICES

The benefits people derive from mangroves



- The status of Indian mangroves varies
  - Andaman and Bay of Bengal mangroves are classified as Least Concern.
  - South Indian mangroves are in a critical state, classified as Critically Endangered.

- West Indian mangroves are listed as Vulnerable.

### Mangrove decline poses a serious threat to

- **Biodiversity:** Loss of mangroves disrupts ecosystems and jeopardizes the survival of numerous species.

- **Food security:** Fisheries dependent on healthy mangrove ecosystems would be severely impacted.
- **Climate change mitigation:** The loss of carbon storage capacity would worsen climate change.
- **Coastal communities:** Increased coastal flooding would endanger lives and livelihoods

**Challenges Faced by Mangrove**

- **Deforestation and Land Conversion:** Mangrove forests are often cleared for agriculture, aquaculture (especially shrimp farming), and coastal development. This destruction reduces their extent and resilience.
- **Climate Change:** Rising sea levels, increased storm frequency, and changing temperature and precipitation patterns threaten mangroves by altering their natural habitats and increasing erosion.
- **Pollution:** Industrial, agricultural, and urban runoff introduces pollutants **such as heavy metals, pesticides, and plastics** into mangrove ecosystems, negatively impacting their health and biodiversity.
- **Unsustainable Exploitation:** Overharvesting of mangrove wood for timber, fuel, and charcoal, along with overfishing and collecting other mangrove resources, depletes these ecosystems and disrupts their ecological balance.
- **Invasive Species:** Non-native species can invade mangrove areas, outcompeting native species, altering ecosystem functions, and reducing biodiversity.

**Initiatives for Mangroves**

**Global:**

- **Mangrove Breakthrough:** Launched at UNFCCC COP27 by UN High-Level Climate Champions and the Global Mangrove Alliance (GMA).
- GMA was initiated at the World Ocean Summit in 2018.
- **Mangrove Alliance for Climate:** Led by the UAE in partnership with Indonesia.

**India:**

- MISHTI (Mangrove Initiative for Shoreline Habitats & Tangible Incomes).
- Conservation and Management of Mangroves and Coral Reefs: Part of the National Coastal Mission Programme.

**Way Forward**

1. **Clean Energy Transition:** Promote renewable energy sources like solar and wind power. This reduces dependence on fossil fuels and their associated emissions.
2. **Sustainable Transportation and Monitoring and Research:** Encourage the use of electric vehicles and improve public transport systems to decrease emissions from private vehicles.

3. **Fuel Efficiency:** Implement stricter emission standards for industries and brick kilns. Promote cleaner fuels like LPG for domestic use.
4. **Regulated Tourism:** Regulate tourist activities in the Sundarbans to minimize environmental impact.

With coordinated global and local efforts focusing on conservation, sustainable management, and restoration, the decline of mangroves can be mitigated. Protecting these vital ecosystems is essential for maintaining biodiversity, supporting coastal communities, and combating climate change.

**EXPECTED QUESTIONS FOR UPSC CSE**

**Prelims MCQ**

Q. Recently Government of India launched 'MISHTI' programme to protect:

- (a) Mangrove ecosystem
- (b) Horticulture plantation
- (c) Dairy industry
- (d) Malabar civet

Answer: a

**Descriptive Questions**

Q.1 Give the details of the primary sources of air pollutants in the Sundarbans region? What are the long-term ecological and economic implications of continued air pollution in the Sundarbans? [15 Marks] [250 words]

Q.2 What are the primary factors behind the degradation of mangrove ecosystems? Explain why mangroves are important for ecology? [15 Marks] [250 words]

**NET ZERO EMISSIONS IN AGRI-FOOD**

**Why in News:** The World Bank's recent report, "Recipe for a Livable Planet: Achieving Net Zero Emissions in the Agrifood System," sheds light on a critical but often overlooked aspect of climate change – the environmental impact of our food system.

**Key Details**

The agrifood system, encompassing everything from farming to food waste, is responsible for a staggering one-third of global greenhouse gas emissions. This is even higher than the combined emissions from heat and electricity generation.

**About the Report**

- **Uneven Emission Distribution:** While agrifood emissions are significant everywhere, developing countries and major economies like China, Brazil, and

India are disproportionately responsible, contributing nearly three-fourths of the total.

- India, for example, faces a unique challenge with **60% of its agrifood emissions** originating at the farm gate, primarily due to livestock enteric fermentation (methane emissions from ruminant animals).
- **Financing Gap:** Despite a doubling of global climate financing over the past decade, **only 4.3% (around \$28 billion)** goes towards projects specifically targeting the agrifood system. To achieve net-zero emissions by 2050, annual investments need to increase 18-fold to \$260 billion.
- **Mitigation Potential:** The report identifies carbon sequestration in agriculture as the area with the greatest potential for reducing emissions.



**Suggestions**

- **Shifting Subsidies:** The report suggests redirecting environmentally harmful agricultural subsidies towards sustainable practices that promote carbon sequestration and reduce emissions.
- **Technology and Innovation:** Research and development of climate-smart technologies, such as precision agriculture and alternative protein sources, can significantly reduce the environmental footprint of food production.
- **Public-Private Partnerships:** Collaboration between governments, businesses, and research institutions is vital for developing and implementing sustainable food production systems.
- **Consumer Awareness:** Educating consumers about the environmental impact of their food choices and encouraging them to adopt sustainable diets can play a significant role in reducing demand for resource-intensive foods.
- **Financing Solutions:** Innovative financing mechanisms are needed to bridge the gap in agrifood-focused climate investments. This could involve green bonds, blended finance, and leveraging private sector capital.

**Conclusion**

By implementing solutions like sustainable practices, climate-smart agriculture, and social programs, we can build a more resilient, equitable, and sustainable food system for the future.

**EXPECTED QUESTIONS FOR UPSC CSE**

**Prelims MCQ**

- Q. Recently the report 'Recipe for Livable Planet' was published by?
- World Bank
  - Food and Agriculture Organisation
  - World Wildlife Fund
  - United Nations Framework Convention on Climate Change

Answer: a

**Descriptive Question**

- Q. Agri-food industry faces the challenge of adapting to climate change and mitigating its impact on food production, while ensuring environmental sustainability. Critically examine. [15 Marks] [250 words]

## PROTECTING OUR RANGELANDS

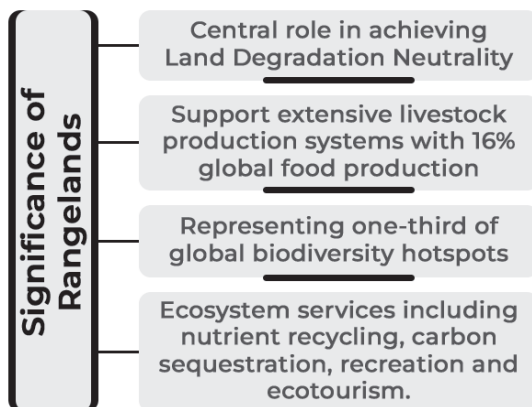
**Why in News:** The UN Convention to Combat Desertification (UNCCD) has released a new report highlighting the critical relationship between rangelands and the communities that depend on them, particularly pastoralists.

### Key Details

- Rangelands are extensive areas of natural or semi-natural ecosystems that support grazing by livestock and wild animals.
- They encompass diverse ecosystems such as grasslands, savannahs, shrublands, and drylands.
- Globally, rangelands cover over **54% of the Earth's terrestrial surface**, with a significant portion (**around 78%**) located in dry areas.
- The UNCCD report reveals that up to **50% of global rangelands are degraded**.
- **Factors driving this degradation include:**
  - Land-use changes due to population growth and urbanization.
  - Increasing demands for food, fiber, and fuel.
  - Excessive grazing practices.
  - Land abandonment.
  - Policies that incentivize overexploitation of rangelands.

### Rangeland status in India

- India has a significant area of rangelands, approximately **121 million hectares**.
- However, around **100 million hectares** are considered underutilized.
- Pastoral communities in India face marginalization in public policies, lacking secure tenure rights and access to common resources.
- In several states, pastoralists have been restricted access to forests and protected areas, further limiting their grazing grounds.
- Mining and energy projects also pose a threat by limiting access to critical rangeland resources.



## Challenges Faced by Rangelands

### Overgrazing

Excessive grazing pressure from livestock can lead to degradation of rangeland vegetation, soil erosion, and loss of biodiversity, impacting ecosystem health and productivity.

### Invasive Species

Invasion by non-native plant species can outcompete native vegetation, reduce forage availability for livestock, and alter ecosystem dynamics, posing a significant threat to rangeland ecosystems.

### Climate Change

Changing climatic conditions, including increased temperatures, altered precipitation patterns, and more frequent extreme weather events, can exacerbate rangeland degradation, reduce forage productivity, and disrupt ecosystem functions.

### Land Use Conversion

Conversion of rangelands for agriculture, urbanization, or infrastructure development reduces available grazing land, fragments habitat, and threatens the livelihoods of pastoral communities dependent on these ecosystems.

### Lack of Sustainable Management Practices

Limited adoption of sustainable rangeland management practices, such as rotational grazing, water management, and fire control, hinders the conservation and restoration of rangeland ecosystems, exacerbating degradation and desertification.

### Way Forward

Protecting rangelands requires a multi-pronged approach:

- **Sustainable Grazing Practices:** Promoting rotational grazing, controlled stocking rates, and reseeded degraded areas can help restore rangeland health.
- **Community Engagement:** Integrating pastoral communities into decision-making processes and fostering their traditional ecological knowledge is crucial for effective rangeland management.
- **Policy Reforms:** Developing policies that secure land tenure rights for pastoralists and recognize their role as stewards of the rangelands is essential.
- **Livelihood Diversification:** Supporting alternative livelihoods for pastoral communities can help reduce pressure on rangelands and promote sustainable land use practices.
- **International Cooperation:** Knowledge sharing and capacity building initiatives among countries with extensive rangelands can foster best practices for their conservation.

### Conclusion

By implementing these solutions, we can ensure the health of our rangelands, safeguard the livelihoods of pastoral communities, and promote a more sustainable future for our planet.

## EXPECTED QUESTIONS FOR UPSC CSE

### Prelims MCQ

Q. Consider the following statements:

1. More than 75 per cent of total rangelands are found in dry region of the World.
2. India is left with very less area of rangelands due to urbanisation.
3. More than 50 per cent of global rangelands are degraded due to climate change.

How many of the above statements are correct?

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

Answer: a (1 only)

### Descriptive Question

Q. Define the Rangeland. How can we enhance sustainable land management practices to protect rangelands and ensure their resilience to desertification? [15 Marks] [250 words]

## VENEZUELA LOSES ITS LAST GLACIER

**Why In News:** According to the International Cryosphere Climate Initiative (ICCI), Venezuela's only remaining glacier, the **Humboldt (also known as La Corona), has diminished to the point** where it can no longer be classified as a glacier.

### Venezuela's Glacial History

- Venezuela once housed **six glaciers in the Sierra Nevada de Mérida Mountain range. By 2011**, five of these had disappeared, leaving only the Humboldt glacier.
- Recent observations have shown that the Humboldt glacier has shrunk to the extent that it has been reclassified as an ice field.
- This transformation is attributed to a temperature increase in the Andes over the past seventy years.

### What are Glaciers?

Glaciers are massive, thick bodies of ice formed from the accumulation and compaction of snow over centuries. They typically form in regions where:

- Mean annual temperatures are near freezing.
- Winter precipitation results in substantial snow accumulation.
- Temperatures during the rest of the year do not entirely melt the previous winter's snow.

### Why are Glaciers Disappearing?

- Since the industrial revolution, **increased emissions of carbon dioxide and other greenhouse gases** have elevated global temperatures.
- This warming effect is more pronounced at the poles, causing glaciers to melt rapidly, break off into the sea, and retreat on land.

### Scenario in India

- India faces a similar threat, with glaciers in the Hindu Kush Himalayan Mountain ranges melting at unprecedented rates.
- A **2023 report indicated that these glaciers could lose up to 80% of their volume** this century if greenhouse gas emissions are not significantly reduced.

## Impacts of Glacier Loss



**Freshwater Resources:** Glaciers are vital sources of freshwater, especially during hot and dry periods. Their disappearance would force communities to rely solely on sporadic rainfall for their water needs.



**Rising Sea Levels:** Melting glaciers contribute to rising sea levels, exacerbating coastal erosion and increasing the severity of storm surges.

► This is particularly concerning as warmer air and ocean temperatures lead to more frequent and intense coastal storms, such as hurricanes and typhoons.



**Aquatic Ecosystems:** The cold runoff from glaciers helps maintain cooler downstream water temperatures, essential for many aquatic species.

► The loss of glaciers threatens these species, disrupting local food webs and ecosystems.

## Measures to Protect Glaciers

### Regulatory Actions



► **Enact Regulations:** Limit or prohibit activities such as mining, drilling, development, and tourism in glacier zones.

► **Economic Development Ban:** Implement a complete ban on economic development projects in environmentally sensitive areas, with input from local communities and geologists.

### Research and Monitoring



► **Ongoing Research:** Conduct continuous studies to understand glacier dynamics, climate impacts, and the consequences of glacial retreat.

► **AI and e-DNA Techniques:** Utilize advanced technologies to monitor and analyze glacier data, predict behavior, and identify potential risks.



**Reducing Greenhouse Gas Emissions:** Implementing measures to mitigate climate change is crucial, as it is the primary driver of glacier loss.



**Glacier Augmentation:** Explore techniques to increase ice accumulation, such as artificially enhancing snowfall or spraying water vapor.

## Steps Taken to Protect Glaciers

### Global Initiatives

- **Hindu Kush Himalayan Monitoring and Assessment Programme (HIMAP):** A collaborative platform for researchers, practitioners, and policymakers in the Hindu Kush Himalayan region.
- **United Nations Initiative:** The UN General Assembly has declared 2025 as the International Year of Glaciers to raise awareness about accelerated glacier melting.

### Indian Efforts

- **National Action Plan on Climate Change (2008):** Outlines measures for glacier conservation, including satellite monitoring and community-based initiatives.
- **Protected Areas:** Designation of national parks, wildlife sanctuaries, and biosphere reserves in Himalayan states to protect fragile ecosystems, including glaciers.
  - Notable examples include Nanda Devi Biosphere Reserve, Gangotri National Park, and Great Himalayan National Park.
- **Himansh Research Station:** Located in the remote Spiti region of Himachal Pradesh, this station focuses on studying Himalayan glaciers and their response to climate change.

## Way Forward

1. **Enhanced Global Cooperation:** Strengthen international collaborations to share data, research findings, and technological innovations aimed at glacier conservation.
2. **Policy Integration:** Integrate glacier protection strategies into broader environmental and climate policies at national and international levels.
3. **Public Awareness Campaigns:** Increase public awareness about the importance of glaciers and the consequences of their loss through education and outreach programs.
4. **Sustainable Practices:** Promote sustainable land-use practices in glacier regions to minimize human impact and enhance natural resilience.
5. **Technological Innovations:** Invest in and develop new technologies to monitor, protect, and possibly restore glaciers, ensuring a proactive approach to glacier conservation.

The shrinking of Venezuela's Humboldt glacier serves as a stark reminder of the urgent need to address climate change and its profound impacts on our planet's cryosphere.

## EXPECTED QUESTIONS FOR UPSC CSE

### Prelims MCQ

Q. Recently, Humboldt glacier was seen in the news, it is located in:

- (a) Venezuela                      (b) Argentina  
(c) Colombia                        (d) Peru

Answer: a

### Descriptive Question

Q. Discuss strategies to raise awareness about the importance of preserving remaining glaciers and combating climate change to safeguard vulnerable cryospheric environments? [10 Marks] [150 words]

## TACKLING WILDLIFE CRIME

**Why in News:** The United Nations Office on Drugs and Crime (UNODC) recently released the **World Wildlife Crime Report 2024**, highlighting the pervasive issue of wildlife crime and its impact on biodiversity.

### Key Findings from the World Wildlife Crime Report 2024:

The report presents a detailed analysis of the global illegal wildlife trade:

- **Market Dynamics:** Rhino horn constitutes 29% of the illegal wildlife trade market, followed by pangolin scales (28%) and elephant ivory (15%).
- **Other Affected Species:** Eels, crocodilians, parrots and cockatoos, carnivores, turtles and tortoises, snakes, and seahorses are also significantly impacted.
- **Historical Impact:** Between 2015 and 2021, rhinos and cedars were the most affected species by illegal wildlife trade.

### Factors Driving Wildlife Crime

Several factors contribute to the persistence and growth of wildlife crime globally:

- **Demand for Wildlife Products:** Cultural beliefs, traditional medicine, fashion, and status symbols drive demand for products like ivory, rhino horn, and tiger parts.
- **Economic Incentives:** Wildlife crimes offer lucrative financial gains for poachers, traffickers, and organized crime syndicates.
- **Weak Law Enforcement:** Inadequate enforcement of wildlife protection laws, corruption, and limited resources exacerbate the issue.

- **Poverty and Lack of Livelihood Alternatives:** Economic hardship forces individuals into poaching and trafficking activities.
- **Globalization:** The global trade and transportation networks facilitate the illegal movement of wildlife and wildlife products across borders.

- **Biodiversity Loss:** Leads to population declines and potential extinction of endangered species, disrupting ecosystems and their services.
- **Economic Impact:** Deprives governments of revenue from legitimate wildlife-based industries such as ecotourism and sustainable harvesting.
- **Ecological Imbalance:** Overexploitation of top predators affects prey populations, vegetation, and other wildlife, causing cascading ecological effects.
- **Health Risks:** Smuggling of live animals and animal products poses disease risks to human health.
- **Cultural Loss:** Indigenous communities lose vital cultural and spiritual connections to wildlife, eroding traditional knowledge and cultural identities.

### Impacts of Wildlife Crime

Wildlife crime has severe consequences for biodiversity and human societies:

#### International Conventions to Tackle Wildlife Crimes

**CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora):**

Ensures that international trade in wild animals and plants does not threaten their survival.

**IUCN (International Union for Conservation of Nature):**

Works towards nature conservation and sustainable use of natural resources.

**CMS (Convention on the Conservation of Migratory Species of Wild Animals):**

Aims to conserve migratory species across their ranges.

#### Steps Taken by Governments to Protect Wildlife

**The Wild Life (Protection) Act, 1972:** Provides stringent punishments for wildlife crime.

**Wild Life Crime Control Bureau (WCCB):** Coordinates with state and union territories to gather intelligence and combat unlawful wildlife trade.

**Integrated Development of Wildlife Habitats:**

Includes recovery programs for endangered species as part of a centrally sponsored scheme.

**National Biological Diversity Act (NBA), 2002:**

Ensures the protection of threatened species and their habitats.

#### Constitutional Provisions

India's constitution includes specific provisions for wildlife protection

##### Article 48A

Mandates the State to protect and improve the environment and safeguard forests and wildlife.

##### Article 51A(g)

Obligates citizens to protect and improve the natural environment & have compassion for living creatures.

### Way Forward

To effectively address wildlife crime, a multi-faceted approach is required:

1. **Strengthen Law Enforcement:** Enhance resources and training for law enforcement to combat wildlife crimes more effectively.
2. **Address Poverty:** Implement poverty alleviation programs and provide sustainable livelihood alternatives to reduce dependency on wildlife crime.
3. **Promote Sustainable Livelihoods:** Encourage and support communities to engage in sustainable practices that do not harm wildlife.
4. **Raise Awareness:** Conduct public awareness campaigns to reduce demand for illegal wildlife products and inform about the importance of biodiversity.
5. **Engage Local Communities:** Involve local communities in conservation efforts, recognizing their role and knowledge in protecting wildlife.

### Conclusion

The World Wildlife Crime Report 2024 underscores the critical need for global action against wildlife crime. By addressing the underlying factors, enhancing enforcement, and promoting sustainable practices, we can work towards preserving our planet's biodiversity for future generations.

#### EXPECTED QUESTIONS FOR UPSC CSE

##### Prelims MCQ

Q. Recently the 'World Wildlife Crime Report' published by:

- (a) World Wildlife Fund for Nature
- (b) United Nations Framework Convention on Climate Change
- (c) United Nations Office on Drugs and Crime
- (d) None

Answer: c

**Descriptive Question**

Q. Enumerate the primary reasons behind wildlife crime? Explain the ecological consequences of wildlife crime, particularly in terms of biodiversity loss and ecosystem degradation? [15 Marks] [250 words]

**WORLD'S LARGEST DIRECT AIR CAPTURE PLANT**

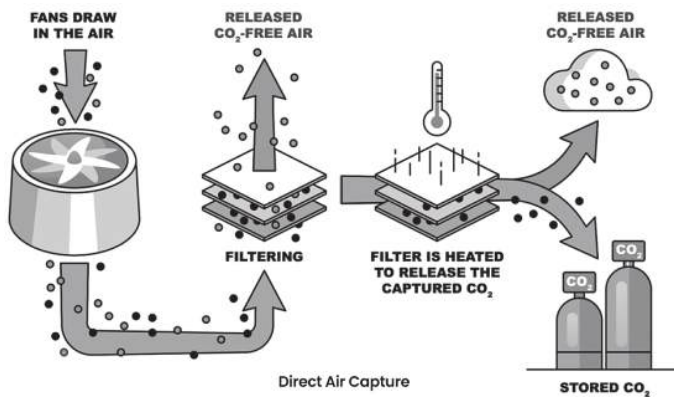
**Why in News:** A significant step has been taken in to remove carbon dioxide from the atmosphere with the launch of Mammoth, the world's largest **Direct Air Capture and Storage (DAC+S) plant**, is situated on a dormant volcano in Iceland.

**Why Direct Air Capture and Storage so Important?**

Limiting global warming to safe levels requires not only reducing greenhouse gas emissions but also actively removing existing carbon dioxide from the atmosphere. DAC technology offers a promising solution for achieving this goal.

**How DAC Technology actually works?**

DAC+S is a **Carbon Dioxide Removal (CDR) technology** that chemically extracts carbon dioxide directly from the ambient air. The captured CO<sub>2</sub> can then be permanently stored underground, converted into stone or reused.



**Way Forward**

- 1. Technological Advancements and Sustainability Assessments:** Research and development efforts are needed to improve the efficiency and reduce the cost of DAC and other CDR technologies.
- 2. Policy and Incentives:** Governments can create policies that incentivize investment in CDR research and deployment.
- 3. Public Awareness and International Collaboration:** Raising public awareness about the urgency of carbon removal and the potential of CDR technologies is crucial for garnering support.

**Conclusion**

The launch of Mammoth represents a significant milestone in the fight against climate change. By overcoming the existing challenges and fostering international collaboration, we can unlock the full potential of CDR technologies to create a more sustainable future.

**EXPECTED QUESTIONS FOR UPSC CSE**

**Prelims MCQ**

- Q. 'Mammoth Plant' recently seen in news is related to:
- World's largest Direct Air Capture and Storage plant, in Iceland
  - Newly discovered variety of grass in Serbia
  - World's largest wastewater treatment plant, in Russia
  - World's largest solar power plant, in Germany

Answer: a

**Descriptive Question**

Q. What are the environmental benefits of DAC+S technology? Discuss the potential future applications of DAC+S technology? [15 Marks] [250 words]

**WORLD BANK'S "WATER FOR SHARED PROSPERITY" REPORT**

**Why in News:** The World Bank recently unveiled the "Water for Shared Prosperity" report at the 10th World Water Forum held in Bali, Indonesia.

**Key Findings from the Report**

**Global Inequalities in Water Access**

- As of 2022, a staggering **2.2 billion people** lacked access to safely managed drinking water services, and **3.5 billion** were without safely managed sanitation.
- The situation has deteriorated particularly in low-income countries, where an additional **197 million people** have lost access to safe drinking water since 2000.

**Rural-Urban Disparities**

- Rural areas are disproportionately affected by water scarcity, with eight out of ten people lacking basic drinking water and sanitation services residing in these regions.
- Over the past two decades, little progress has been made in narrowing the rural-urban gap in water access in low-income countries.

**Regional Water Stress**

- The report identifies hotspots of water stress, notably in

the Sahel, Southeastern Africa, and South and Central Asia.

- The **Democratic Republic of the Congo**, despite housing more than half of Africa’s total water resources, exemplifies the regional imbalances in water availability.

### Climate Change and Water Risks

- Climate change is exacerbating water-related risks, with developing countries experiencing more **severe and prolonged droughts and floods between 2000 and 2021**.
- These extreme weather events have long-term adverse effects on nutrition, school attendance, and economic welfare.
- Globally, **over 800 million people are at high risk of drought**, and twice as many live in flood-prone areas.

### Employment and Water Dependency

- Water-intensive sectors are crucial for employment, accounting for **56 percent of jobs in low-income countries compared to 20 percent** in high-income countries.
- In Sub-Saharan Africa, **62 percent of employment depends on water-intensive activities**, making the region particularly vulnerable to water scarcity.

### Impact on Health and Development

- Poor Water, Sanitation, and Hygiene (WASH) conditions contribute significantly to global mortality, with **between 1.4 and 4.2 million deaths in 2019 alone**.
- Inadequate WASH access also hinders cognitive development, educational attainment, labor productivity, and income.

### Addressing Water Scarcity in India

#### India’s Water Crisis

- India, home to **18 percent of the world’s population**, has **only 4 percent** of its water resources, making it one of the most water-stressed countries globally.
- According to NITI Aayog’s “Composite Water Management Index” (2018), **India faces its worst water crisis in history**, with **over 600 million people** experiencing acute water shortages.
- Reservoir levels across the country have also reported lower storage than the previous year, exacerbating the crisis.

## Equitable and Inclusive Water Security for Shared Prosperity on a Livable Planet



### Government Initiatives

- **National Water Mission (NWM):** NWM focuses on conserving water, minimizing wastage, and ensuring equitable distribution across various sectors, emphasizing water use efficiency, groundwater recharge, and sustainable development.
- **Jal Jeevan Mission (JJM):** Launched in 2019, JJM aims to provide piped water supply to all rural households by 2024, significantly enhancing rural water access.
- **Atal Bhujal Yojana (ABHY):** ABHY, also launched in 2019, seeks to improve groundwater management and promote sustainable groundwater use in identified water-stressed areas.

- **Atal Mission for Rejuvenation and Urban Transformation (AMRUT):** Initiated in 2015, AMRUT focuses on developing basic urban infrastructure in 500 cities, covering water supply, sewerage, stormwater drainage, green spaces, and non-motorized urban transport.
- **Namami Gange Programme:** Launched in 2014, this program aims to rejuvenate the River Ganga and its tributaries by addressing pollution, promoting sustainable wastewater management, and restoring the river basin’s ecological health.
- **Interlinking of Rivers (ILR):** The National Water Development Agency (NWDA) oversees the interlinking of rivers under the National Perspective Plan

(NPP), which includes 30 link projects under two components: Himalayan Rivers Development and Peninsular Rivers Development.

### Recommendations for Enhancing Water Security

<b>Robust Early-Warning Systems</b>	Developing and implementing inclusive early-warning systems to prepare for extreme weather events.
<b>Weather Risk Insurance Programs</b>	Establishing insurance schemes to mitigate the financial impact of weather-related risks on vulnerable communities.
<b>Social Protection Schemes</b>	Scaling up social protection programs to support communities affected by floods, droughts, or other water-related disasters.
<b>Nature-Based Solutions</b>	Promoting innovative financing and evidence-based approaches to scale up nature-based solutions for water management.
<b>Institutional and Tariff Reforms</b>	Increasing financing through reforms aimed at institutional efficiency and fair tariff structures.
<b>Regulatory and Policy Environment</b>	Creating an enabling environment for innovations in water management and delivery.
<b>Inter-Institutional Coordination</b>	Improving coordination among institutions responsible for water, health, education, and urban planning to ensure comprehensive and inclusive water service delivery.

### Conclusion

Effective and equitable water resource management can foster trust, inclusivity, and cooperation, leading to peace and prosperity. Conversely, mismanagement of water resources can exacerbate existing conflicts or trigger new ones. Therefore, adopting the recommendations from the “Water For Shared Prosperity” report is crucial to ensuring water security and shared prosperity globally.

### EXPECTED QUESTIONS FOR UPSC CSE

#### Prelims MCQ

Q. Consider the following statements regarding ‘Water for Shared Prosperity’ report:

1. It is published by World Bank
2. The report identifies hotspots of water stress, notably in the Sahel, Southeastern Africa, and South and Central Asia.
3. The report found, over 800 million people are at high risk of drought, and twice as many live in flood-prone areas

How many of the above statements are correct?

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

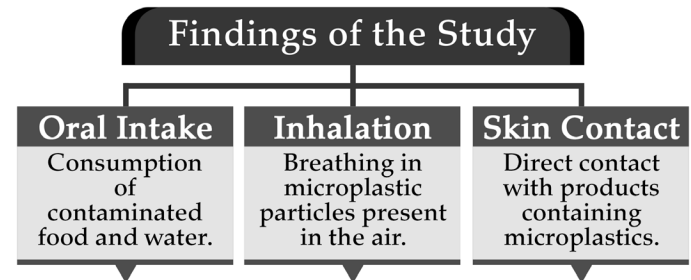
ANSWER: C

#### Descriptive Question

Q. Climate change is exacerbating water-related risks, critically evaluate the statement. Water can exacerbate world tensions, do you agree? [15 Marks] [250 words]

## PERVASIVE PRESENCE OF MICROPLASTICS

**Why in News:** A recent study has revealed the alarming presence of microplastics in the testicles of both humans and canines, highlighting a critical environmental and health issue.



#### Menace of Plastic Pollution

#### Global Plastic Overshoot Day (POD)

- In 2024, the global Plastic Overshoot Day was projected

to occur on September 5, marking the date when plastic waste production surpasses the world's capacity to manage it.

- This milestone indicates severe environmental pollution, with major contributors being China, India, the United States, and Japan, accounting for 51% of global plastic waste.

### India's Role

- India, following China, is the second-largest polluter of water bodies.
- A 2023 report by the Nordic Council of Ministers warns that without global action, mismanaged plastic waste could nearly double from 110 million tonnes in 2019 to 205 million tonnes by 2040.

### Understanding Plastic and Microplastics

#### What is Plastic?

- Derived from the Greek word "plastikos," meaning **capable of being shaped or molded**, plastics are synthetic or semi-synthetic materials with polymers as their main ingredient.
- Plastics are highly adaptable due to their plasticity, allowing them to undergo permanent deformation.

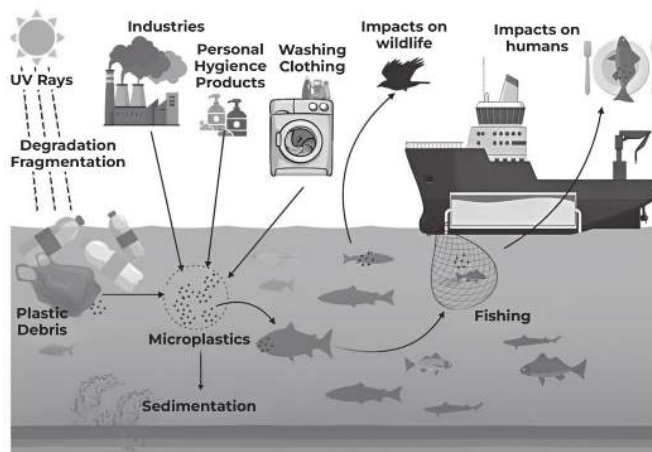
#### Microplastics

- Microplastics are **tiny plastic particles less than five millimeters** in diameter.
- They **originate from the breakdown of larger plastics** and have been found across the planet, from oceans to mountains.
- An **average human consumes at least 50,000 microplastic particles** annually, highlighting the contamination of food, water, and air.

#### Environmental Concerns of Microplastics

- **Marine Pollution:** Microplastics enter oceans through various pathways, causing physical harm to marine organisms and potential transfer of toxins up the food chain.
- **Freshwater Contamination:** Microplastics are prevalent in rivers, lakes, and streams, contributing to the degradation of freshwater ecosystems.
- **Bioaccumulation and Biomagnification:** Microplastics accumulate in the tissues of organisms and bio magnify, reaching higher concentrations in predators, including humans.
- **Habitat Degradation:** Microplastics interfere with nutrient cycling and sediment stability, favoring harmful bacteria and invasive species, disrupting ecosystem dynamics.
- **Global Distribution:** Microplastics have been detected in remote locations worldwide, underscoring the need for coordinated international efforts to tackle this issue.
- **Human Health Risks:** Microplastics contain toxic

chemicals like BPA (Bisphenol A), which pose severe risks to human health, affecting liver function, insulin resistance, fetal development, reproductive systems, and brain function.



### India's Efforts in Tackling Plastic Waste

#### Legislative Measures

- **Ban on Single-Use Plastics:** Many Indian states have banned single-use plastics.
- **Extended Producer Responsibility (EPR):** Manufacturers are responsible for waste management of their products.
- **Plastic Waste Management Rules:** Introduced in 2016, these rules promote recycling and waste-to-energy initiatives.
- **Plastic Waste Management (Amendment) Rules, 2022:** Strengthened EPR guidelines and banned certain plastic items.

#### National Initiatives

- **Swachh Bharat Abhiyan:** A national cleanliness campaign including plastic waste management.
- **Plastic Parks:** Specialized zones for recycling and processing plastic waste.
- **Beach Clean-Up Drives:** Organized by government and NGOs to collect and dispose of plastic waste from beaches.

#### International Commitments

- **MARPOL:** India is a signatory to the International Convention on Prevention of Marine Pollution.

#### Innovation and Community Engagement

- **India Plastic Challenge – Hackathon 2021:** A competition to develop innovative solutions for plastic pollution and alternatives to single-use plastics.

#### Way Forward

1. **Strengthening Legislation:** Enforce stricter laws on plastic production, use, and disposal.



## Sariska Tiger Reserve

### Location

Sariska Tiger Reserve is located in the Alwar district of Rajasthan, India, covering an area of approximately 881 square kilometers. Located within the Aravalli Range and the Khathiar-Gir dry deciduous forests ecoregion, the park is rich in mineral resources like copper. Despite a 1991 Supreme Court ban, ongoing marble mining continues to pose environmental threats.

### Flora and Fauna

The reserve is home to diverse flora and fauna, including the Bengal tiger, leopards, various deer species, and numerous bird species. The vegetation is primarily dry deciduous forests. Its forests include tropical, dry, deciduous, and tropical thorn varieties.

### Historical Significance

The reserve houses several historical sites, including the ruins of medieval temples and the Sariska Palace, adding cultural value to its ecological importance.

### Conservation Efforts

Sariska has faced challenges like poaching but has seen successful tiger reintroduction and conservation efforts, making it a critical site for tiger conservation in India.



### Critical Tiger Habitat (CTH)

- **Definition:** Core areas of tiger reserves identified under the Wild Life Protection Act (WLPA), 1972, based on scientific evidence.
- **Purpose:** Must be maintained inviolate for tiger conservation, respecting the rights of Scheduled Tribes and other forest dwellers.
- **Notification Process:** State government, in consultation with an expert committee, notifies CTH areas.

### EXPECTED QUESTIONS FOR UPSC CSE

#### Prelims MCQ

Q. Consider the following statements about Critical Tiger Habitat (CTH):

1. They are regarded as core areas of tiger reserves.
2. They are identified under the wildlife Protection Act, 1972.
3. The notification of CTH is done by the Central government.

How many of the above statements are correct?

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

Answer: (b) and (c) only

#### Descriptive Question

Q. Discuss the government effort in tiger and elephant conservation in wildlife? Throw light on related provisions in Wildlife Protection Act. [15 Marks] [250 words]

## OCEAN WARMING

**Why in News:** Average Sea temperature reached new high in 2024. Oceans are unusually warmer now. Consequence is marine ecosystem and biodiversity is under severe stress.

### Key Details

Ocean temperature data has been collected from 1979 and the average global sea surface temperature (SST) the temperature of the water at the ocean surface — for February 2024 stood at 21.06 degree Celsius, the highest ever.

### Reasons of ocean warming

- **Anthropogenic activities:** Human activities like fossil fuel release burning, industrialization, agricultural activities etc. leased high levels of greenhouse gases (GHGS) in the atmosphere. Carbon dioxide, methane, ozone, and nitrous oxide are some notable GHGS, which trap heat in the atmosphere and contribute to global warming. Result is, the **average global temperature has risen at least 1.2 degree Celsius above pre-industrial times. About 90% heat released by the global warming is absorbed by oceans making them warmer.**
- **El nina**, which refers to an **abnormal warming of surface waters in the equatorial Pacific Ocean.** However now the ocean temperature remains high irrespective of occurrence of El nina.
- **Lesser dust blowing off the Sahara Desert: Due to weaker-than-average winds.** The dust **typically forms a giant umbrella** that shades the Atlantic water and reduces ocean temperatures. Due to lesser winds, umbrella is now partially folded, more of the Sun is heating down on the ocean.
- **Reduced Sulphur di oxide emissions in marine shipping: International regulations were imposed in 2020 to reduce sulphur dioxide emissions, a health-damaging**

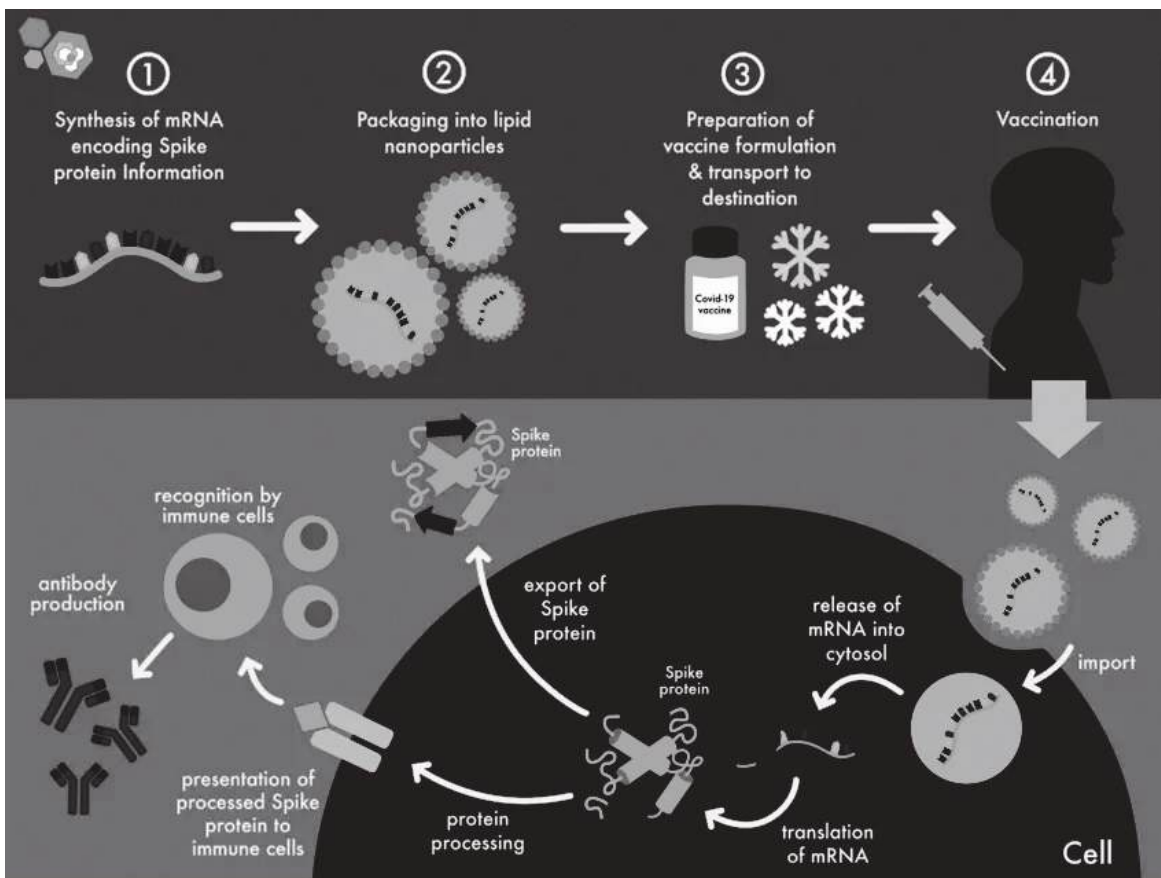


## mRNA VACCINE SHOWS PROMISE IN FIGHT AGAINST AGGRESSIVE BRAIN CANCER

**Why in News:** Researchers at the University of Florida have developed a new messenger RNA (mRNA) vaccine that shows promise in treating glioblastoma, the most aggressive and lethal form of brain cancer.

### Key Details

- The mRNA vaccine works by delivering genetic material that instructs the body's cells to produce proteins specific to glioblastoma cells.
- This triggers the immune system to recognize and attack the cancer cells.
- This technology is similar to the mRNA vaccines that have been successfully used against COVID-19.



### Challenges of Brain Cancer Treatment

- **Poor Chemotherapy Response:** Brain tumors often do not respond well to chemotherapy drugs.
- **Radiotherapy Side Effects:** Radiotherapy, a common treatment for brain cancer, can cause debilitating side effects such as cognitive impairment and fatigue.
- **Surgical Difficulty:** Brain surgery is a complex and risky procedure, especially for tumors located in critical areas of the brain.

### How mRNA Vaccines Offer Hope?

Specificity	Fewer Side Effects	Immune System Activation
The vaccine can be personalized to target each patient's specific tumor mutations.	mRNA vaccines may have fewer side effects compared to chemotherapy and radiotherapy.	The vaccine trains the body's immune system to recognize and attack cancer cells, potentially leading to long-term protection.

## How mRNA Vaccines Function

- **Function:** Messenger RNA (mRNA) is a molecule that carries instructions from DNA to the cell's machinery for protein production.
- **Delivery:** The mRNA vaccine delivers genetic material encapsulated in lipid nanoparticles, which are microscopic fat particles, into the body.
- **Immune Response:** Once inside cells, the mRNA instructs them to produce proteins that match specific parts of the cancer cells, called antigens.
  - The immune system recognizes these foreign antigens as invaders and launches an attack with antibodies and T-cells.
- **Future Protection:** This immune response can also provide long-term protection against future attacks by the same cancer cells.

## Comparison with Other Vaccines

- **Live-attenuated vaccines:** These contain weakened live pathogens that stimulate an immune response without causing disease (e.g., MMR vaccine).
- **Inactivated vaccines:** These use killed pathogens to create immunity without causing the disease (e.g., polio vaccine).
- **Viral vector vaccines:** These use a modified, harmless virus to deliver genetic code into host cells, triggering an immune response (e.g., Ebola vaccine).
- **Subunit vaccines:** These contain purified components of a pathogen, not the whole live organism, and can be produced from the original pathogen or recombinantly (e.g., pneumococcal vaccines).

## Way Forward

While the initial human trial results are promising, further research is needed to determine the long-term efficacy and safety of the mRNA vaccine for brain cancer. Five key areas for future development are:

1. **Large-Scale Trials:** Conduct larger clinical trials to confirm the effectiveness of the vaccine in a broader patient population.
2. **Combination Therapy:** Investigate the use of the mRNA vaccine in combination with other cancer treatments, such as surgery or radiation, for potentially better outcomes.
3. **Durability of Response:** Monitor patients to assess the long-term durability of the immune response generated by the vaccine.
4. **Cost and Accessibility:** Develop strategies to make the vaccine affordable and accessible to all patients who need it.
5. **Targeting Other Cancers:** Explore the potential of using mRNA vaccine technology to target other types of cancer.

The success of this mRNA vaccine approach for brain cancer could revolutionize cancer treatment, offering a more targeted and potentially less toxic approach to fighting this devastating disease.

## EXPECTED QUESTIONS FOR UPSC CSE

### Prelims MCQ

- Q. Which of the following correctly describes the mechanism of action of mRNA vaccines?
- (a) They introduce a weakened form of the virus to stimulate an immune response
  - (b) They use inactivated viral particles to trigger immunity
  - (c) They deliver synthetic mRNA that encodes a viral protein, which then triggers an immune response
  - (d) They introduce the entire viral genome into the body to stimulate immunity

Answer: c

### Descriptive Question

- Q. What are the potential benefits of the mRNA vaccine for patients with glioblastoma, and how does it compare to existing treatment options? [10Marks] [150 words]

## NEGLECTED TROPICAL DISEASES (NTDS)

**Why in News:** World Health Organization (WHO) releases progress report on Neglected Tropical Diseases.

### Key Details

In 2022 alone, an estimated 1.62 billion people required intervention against these diseases. Although this reflects a 26% decrease from 2010, still it highlights the immense scale of the problem, with entire populations facing the threat of NTDs.

- As of December 2023, a total of 50 countries have successfully eliminated at least one NTD, marking the half way point towards the 2030 target of 100 countries.
- The report further reveals a concerning trend - a 22% increase in reported deaths from vector-borne NTDs compared to 2016.
- In 2022, approx. 848 million people received treatment for at least one NTD through preventive chemotherapy interventions.
- This rise underscores the urgency of addressing these diseases, particularly those transmitted by insects like mosquitoes.

### Neglected Tropical Diseases

- NTDs encompass a diverse group of conditions caused

by various pathogens like viruses, bacteria, parasites, and toxins.

- **These diseases share a common thread:**
  - They disproportionately affect low-income populations in Africa, Asia, and the Americas.
  - Poverty, limited access to healthcare, and inadequate sanitation and hygiene are major contributing factors.
  - Neglected tropical diseases (NTDs) have low mortality rates compared to other infectious diseases, such as malaria or tuberculosis.

**Examples of NTDs include**

- ★ Dengue and chikungunya
- ★ Dracunculiasis (guinea-worm disease)
- ★ Echinococcosis
- ★ Foodborne trematodiasis
- ★ Leishmaniasis
- ★ Leprosy
- ★ Lymphatic filariasis
- ★ Noma (cancrum oris)
- ★ Onchocerciasis (river blindness)
- ★ Rabies
- ★ Soil-transmitted helminthiasis
- ★ Snakebite envenoming
- ★ Trachoma
- ★ Yaws

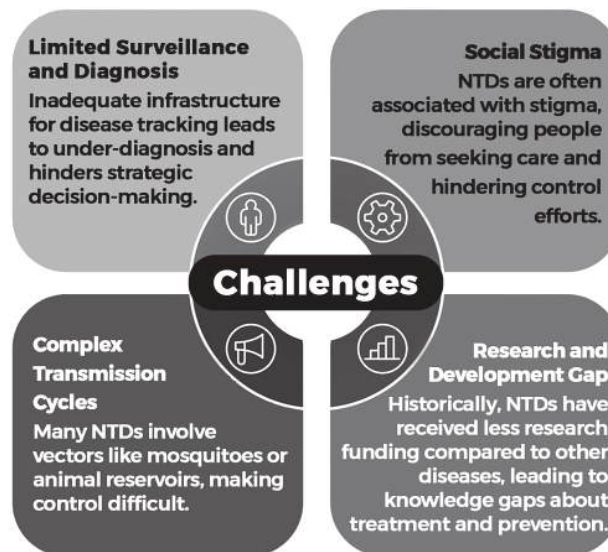
### India's Fight Against NTDs

- India carries a significant burden of NTDs, with at least ten major diseases heavily impacting its population.
- These include hookworm, dengue, lymphatic filariasis, leprosy, kala-azar, rabies, ascariasis, trichuriasis, trachoma, and cysticercosis.

### Initiatives

- **National Vector Borne Disease Control Programme (NVBDCP):** This program focuses on mass drug administration, bed net distribution, and vector control measures to prevent diseases like lymphatic filariasis, malaria, dengue, and kala-azar.
- **National Health Mission (NHM):** The NHM aims to provide accessible, affordable healthcare to all, including those affected by NTDs.
- **Kala-azar elimination Programme:** Launched in 1990-91, this program aimed to eliminate kala-azar by 2023, although the WHO NTD RoadMap target is 2030.
- **Lymphatic Filariasis Elimination Programme:** India actively participates in the Global Programme to Eliminate Lymphatic Filariasis (GPELF).
- **National Deworming Day (NDD):** Launched in 2015, this nationwide program targets reducing soil-transmitted helminthiasis prevalence in children.

- **2021-2030 NTD Roadmap:** The WHO's NTD road map sets ambitious 2030 targets, including a 90% reduction in people requiring NTD treatment and the eradication of dracunculiasis and yaws.



### Way Forward

- Strengthen Surveillance and Reporting**  
1 Robust surveillance systems are essential for accurate data collection and informed decision-making.
- Combat Stigma and Promote Awareness**  
2 Educational campaigns can challenge social stigma and encourage timely healthcare seeking.
- Integrated Vector Management**  
3 Implementing strategies like vector control and bed net distribution can significantly reduce transmission.
- Increased Research and Development Funding**  
4 More research is needed to develop better diagnostics, drugs, and vector control tools.
- Equity in Healthcare Delivery**  
5 NTD programs can serve as an entry point to healthcare systems for underserved communities, promoting health equity and achieving universal health coverage.

By addressing these challenges and prioritizing NTD control, we can create a healthier world for all. This is not just a public health imperative but also contributes to broader development goals and a more equitable future.

### EXPECTED QUESTIONS FOR UPSC CSE

#### Prelims MCQ

Q. Consider the following statements about Neglected tropical diseases (NTDs):

1. These diseases has high mortality rates compared to other infectious diseases.
2. These diseases disproportionately affects low-income populations in Africa, Asia, and the Americas.

3. Dengue and chikungunya are the examples of Neglected tropical diseases.

How many of the above statements are correct?

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

Answer: (2 and 3 only)

**Descriptive Question**

Q. What do you understand about the Neglected Tropical Diseases? Discuss the several challenges in treating neglected tropical diseases (NTDs). [10Marks] [150words]

**COORDINATED LUNAR TIME (LTC)**

**Why in News:** NASA develop Coordinated Lunar Time (LTC) by December 2026, in collaboration with international space agencies involved in the Artemis Accords.

**Key Details**

- LTC will be the official time standard for the Moon and its surrounding space (cislunar space).
- Unlike Earth, which uses Coordinated Universal Time (UTC) based on our planet’s rotation, the Moon’s slower rotation and weaker gravity necessitate a separate timekeeping system.

**LTC will be crucial for various aspects of lunar exploration, including**

- **Streamlining Communication:** With multiple space agencies and commercial entities operating on the Moon, a common time reference is essential for clear communication between missions and Earth-based stations.
- **Enhanced Navigation:** Precise timekeeping is vital for accurate navigation on the lunar surface. LTC will allow spacecrafts to synchronize with each other for efficient operations.
- **Facilitating Logistics:** As commercial activities pick up on the Moon, LTC will ensure smooth transactions and logistical planning based on a unified time framework.

**Challenges**

- The Moon’s uneven gravitational pull and varying rotation speeds across its surface complicate matters.

- Additionally, clocks on the Moon would naturally run slightly faster compared to those on Earth due to the weaker gravity, according to the theory of special relativity.

**The Need for Global Collaboration**

- 1** Earth’s time standard is primarily based on Coordinated Universal Time (UTC), which is set by the International Bureau of Weights and Measures in Paris, France.
- 2** UTC is determined by a weighted average of more than 400 atomic clocks placed in different parts of the globe.
- 3** On the Moon, which has less gravity, same atomic clock would be ticking slightly faster than if placed on the Earth.
- 4** For someone on the Moon, an Earth-based clock will appear to lose on average 58.7 microseconds per Earth day with “additional periodic variations.”
- 5** The discrepancy can create problems for situations such as a spacecraft seeking to dock on the Moon, data transferring at a specific time, communication, and navigation.
- 6** With the rise in number of moon missions in future, it will be difficult to synchronise their mission operations standard with each other, and it may lead to collisions. Thus it is important to have Coordinated Lunar Time.

**Suggestions**

- **International Consensus:** NASA, along with other space agencies, needs to reach a common agreement on the technical specifications of LTC, taking into account the Moon’s unique gravitational and rotational characteristics.
- **Deployment of Lunar Clocks:** Setting up a network of atomic clocks on the lunar surface will be necessary to establish a reliable and accurate time reference.
- **Establishing Conversion Mechanisms:** A system for converting between LTC and UTC will be essential for smooth communication and data exchange between lunar and Earth-based operations.
- **Standardization for Future Missions:** LTC should be adopted as the standard timekeeping system for all future lunar missions, regardless of the participating agency or country.
- **Public Awareness:** Raising public awareness about LTC will help generate interest and understanding as lunar exploration progresses.

**Way Forward**

The establishment of LTC marks a significant milestone in the history of space exploration. This standardized timekeeping system will pave the way for smoother coordination, communication, and navigation during future missions, ultimately propelling us further towards a sustainable human presence on the Moon.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

- Q. What is the primary purpose of Coordinated Lunar Time (LTC)?
- (a) To synchronize lunar activities with solar cycles on the Moon
  - (b) To establish a universal time standard for all future lunar colonies
  - (c) To regulate lunar agricultural activities for sustainable farming
  - (d) To synchronize timekeeping for lunar missions and activities on the Moon

Answer: d

Descriptive Question

Q. How will LTC be implemented across international space agencies? What challenges are expected in developing and implementing LTC? [15Marks] [250words]

ZERO DEBRIS CHARTER

**Why in News:** As many as 12 countries have signed the Zero Debris Charter at the European Space Agency (ESA) /EU Space Council.

About the Zero Debris Charter

- The Zero Debris Charter is a world-leading initiative aiming to achieve a **debris-neutral** state in space by 2030.
- It combines high-level principles with ambitious targets set collaboratively by signatories to minimize future debris generation.
- Signatory countries include Austria, Belgium, Cyprus, Estonia, Germany, Lithuania, Poland, Portugal, Romania, Slovakia, Sweden, and the United Kingdom.

Space Debris

- Space debris encompass both natural meteoroid and artificial orbital debris. Meteoroids are in orbit about the sun, while most artificial debris is in orbit about the Earth.

Man-made Debris

- This includes defunct satellites, spent rocket bodies, fragments from collisions, and debris from anti-satellite tests.
- There are currently over **one million pieces** of debris larger than one centimeter orbiting Earth, posing a significant threat.

**Concerns and Challenges of Space Debris**

- **Threat to Space Infrastructure**  
Collisions with operational satellites can disrupt critical navigation and communication systems on Earth.
- **Kessler Syndrome**  
A self-perpetuating chain reaction of collisions could occur if debris density reaches a critical threshold, rendering space activities impossible.
- **Risk to Earth**  
Large debris re-entering the atmosphere uncontrollably poses a risk to people and property on the ground.
- **Increased Costs**  
Collision avoidance maneuvers for operational space craft add significant expense to space missions. Combating Neglected Tropical Diseases (NTDs) 2

Initiatives for Space Debris Mitigation India

- **Debris Free Space Missions (DFSM) by 2030:** Implemented by ISRO as part of the System for Safe & Sustainable Space Operations Management (IS4OM).
- **Project NETRA (NETwork for space object TRacking and Analysis):** Focuses on space situational awareness.

Global

- **Inter-Agency Space Debris Coordination Committee:** Facilitates worldwide coordination of space debris-related activities.
- **Space Debris Mitigation Guidelines:** Established by the Committee on the Peaceful Uses of Outer Space.

Way Forward

- **Global Participation:** Encouraging more countries and organizations to join the Charter's efforts.
- **Technological Advancement:** Developing and deploying debris removal technologies like space tugs or nets for active debris capture.
- **Standardization of Practices:** Implementing strict regulations and standardized practices to minimize debris generation from future missions.
- **Space Traffic Management:** Establishing a robust space traffic management system to track debris and predict potential collision risks.
- **International Collaboration:** Fostering international collaboration on research, development, and implementation of debris mitigation strategies.

By addressing these challenges through a collective approach,

we can ensure a sustainable future for space exploration and safeguard vital space infrastructure for generations to come.

**EXPECTED QUESTIONS FOR UPSC CSE**

**Prelims MCQ**

Q. Consider the following countries:

- 1. Austria
- 2. Cyprus
- 3. Romania
- 4. France

How many of the above countries are signatories to the Zero Debris Charter?

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

Answer: c (1, 2 and 3)

**Descriptive Question**

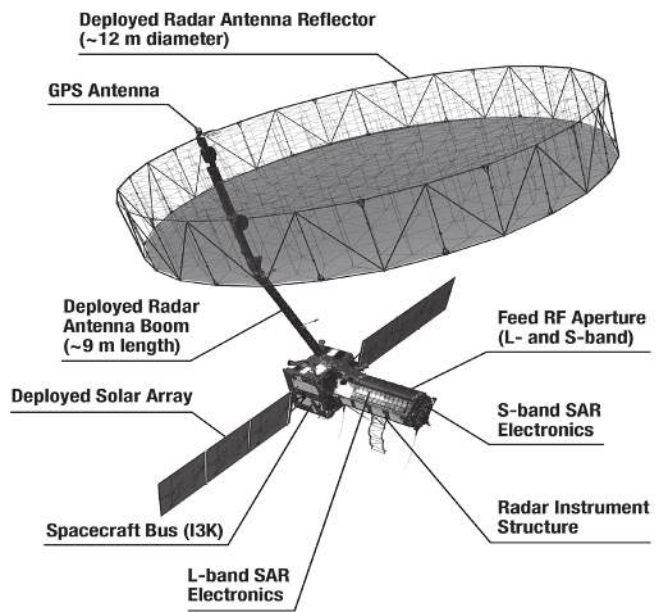
Q. Why is space debris considered a growing threat? What role do the ESA and EU play in addressing the issue of space debris? [15Marks][250words]

**NISAR SATELLITE**

*Why in News* : NISAR Satellite by ISRO to monitor Earth’s tectonic movements precisely.

**Key Details**

- Enhancing comprehension of Earth’s natural processes and environmental shifts.
- Operating as an observatory in low Earth Orbit.
- It is a 2,800kg satellite the size of a car.
- It is a dual-frequency imaging radar spacecraft, with both L-band and S-band synthetic aperture radar (SAR) instruments.
- The first satellite mission to measure variations in the surface of our planet will be NISAR, which will use two distinct radar frequencies (L-band and S-band).
- No matter the weather, SAR can gather data day or night and penetrate clouds to get information.
- L-band radar, GPS, a payload data subsystem, and a high-capacity solid-state recorder for data storage have all been given by NASA. The S-band radar, satellite, and GSLV launch system are all products of ISRO.



**Feature of NISAR**

- **Joint Collaboration**  
NISAR (NASA-ISRO Synthetic Aperture Radar) is a joint mission between NASA (National Aeronautics and Space Administration) and ISRO (Indian Space Research Organisation), showcasing international cooperation in space exploration.
- **Radar Technology**  
NISAR will deploy advanced radar imaging technology to study Earth’s surface changes with unprecedented detail, facilitating monitoring of natural hazards, land use, and climate change impacts.
- **Global Coverage**  
NISAR’s high-resolution radar imagery will provide global coverage, allowing comprehensive monitoring of dynamic Earth processes across diverse terrains, including forests, glaciers, coastal regions, and urban areas.
- **Scientific Objectives**  
NISAR aims to enhance scientific understanding of Earth’s processes, including ecosystem dynamics, ice sheet dynamics, earthquakes, and volcanoes, contributing valuable insights into Earth system science and environmental monitoring.
- **Societal Impact**  
NISAR’s data will have wide-ranging societal benefits, enabling better-informed decision-making in areas such as disaster management, agriculture, water resources, and urban planning, thereby supporting sustainable development efforts.
- **Coastal information**  
NISAR will gather information over the Indian Coasts and track yearly variations in the bathymetry in the deltaic areas. We’ll also be keeping an eye on the shoreline and erosion accumulation.
- **Sea observation**  
India’s Antarctic polar stations are surrounded by waters that the NISAR mission will monitor for characteristics of sea ice. It can be used to identify marine oil spills and, in the event of an unintentional oil leak, to spread the area of the spill for containment purposes.

**L-Band**

- The Institute of Electrical and Electronics Engineers(IEEE) refers to the radio frequency range between 1 and 2 gigahertz as the L band (GHz).
- This is at the top end of the ultra-high frequency(UHF) band and the lower end of the microwave spectrum.

**S-Band**

- The Institute of Electrical and Electronics Engineers (IEEE) refers to the microwave band, which covers frequencies between 2 and 4 gigahertz, as the "S- band" (GHz).

**Challenges of NISAR**

- **Technical Complexity:** Developing and integrating advanced radar imaging systems in to as inglesatellite platform poses sign if icantengineering challenges. For example, **ensuring precise synchronization of the two radar systems** on board NISAR requires intricate design and testing.
- **Data Processing and Storage:** Managing the vast amounts of data generated by NISAR’s high-resolution radar imagery presents challenges in data processing, storage, and transmission. For instance, **processing and analyzing terabytes of radar data collected daily require sophisticated computing infrastructure.**
- **Orbital Dynamics:** NISAR’s polar orbit and precise orbital parameters must be carefully planned to optimize coverage and revisit times while minimizing interference from other satellites. **Achieving this balance involves complex orbital dynamics calculations** and coordination with other satellite missions.

**Conclusion**

Scientists may use NISAR data to gain a better understanding of the **effects and rate of climate change, and people all across the world** can benefit from better management of natural resources and dangers.

**EXPECTED QUESTIONS FOR UPSC CSE**

**Prelims MCQ**

- Q. Consider the following statements regarding NISAR mission:
1. It is a collaboration between NASA and ISRO for a joint earth-observation satellite.
  2. It will be launched using GSLV Mk-3 satellite launching vehicle.
  3. ISRO will provide radars and communication system of the satellite

**Which of the above statements is/are correct?**

- (a) 1 only                      (b) 1 and 3 only  
 (c) 2 only                      (d) None

Answer: a

**Descriptive Question**

- Q. What are the expected outcomes of the NISAR mission? How will data from the NISAR mission be utilized by researchers, policymakers, and other stakeholders? [15Marks][250words]

**GEO FENCING**

**Why in News:** For months, the website of the Election Commission of India (ECI) has been inaccessible from outside of India.

**Key Details**

- The ECI’s Home Page, Voter Registration Portal, and Right to Information Portal are among the geo fenced sites.
- However, access to the results portal, which provides the results of every survey the ECI conducts, is still available.
- Voters who are presently abroad are notable to access their personal voter registration information.

**What is Geo fencing?**

- Geo fencing is a “security by obscurity” technique that makes websites completely inaccessible, allowing website owners to avoid the most direct types of cyber attacks from overseas.

**Applications of Geofencing**

<p><b>Retail and Marketing</b></p> <p>Retailers use geofencing to target customers with location-specific promotions. They can send notifications or ads to customers' mobile devices when they enter the designated area. This utilizes GPS or RFID technology for precise location tracking.</p>	<p><b>Health Care</b></p> <p>Patient monitoring and medication adherence. Geofences are set up around healthcare facilities or patients' homes to ensure compliance with treatment regimens.</p>	<p><b>Fleet Management</b></p> <p>Geofencing is extensively used in fleet management to monitor vehicles' movement within predefined zones. Fleet managers can set up geofences around delivery areas or restricted zones. Allowing for real-time monitoring and efficient route optimization.</p>
<p><b>Security and Surveillance</b></p> <p>In security applications, geofencing is used to create virtual perimeters around sensitive locations such as airports, military bases, or government buildings. Advanced systems may integrate geofencing with video surveillance for enhanced security measures.</p>	<p><b>Urban Planning &amp; Smart Cities</b></p> <p>Geofencing plays a crucial role in urban planning and the development of smart cities. Municipalities use geofences to manage traffic flow, enforce parking regulations, and optimize public transportation routes.</p>	<p><b>Environmental Monitoring</b></p> <p>Geofencing is employed in environmental monitoring to track wildlife movements, study ecosystems, and monitor protected areas. Researchers use GPS-enabled collars or tags to create geofences around animals' habitats.</p>
<p><b>Construction and Logistics</b></p> <p>In construction projects and logistics management, geofencing helps track equipment, materials, and personnel.</p>	<p><b>Public Safety &amp; Emergency Response</b></p> <p>For disaster management and public safety initiatives.</p>	<p><b>Governance</b></p> <p>In the tracking of schemes like MGNREGA.</p>

- Search engines are unable to index and display searched pages in results when there is geofencing in place.
- Conversely, sincere security researchers are likewise impeded from pointing out flaws when they investigate foreign websites.

**Benefits of Geo fencing**

- **Targeted Marketing:** Enables precise targeting of customers with location-based promotions, increasing engagement and sales.
- **Enhanced Security:** Helps monitor and secure sensitive areas with real-time alerts for unauthorized access or boundary breaches.
- **Efficient Fleet Management:** Optimizes route planning, reduces fuel consumption, and enhances asset utilization through geo fence-based tracking and notifications.
- **Improved Customer Service:** Enables personalized experiences such as proximity-based notifications and location-aware services, enhancing customer satisfaction.
- **Streamlined Operations:** Facilitates automation and optimization of processes such as inventory management, logistics, and work force scheduling, leading to cost savings and efficiency gains.
- **Data-driven Insights:** Provides valuable data on customer behavior, asset movement, and operational patterns, supporting informed decision-making and strategic planning.

**Some issues with Geo fencing**

- **Accuracy issues** can arise due to GPS signal interference or inaccuracies in mapping data, leading to false alerts or ineffective boundary enforcement.
- **Privacy** concerns emerge regarding the collection and use of location data, raising ethical questions about surveillance and data security.
- Geo fences may also **fail to account for dynamic environments** or rapidly changing conditions, reducing their reliability in certain contexts.
- Additionally, the reliance on **battery-powered devices** for location tracking imposes limitations on device lifespan and maintenance requirements.

**Conclusion**

The prolonged inaccessibility of the Election Commission of India’s website from outside the country raises concerns about transparency and accessibility of crucial electoral information. Addressing these issues is imperative to uphold democratic principles, ensure international engagement, and foster trust in India’s electoral processes on a global scale.

**EXPECTED QUESTIONS FOR UPSC CSE**

**Prelims MCQ**

- Q. The Geo fencing can be used for:
1. Tracking vehicles at a construction site
  2. Monitoring the time spent by each employee in a certain area
  3. Denying access to government websites for security reasons.

How many of the above statements are correct?

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

Answer: c

**Descriptive Question**

- Q. Explain the geo fencing. What are the primary applications of the Geofencing in the various industries? [15Marks] [250 words]

**WORLD’S FIRST SATELLITE ENABLED SMARTPHONE**

**Why in News:** Chinese satellite enables direct smart phone calls.

**What is Satellite Communication?**

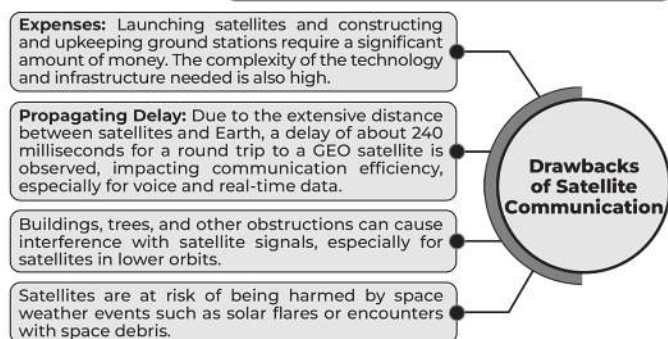
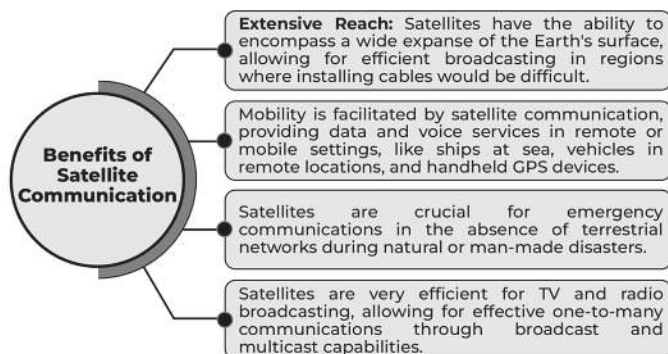
A satellite phone, sometimes called as **Satphone**, is a phone that connects to a telephone **network through satellites** that orbit the Earth. This is unlike our modern-day smart phones, which connect to ground-based cell towers.

**Key Details**

- First satellite series in the world (**Tiantong-1**)-Able to make phone calls on smart phones without requiring traditional infrastructure like **Base Transceiver Stations(BTSs)** or **cell towers**.
- The satellites of the Tiantong-1 series-Comprise of **three satellites**.
- Positioned in a **geosynchronous orbit** at an approximate altitude of **36000 kilometres**.
- Spans across the whole **Asia-Pacific area** from the **Middle East to the Pacific Ocean**.
- The satellite is called ‘Tiantong,’ with a translation of **“reaching to the sky”**.
- **Huawei Technologies** introduced the **first-ever smart phone** in September 2023 that enabled users to make

satellite calls by connecting **directly to the Tiantong satellites**.

- The project is **inspired by the tale of the Tower of Babel from the Bible**, with the goal of connecting people instead of dividing them.



### Laws existing in India

- According to the **Telecommunications Act of 2023**, satellite communication firms are able to obtain spectrum for point-to-point communications without having to participate in an auction.
- The DoT grants licenses for GMPCS satellite telephony services.
- Previously, GMPCS licenses were granted to **Bharati Group and Reliance Group**.

### How Satellite Mobile Phones Work

Satellite mobile phones use satellites to communicate with landline, cellular, or other satellite phones. They use an **omni directional antenna** for transmitting and receiving signals. Satellite phones require **line-of-sight with the sky**, making them **unsuitable indoors**. They can provide communications to ships, vehicles, planes, ground-based phones, and command centers. **GEO satellites** orbit **36,000 kilometres** above the earth's equator, providing global coverage with few satellites. **LEO satellites** orbit at lower altitudes, causing noticeable delays in phone calls or data services.

### Characteristics of a Satellite

- Thett-1 satellites come with transponders that function in the **s-band frequency range**.
- Utilizing the s-band enables effective mobile

communication that is more resistant to interference and signal weakening from atmospheric factors, therefore **guaranteeing more dependable communication services**.

- In addition to the satellite network, the **Tiantong-1 system depends** on a number of **Ground stations** located throughout china.
- These stations oversee the satellite operations, manage communication traffic, and guarantee the satellite network is **integrated with terrestrial communication networks**.

### Significance of strategy

- The tiantong-1 satellite series plays a crucial role in **china's space and communication technology goals**.
- It enhances existing satellite communication and navigation systems such as **beidou** from china, which serves as an alternative to the **global positioning system**, offering strategic communication capabilities.
- It is also involved in china's **"one belt, one road"** project by potentially providing communication services on both the Silk Road Economic Belt and the 21st-century Maritime Silk Road.

### Conclusion

Satellite communication continues to be an essential technology for worldwide connectivity, particularly in areas that are underserved or hard to access, even with the introduction of other technologies such as fibre optics.

With the progression of technology, satellite communication is anticipated to broaden in effectiveness, affordability, and range of applications.

### EXPECTED QUESTIONS FOR UPSC CSE

#### Prelims MCQs

Q. Consider the following statements about the Tiantong-1 series

1. The satellites are placed in a low earth orbit.
2. It covers the whole Asia-Pacific area from the Middle East to the Pacific Ocean.
3. It is capable of enabling smartphone calls without the need for ground-based infrastructure.

How many of the above statements are correct?

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

Answer: b (2 and 3 only)

**Descriptive Question**

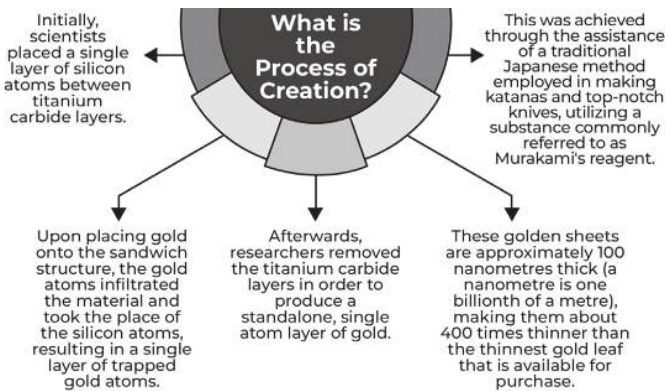
Q. Differentiate between normal smart phone and satellite enabled smart phone. Evaluate the potential benefits of direct smart phone communication via satellite, particularly in areas with limited terrestrial infrastructure or during emergencies. [15Marks] [250words]

**GOLDENE**

**Why in News:** Why researchers have created Goldene, sheet of gold that is only one atom thick.

**What is Goldene?**

Goldene is a former allotrope of gold that is **two-dimensional** and made up of a **single layer of gold atoms** arranged in a **2D structure**.



**The Function of Murakami's Reagent**

- Precision during etching was important in order to ensure the successful fabrication of Goldene.
- **Etching Process:** The titanium carbide layers were removed using a traditional Japanese method involving Murakami's reagent.
- **Lack of light:** Operations had to be carried out without any light present.

**Difficulties in creating Goldene**

- **Classic challenge:** Gold has a tendency to group together, posing a challenge in producing single-atom layers.
- **Earlier 2D Materials:** Two-dimensional (2D) materials have been developed following the discovery of graphene in 2004, however, manufacturing thin metallic sheets faced challenges because metals have a tendency to create nano particles.

**Importance**

- **Transformation in the Electronics Industry:** The ultra-thin and light weight qualities of Goldene could greatly decrease the gold required in electronics.
- **Catalysis:** It shows potential as an effective catalyst since it is more cost-effective than thicker, three-dimensional gold.

- **Expansion to Different Metals:** The method used to make goldene could also be modified to create thin sheets of other valuable metals such as iridium and platinum, broadening the potential uses.

**Unique Characteristics for High-level Uses:** Goldene possesses a distinct structure in which every atom is linked to six others, instead of twelve. This could result in specific applications for converting carbon dioxide into different substances, generating hydrogen, and cleansing water.

**EXPECTED QUESTIONS FOR UPSC CSE**

**Prelims MCQ**

Q. Consider the following statements about goldene:

1. It is one atom-thick material made of gold.
2. The layer of atoms are arranged in a three-dimensional structure.
3. It can be used in hydrogen production and water purification.

How many of the above statements are correct?

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

(Answer: b) (1 and 3 only)

**Descriptive Question**

Q. What is Goldene? Enumerate the difficulties in creating Goldene. Comment on the potential applications of Goldene in electronics. [15Marks] [250 words]

**KP.2 COVID VARIANT**

**Why in News:** The KP.2 COVID variant, FLiRT, spreads and evades immunity.

**What is the KP.2 Variant?**

- the KP.2 variants, also called FLiRT, it is a sub-lineage of the Omicron lineage of SARS-CoVid -2 with its originating from JN. 1 variant. It is a process that leads to changes in the virus structure, which helps it escape antibodies' attack, thus making it difficult for the immune system to eliminate the virus.

**Genomic Data from India**

- KP.2 has been adopted in India since the early November 2023. IND has said that INSACOG is over 250 KP. According to this division, there are two sequences with Maharashtra contributing more than half. Also, India has uploaded the highest percentage of KP in the whole world. However, the JN. 1 variant continues to be the D263 variant and this is also the current one in dominance in India.

### Danger of a Very Lethal Disease

- While FLIRT is associated with immune evasion, it is not specifically linked with the resultant generation of more grave disease. These are cardinal signs of COVID-19 which presents with involvement of the upper respiratory tract.

### Prevention and Vaccination

- Preventive measures remain unchanged:** Increasing facemask usage, wearing the N95 or KN95 masks, and enhancing the quality of air inside buildings. Current vaccines being used in India are of old strand, which are not very effective against the disease provoking element, the KP.2. According to WHO, upgrading vaccines should be performed to address the JN. But one lineage system exists, and this has not been put into practice in this country.

**Challenges of KP. 2 variants**

<p><b>Increased Transmissibility</b> So, for variants we tend to see that there are particular mutations that enhance transmissibility meaning that more individuals are prone to be affected by the virus in any given society.</p>	<p><b>Vaccine Efficacy</b> New variants can infrequently somewhat compromise the immunisation that comes with an existing vaccine.</p>
<p><b>Severity of Disease</b> Others are more pathogenic, which increases the hospitalization and death tolls that come with the diseases.</p>	<p><b>Diagnostic Challenges</b> It is easier for variants with reasonable genetic differences to be undetectable through clinical lab assays.</p>

## Protection Strategies

- 1 **Vaccination and Boosters**  
In the case of COVID-19, the strategy that should be employed is to ensure that people are vaccinated with boosters in order to prevent future action.
- 2 **Enhanced Surveillance**  
Tactic One must raise the genomic threat intelligence level to recognize and observe new variants in the population speedily.
- 3 **Public Health Measures**  
Plan Strengthen and uphold measures that are well understood in public health including use of face masks, social distancing, and hand washing.
- 4 **Targeted Testing**  
Testing Conduct targeted test campaigns in order to avoid spreading new variants by identifying and isolating them as early as possible.

### Way Forward

The KP.2 About the Covid-19 FLIRT variant; this section has been attributed to the increase of cases worldwide, but

there are effects of immune escape mutations though at the moment the experts do not seem worried. Symptoms are the same as in prior readings; preventative measures are as well. It is important to point out that booster shots of vaccines are not required as many people possess immunity already.

### EXPECTED QUESTIONS FOR UPSC CSE

#### Prelims MCQ

Q. Consider the following statements about KP.2 COVID variant:

- It is a descendant of the JN.1 variant of the virus.
- It is a sub-variant of the Omicron lineage with new mutations.
- FLiRT, the nickname of KP.2, is based on the letters representing two immune escape mutations.

How many of the above statements are correct?

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

ANSWER

#### Descriptive Question

Q. What can be the implications of the FLIRT variant on the world economy. Enumerate the measures to be taken from learning of COVID-19 pandemic to tackle this new variant. [15 marks] [250 words]

## X CHROMOSOME REVIVAL IN OLDER WOMEN

**Why in News:** New insights on altered X chromosome's role is that increases risk of autoimmune disease in older women.

### Key Details

- The X chromosome modulates various biological functions and **sex-specific disease susceptibilities**.
- In most mammals, including humans, **females have two X chromosomes (XX), while males have one X and one Y chromosome (XY)**.
- To balance gene expression, one of the X chromosomes in females is randomly inactivated in each cell. This process is called **X-chromosome inactivation (XCI)**.
- X chromosome inactivation (XCI)** balances gene expression but incomplete inactivation can cause diseases.
- During XCI, a **long RNA molecule called XIST (pronounced "exist") wraps around one of the X chromosomes, effectively silencing its genes**.





## INSURGENCY IN NORTH-EAST REGION (NER)

**Why in News:** The National Investigation Agency (NIA) charge sheet alleges that the National Socialist Council of Nagaland-IsakMuivah (NSCN) "China- Myanmar module aided banned Meitei insurgent groups in Manipur, raising concerns about the group's commitment to peace.

### The NSCN-IM and Peace Talks

- The **NSCN-IM**, a Naga insurgent group, has been engaged in a decade long insurgency demanding greater autonomy or even independence for the **Naga people**.
- In **1997**, a cease fire pact was signed between the Indian government and the NSCN-IM leadership based in India.
- To find a lasting political solution, a framework agreement was signed in 2015.

### The Charge sheet Implications

- The NIA charge sheet accuses the NSCN-IM's "China-Myanmar module "of supporting armed groups in Manipur.
- These groups are allegedly aiming to exploit existing ethnic tensions in Manipur and destabilize the state.
- This allegation raises questions about the NSCN-IM's commitment to peace and its potential involvement in fomenting unrest in other parts of the Northeast.

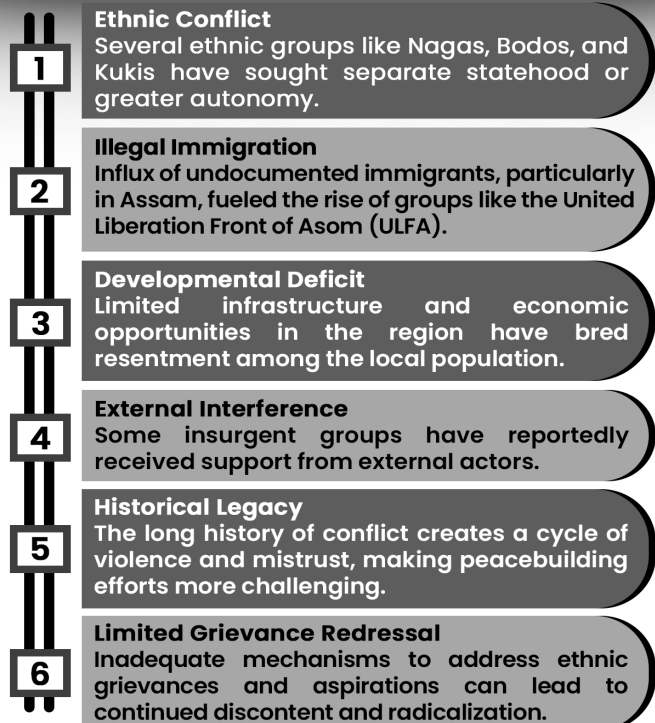
### Steps taken to tackle Insurgency in NER

- **Political Dialogues:** Initiated peace talks and signed agreements such as the **Bodo Peace Accord (2020)** and the **Bru-Reang Agreement (2020)** to address insurgency.
- **Prime Minister's Development Initiative for North East Region (PM-DevINE)** announced as a new Central Sector scheme, with 100% Central funding, in the Union Budget 2022-23 and approved by the Union Cabinet on 12 October, 2022 with a total outlay of Rs.6,600 crore for the 4-year period from 2022-23 to 2025-26, aims at rapid and holistic development of NER by funding infrastructure and social development projects based on felt needs of the States.
- The **objectives of PM-DevINE** scheme are to: (i) fund infrastructure convergently, in the spirit of PM GatiShakti; (ii) support social development projects based on felt needs of the NER; (iii) enable livelihood activities for youth and women.

- **Confidence-Building Measures:** Implemented civic action programs and surrender/rehabilitation policies for insurgents to build trust and foster peace.
- **International Cooperation:** Enhanced cooperation through intelligence sharing and coordinated operations with neighbouring countries like Bangladesh, Bhutan, and Myanmar to combat insurgency.

## Insurgency in the North-East

The North-Eastern region of India has grappled with insurgency for over 50 years. Various insurgent groups have emerged, each with its demands.



### Way Forward

- **Addressing Root Causes:** Focus on development initiatives, address ethnic grievances through dialogue, and ensure inclusive growth in the region.
- **Sincere Negotiations:** Continued engagement with genuine insurgent groups committed to peaceful resolution is essential.
- **Strong Border Management:** Effective border security can prevent external support to insurgent groups.
- **Community Outreach:** Engaging local communities and





**Other Rifle Acquisitions**

- **SIG-716 Assault Rifles:** In addition to the AK-203 rifles, the Indian Army has also inducted 66,400 SIG-716 assault rifles for frontline troops.
  - This acquisition is part of the ongoing efforts to bolster the Army’s small arms capabilities and ensure that soldiers are equipped with the best possible tools for their missions.

**Way Forward**

- **Increase Indigenization:** Achieving the target of 70% indigenization in AK-203 production will require continuous efforts in technology transfer and development of local supply chains.
- **Enhance Training Programs:** To fully utilize the advanced features of the AK-203 rifles, the Indian Army should implement comprehensive training programs for its personnel, ensuring they are proficient in the use and maintenance of these weapons.
- **Expand Joint Ventures:** Expanding joint ventures with international defense companies can further enhance India’s defense manufacturing capabilities and ensure access to cutting-edge technology.
- **Strengthen R&D Efforts:** Investing in research and development(R&D) within the defense sector can lead to the creation of indigenous designs and innovations, reducing the need for imports.

**Conclusion**

The induction of AK-203 assault rifles marks a significant milestone in the Indian Army’s modernization efforts. With strategic indigenization plans and on going enhancements in small arms capabilities, India is poised to strengthen its defense infrastructure and ensure the readiness of its armed forces.

**EXPECTED QUESTIONS FOR UPSC CSE**

**Prelims MCQ**

Q. With reference to the AK-203 Assault Rifles, consider the following statements:

1. It is the advanced version of the Kalashnikov assault rifle.
2. It will replace the INSAS rifles that have been in service for over three decades.

Which of the statements given above is/are correct?

A. 1 only                      B. 2 only  
 C. Both 1 and 2              D. None

Answer: C

**Descriptive Question**

Q. What are the key features and specifications of the AK-203 assault rifle? Discuss the Indian plans to develop indigenous defense equipment. [15 Marks] [250 words]

**ENHANCED AIR DEFENSE FOR INDIAN ARMY**

**Why in News:** Recently, the Indian Army is set to bolster its air defense capabilities with the acquisition of **Russian Igla-S very short-range air defense systems (VSHORAD)**.

**About the Acquisition of Igla-S VSHORAD**

- The Igla-S system, **sourced from Russia**, is a comprehensive air defense solution designed to counter various aerial threats.
- The delivery of these systems is **expected by the end of May or early June**.

System Components	
<b>9M342 Missile</b> This is the primary component, capable of targeting and neutralizing low-flying aircraft, cruise missiles, and drones.	<b>9P522 Launching Mechanism</b> Essential for the deployment of the 9M342 missile.
<b>9V866-2 Mobile Test Station</b> Used for on-the-go system diagnostics and maintenance.	<b>9F719-2 Test Set</b> Ensures the functionality and readiness of the system components.

Capabilities	
The Igla-S is a versatile, hand-held defense system that can be operated by an individual or a small crew. It offers several critical capabilities:	
<b>Targeting Low-Flying Aircraft</b> Specifically designed to bring down aircraft flying at low altitudes.	<b>Neutralizing Cruise Missiles and Drones</b> Equipped with technology to identify and intercept these threats effectively.

<b>Deployment and Strategic Importance</b>	The Igla-S systems are earmarked for deployment in the high mountainous regions along India’s northern border.
	This strategic positioning enhances India’s defense posture in these sensitive areas.
	One regiment has already been equipped with these systems, marking a significant step towards strengthening air defense in challenging terrains.

Looking ahead, the Indian Army plans to upgrade to more advanced VSHORAD systems featuring laser-beam riding & infrared technology.	<b>Future Developments and Indigenous Efforts</b>
The Defense Research and Development Organization (DRDO) has made notable progress in this direction, with successful flight tests of indigenous VSHORAD missiles.	
This development underscores India’s commitment to achieving self-reliance in defense technology.	

## Analysis and Impact

- **Addressing Capability Gaps:** The acquisition of Igla-SVSHORAD systems is crucial for filling the existing gaps in India's air defense network.
- These systems provide a much-needed boost to counter low-altitude aerial threats, enhancing overall national security.
- **Strategic Advantages:** Deploying these systems in high-altitude regions is strategically significant.
- It fortifies India's defense capabilities in areas prone to conflict, especially along the northern borders where air defense is paramount.
- **Technological Advancements:** The transition from foreign-acquired systems to indigenous solutions signifies a major leap in India's defense technology.
- DRDO's successful tests of indigenous VSHORAD systems highlight India's growing expertise and self-reliance in advanced military technology.
- **Operational Readiness:** With the integration of Igla-S systems, the Indian Army will be better prepared to handle immediate threats.
- The capability to quickly neutralize drones and low-flying aircraft is a critical asset in modern warfare, where such threats are increasingly common.
- **Future-Proofing Defense Infrastructure:** As the Army plans to transition to next-generation VSHORAD systems, the foundation laid by the Igla-S acquisition will be crucial.
- The ongoing development and successful testing of indigenous systems pave the way for a future where India can independently meet its defense needs.

## Way Forward

- **Enhanced Training and Integration:** Conduct extensive training programs for personnel to ensure seamless integration and optimal use of Igla-S systems.

- **Accelerate Indigenous Development:** Expedite the development and deployment of indigenous VSHORAD systems to reduce reliance on foreign technology.
- **Strategic Deployment:** Expand the deployment of VSHORAD systems to other critical regions, ensuring comprehensive air defense coverage.
- **Collaborative Defense Initiatives:** Engage in international collaborations for technological advancements and joint exercises to enhance operational readiness.
- **Continuous Upgradation :** Regularly upgrade the existing systems with the latest technology to maintain a cutting-edge defense infrastructure.

## Conclusion

The acquisition of Igla-S VSHORAD systems marks a pivotal moment in strengthening India's air defense capabilities. By addressing current gaps and laying the groundwork for future advancements, this move significantly enhances national security and prepares the Indian Army for emerging aerial threats.

### EXPECTED QUESTIONS FOR UPSC CSE

#### Prelims MCQ

Q. Which country supply Igla- S to India?

- |            |            |
|------------|------------|
| (a) USA    | (b) France |
| (c) Russia | (d) Israel |

Answer:

#### Descriptive Question

Q. Enumerate the key features and capabilities of the Igla-S VSHORAD system? What is the strategic significance of acquiring the Igla-S VSHORAD system for the Indian Army? [15 Marks] [250 words]

## MENSTRUAL LEAVE

**Why in News:** The Supreme Court of India recently declined to hear a petition, advocating for menstrual leave for female workers and students across the country, stating that the issue fell within the domain of policy and directed the petitioner to make a representation to the Ministry of Women and Child Development, which may take an appropriate decision in this regard.

### Understanding Menstrual Leave

- Menstrual leave is a policy that allows women to take paid or unpaid time off from work or school during their menstrual periods.
- This policy aims to accommodate women without fear of losing pay or facing disciplinary action.

### The Need for Menstrual Leave

- **Addressing Painful Symptoms:** Menstruation can cause severe symptoms that hinder job performance.
- **Job Security:** Ensures women can take necessary leave without fear of losing pay or facing disciplinary actions.
- **Enhanced Productivity:** Allows women to fully participate and perform to their potential.
- **Reducing Stigma:** Promotes a culture of openness and support, reducing the stigma associated with menstruation.

### Arguments against Menstrual Leaves

- **Gender Discrimination:** Extra leave days for women might lead to perceptions of reduced capability or commitment compared to male colleagues.
- **Productivity Concerns:** Opponents argue that menstrual leave could reduce overall productivity.
- **Implementation Challenges:** Small and medium-sized enterprises might struggle to manage the workforce effectively if additional leave days are taken.
- **Unintended Consequences:** Mandatory policies might discourage employers from hiring women.

### Way Forward

- **Awareness Initiatives:** Educate employers, employees, and policymakers on the importance of menstrual health and the need for menstrual leave policies.
- **Remote Work Options:** Companies can offer flexible work arrangements to accommodate menstrual discomfort.
- **Stakeholder Engagement:** Policymakers should consult with health experts, labor organizations, and other stakeholders to develop comprehensive policies.
- **Testing Policies:** Implement pilot programs to assess the effectiveness and impact of menstrual leave policies on businesses and employees.
- **Ongoing Dialogue:** Maintain discussions at various levels to ensure the topic remains on the policy agenda.

### Global Examples of Menstrual Leave

<b>Spain</b> Offers three to five days of paid menstrual leave per month.	<b>Japan</b> Since 1947, women can take leave during difficult menstrual periods.	<b>Indonesia</b> Provides leave for the first two days of the menstrual cycle.	<b>Zambia</b> One day of unpaid leave per month, known as "Mother's Day."
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### Menstrual Leave Policy in India

#### Corporate Initiatives

<b>Zomato</b> Introduced a 10-day paid period leave per year in 2020.	<b>Other Companies</b> Introduced a 10-day paid period leave per year in 2020.
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#### State Government Actions

● **Bihar and Kerala** ●

The only Indian states to have granted menstrual leave to women.

#### Parliamentary Measures

<b>The Menstruation Benefits Bill, 2017</b> Introduced by Arunachal Pradesh MP Ninong Ering.
<b>Women's Sexual, Reproductive, and Menstrual Rights Bill, 2018</b> Proposed by Shashi Tharoor to make sanitary pads freely available on public premises.

### EXPECTED QUESTIONS FOR UPSC CSE

#### Prelims MCQ

- Q. Consider the following statements:
1. Currently, there is no national policy or law for menstrual leave.
  2. No Indian states have granted menstrual leave to women.
  3. Madras High Court is the first High Court to introduce a menstrual leave policy.

How many of the above statements are correct?

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

Answer: a (1 only)

**Descriptive Question**

Q. How does India's stance on menstrual leave compare to other countries? What alternative measures can be taken to address menstrual health and well-being in India? [10 marks] [150 words]

**ILLEGAL HOARDINGS IN INDIA**

**Why in News:** The recent collapse of a giant outdoor hoarding in Mumbai, resulting in the tragic deaths of 16 people and injuries to over 70 others, has brought to light the pervasive issue of illegal hoardings in India.

**Reasons behind Illegal Hoardings in India**

- **Inadequate monitoring by local authorities:** Hoarding operators often install oversized advertisements, significantly exceeding permissible limits due to the lack of effective oversight by municipal bodies.
  - For instance, the collapsed hoarding in Mumbai was nine times the permissible size.
- **Lack of Transparency:** Many cities in India have outdoor advertisement policies that lack provisions for strict and timely action against illegal hoardings.
- **Ineffective Enforcement:** The enforcement of existing policies is often inadequate, allowing illegal hoardings to proliferate.
- **Unauthorized Temporary Installations:** Temporary banners and flexes, often put up by political parties, are not covered under municipal advertising policies but pose significant safety risks.
- **Corruption:** Corruption within local bodies hinders the enforcement of policies related to illegal hoardings.

**Issues with Urban Governance Contributing to Illegal Hoardings**

- **Improper Devolution of Powers:** The 74th Amendment requires state governments to delegate 18 functions to municipalities, including land use regulation. While the 73rd Amendment came into force on April 24, 1993, the 74th Amendment came into effect on June 1, 1993.
  - However, as per a NITI Aayog report, no state has fully delegated these functions, weakening municipal control over illegal hoardings.
- **Overlapping Jurisdiction:** Urban local bodies often face overlapping jurisdictions with state agencies, causing confusion and shifting accountability.
- **Lack of Regular Civic Elections:** Delays in holding civic body elections diminish the powers of urban bodies.

**Impacts of Illegal Hoardings in India****Safety Hazards**

Illegal hoardings pose structural risks, with poorly constructed hoardings at risk of collapsing, endangering pedestrians and vehicles. The Mumbai hoarding collapse is a stark reminder of these dangers.

**Environmental Concerns**

The removal of illegal hoardings generates waste materials, exacerbating India's solid waste problem.

**Unfair Competition**

Legal advertisers face unfair competition from illegal operators who evade the costs of permits and compliance.

**Revenue Loss**

Local municipalities lose potential revenue due to the evasion of advertising fees by illegal hoarding operators.

**Laws Regarding the Removal of Illegal Hoardings in India**

- **Delhi Outdoor Advertising Policy, 2017**

This policy mandates that owners of non-compliant advertisements remove the structures within a specified time, failing which municipal authorities will remove them.

- The policy also allows for the suo motu removal of unauthorised devices that pose traffic hazards.

- **Bruhat Bengaluru Mahanagara Palike Advertisement Rules, 2021**

These rules empower the Chief Commissioner to remove unauthorised hoardings and establish an Advertisement Regulatory Committee to monitor compliance and enforcement.

- **Tamil Nadu Urban Local Bodies Rules, 2023**

These rules require municipal officials to review the licensing of hoardings every three months and submit quarterly reports to the chief administrative officer of the urban local body.

**Need of Hour**

- **Instituting Transparency in Advertising Policies:** Policies should clearly outline the process for raising complaints against illegal advertisements and the subsequent actions to be undertaken.
- **Appointment of Inter-Departmental Bodies:** Constituting inter-departmental bodies for periodic inspections of outdoor advertisements can ensure compliance with legal standards.
- **Effective Deployment of Technologies:** Corporations



**Conclusion**

As we commemorate the **50th anniversary of the EPI**, it is essential to build on its successes and address the challenges that remain. By transforming the EPI into an Essential Programme on Immunization, we can ensure that vaccination continues to save lives, prevent diseases, and contribute to global health security for generations to come.

**EXPECTED QUESTIONS FOR UPSC CSE**

**Prelims MCQ**

Q. Consider the following statements about Expanded Programme on Immunization (EPI):

1. It was launched by World Health Organisation.
2. The Global Alliance for Vaccines and Immunization (GAVI) was established to enhance EPI vaccine reach, particularly in the poorest countries of the world.

Which of the statements given above is/are correct?

(a) 1 only                      (b) 2 only

(c) Both 1 and 2              (d) Neither 1 nor 2

Answer: c

**Descriptive Question**

Q. What are the major achievements of the EPI? Mention the impact of the EPI over the past 50 years? [10 marks] [150 words]

**DEAF AND HARD OF HEARING (DHH) INDIVIDUALS IN INDIA**

**Why in News:** The Election Commission of India (ECI) made the announcement for the general election 2024 in March with the absence of sign language interpreters.

**Constitutional Frameworks for Disabled in India**

- Every person including the disabled has his life and liberty guaranteed under Article 21 of the Constitution of India.
- Article 41 of the Directive Principles of State Policy (DPSP) talks about role of state towards disables.
- The subject of 'relief of the disabled and unemployable' is specified in the state list of the Seventh Schedule of the constitution.

**Current Status**

- According to the 2011 Census, there are five million hearing-impaired people in India.
- The National Association of the Deaf estimated around 18 million hearing-impaired people in India.
- The World Health Organization estimates in India, there are approximately 63 million people, who are suffering from Significant Auditory Impairment.

- As per NSSO survey 2001, estimated 291 persons per one lakh population who were suffering from severe to profound hearing loss.

Proportion of Disabled Population by Type of Disability India: 2011 (%)			
Type of Disability	Persons	Males	Females
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
In Seeing	18.8	17.6	20.2
In Hearing	18.9	17.9	20.2
In Speech	7.5	7.5	7.4
In Movement	20.3	22.5	17.5
Mental Retardation	5.6	5.8	5.4
Mental Illness	2.7	2.8	2.6
Any Other	18.4	18.2	18.6
Multiple Disability	7.9	7.8	8.1

**Government's Approach**

**National Programme for Prevention and Control of Deafness**  
Mainly focuses on screening and hearing aids without addressing the broader quality of life or integrating Indian Sign Language (ISL).

**The Rights of the Persons with Disabilities (RPwD) Act, 2016**  
Ensure that the education to persons who are blind or deaf or both is imparted in the most appropriate means of communication.

**National Education Policy 2020**  
Recommends the teaching of Indian Sign Language (ISL) across schools. Despite this recommendation, the use of ISL remains sparse, especially in schools for the deaf.

**The Indian Sign Language Research and Training Centre (ISLRTC)** is working on the translation of NCERT textbooks for class VII and onwards.

**Indian Sign Language (ISL)**  
The 3rd edition of the ISL Dictionary contains a total of 10,000 terms of everyday use, academic terms, legal & administrative terms, medical terms, technical terms, and agricultural terms.







**Descriptive Question**

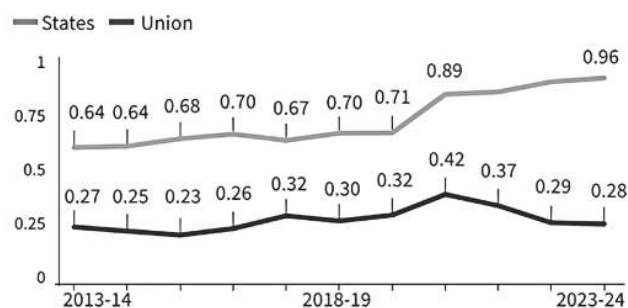
Q. Illustrate the underlying reasons or factors contributing to the involvement of foreigners in organ transplant violations. What are the challenges in enforcing regulations and preventing organ transplant violations across international borders? [15 marks] [250 words]

**HEALTHCARE PRICING IN INDIA**

**Why in News:** Recently, the Supreme Court of India, while hearing a Public Interest Litigation (PIL), directed the central government to find ways to regulate the rates of hospital procedures in the private sector.

**Key Details**

- The Supreme Court of India highlighted the problem using the procedure costs of cataract surgeries that cost only around ₹10,000 in a government hospital and between ₹30,000 to ₹1,40,000 in private health centres.
- The apex court invoked Rule 9 of the Clinical Establishments (Registration and Regulation) Act, 2010 and ruled the Central Government Health Scheme rates as an interim measure if the government failed to find ways to regulate rates.



Expenditure on health ministries and departments (as % of GDP) by the Union and all state governments.

**Way Forward**

- **Yardstick competition:** Regulatory authorities should determine benchmark prices based on market observations by integrating diverse patient profiles and reliable price data.
- **Standard treatment guidelines:** These guidelines can help establish relevant clinical requirement, the nature and extent of care, and the costs of total inputs required for various hospital procedures while ensuring clinical autonomy.
- **Broader stakeholder participation:** With government support, consumer and service provider can agree on pricing that provides a reasonable and sustainable surplus over and above the input costs.
- **Evidence driven policy:** Impact of regulatory measures on care affordability, quality, and provider behavior could be assessed through a comprehensive Meta-analysis for informed policy decisions.
- **Policy Adoption:** The government should create an Indian version of Diagnostics-Related Groups (DRGs).
- **Increasing insurance coverage-** India has one of the lowest insurance coverage, government contribution is only 32% as compared to 84% in the UK.
- **Need of adequate funding for healthcare:** Public spending on health has been stuck at around 1% of GDP for close to 15 years.

**Benchmark for Healthcare Pricing in India - A challenge**

**Weak Regulatory Frameworks**

1 In India, Private health centers are the main provider of services, with market-determined prices, leading to inefficiencies and inequities and thus, require regulation.

**Unreliable Price Data**

2 In a highly unregulated market-driven context, private health service providers mainly focus on profit through higher prices and overprovision of care.

**Demand and Supply Mismatch**

3 Majorly, government hospitals in India failed to compete with private health sector due to long wait times, service quality issues, and patient information gaps, resulting perpetuating the risk of supplier-induced demand.

**Enforcement challenges**

4 Only a fraction of states and union territories implemented Clinical Establishments (Registration and Regulation) Act, 2010.

**Rule 9 Clause 2 of Clinical Establishments (Registration and Regulation) Act, 2010** requires that “clinical establishments shall charge the rates for each type of procedures and services within the range of rates determined and issued by the Central Government from time to time, in consultation with State Governments”.

**EXPECTED QUESTIONS FOR UPSC CSE**

**Prelims MCQ**

Q. Consider the following statements:

1. Health care pricing in India are highly unregulated.
2. The private sector is predominantly a care service provider in India.
3. The Government spending on public health is more than 2.5 per cent of India’s GDP.

How many of the statements given above are correct?

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

Answers: (1) and 2 only

**Descriptive Question**

Q. There is a need of a health care rate standardization policies in India that must be feasible, easily implementable, and follow established price discovery practices. Discuss. [15 marks] [250 words].

**MENSTRUAL HYGIENE IN INDIAN PRISONS**

**Why in News:** In a recent study, it was found that there have been improvement in usage of menstrual hygiene products among the women of urban areas and certain demographics, however menstrual hygiene of female prisoners are grossly neglected across India.

**Key Details**

- A 2023 study in a Maharashtra prison highlighted severe deficiencies:
  - Many of the fifty women who had to share just two toilets for all of their everyday activities, including including excreting, changing napkins, and washing clothes ended up with urinary tract infections.
  - Prison authorities often rely on NGOs for sanitary napkins, resulting in the supply of substandard products.
  - In one case, each woman prisoner was given only one pair of 'reusable' sanitary napkins to manage her entire menstrual cycle.
- According to the National Crime Records Bureau the availability and quality of sanitary napkins has been inconsistent and unsatisfactory across different prisons in India.
- Despite the 2016 Model Prison Manual's recommendations, many prisons in India do not provide adequate water, washroom facilities, or quality sanitary products.

**Menstrual Hygiene**

- It is about creating an environment that supports women and girls' ability to manage their menstruation with dignity. It includes access to safe and affordable menstrual hygiene materials, sanitation and washing facilities, and knowledge about menstruation.

**Reasons Behind Poor Menstrual Hygiene of Female Prisoners in India**

- **Denied fundamental rights:** In a society where prisoners

are reasoned unworthy of fundamental rights, female prisoners are denied basic needs, including menstrual hygiene.

- **Budgetary constraints:** Providing menstrual products can be seen as an extra expense, especially in prisons with limited resources.
- **Overcrowding:** Overcrowded prisons can make it difficult for women to access basic necessities like water, soap, and detergent.
- **Lack of awareness:** Prison authorities may not be fully aware of the importance of menstrual hygiene or the specific needs of women during menstruation.
- **Lack of Legal Framework:** There is no law mandating the provision of free, unlimited sanitary products in prisons.

## Policy Intervention for Menstrual Hygiene in India

- Scheme for Promotion of Menstrual Hygiene**  
Implemented by Ministry of Health and Family Welfare to promote Menstrual Hygiene among adolescent girls in the age group of 10-19 years.
- The draft Menstrual Hygiene Policy (MHP) 2023**  
ensures comprehensive support through the entire menstrual journey.
- Pradhan Mantri Bharatiya Janaushadhi Pariyojana (PMBJP)**  
Suraksha Suvridha Napkins are available at Jan Aushadhi Kendras for Rs 1 each.
- National Guidelines on Menstrual Hygiene Management (MHM)**  
Developed by the Ministry of Drinking Water and Sanitation as part of Swachh Bharat Abhiyan, these guidelines aim to raise awareness of MHH in rural areas.
- Samagra Shiksha Abhiyan**  
This integrated scheme includes state-specific projects to improve MHH, such as installing sanitary pad vending machines and incinerators.
- Nirmal Bharat Yatra**  
Launched in 2012, this sanitation program includes MHH as a key component.
- Zero-Napkin Mission**  
The mission aims to replace synthetic napkins with menstrual cups implemented in Kerala.

**Way Forward**

- **Minimum Standards of Menstrual Hygiene:** The central government in coordination with state authorities must ensure that basic standards of menstrual hygiene for female prisoners are met appropriately.



## VALLABHACHARYA

**Why in News:** On May 4, 2024, which is Krishna Paksha Ekadashi in the Hindu month of Vaishakha, people celebrate Vallabhacharya Jayanti, the 545th anniversary of the guru's birth.

### Key Details

- Mahaprabhu Vallabhacharya (1479-1531), revered saint, philosopher, and founder of the Pushti sect within Vaishnavism was important personality in the bhakti movement.
- He excelled in numerous academic philosophical discussions against Advaita Vedantabelievers.
- On Govardhana Hill, he initiated the institutional worship of Sri Nathaji. He also assumed the role of acharya for the Viṣṇuswami school. In Gujarat and the Gangetic plain, he gained a large.

## Founder of Pushti Sect



1

Three types of souls exist, according to Vallabha: Pusti, Maryada, and Pravaha. The souls of Pusti and Maryada are divine beings with the capacity for redemption or elevation. The only effective way for the pusti ("complete" or "well-nourished") souls to attain devotion is through Krishna's favour; all other attempts are futile without God's grace.

2

Vallabha makes a distinction between the pusti and the maryada as two types of devotion. Following scriptural directives, Maryada adherents depend on their deeds and God's judgment for spiritual benefits.

3

Pusti adherents, on the other hand, rely only on God's support; they place a higher value on total devotion and selfless surrender than anybody else, imitating God's unwavering love and faith. Furthermore,

4

Vallabha highlights that everyone can follow the path of pusti, irrespective of gender or caste.

5

He issues a warning against viewing this path as being overly pleasure-focused, emphasizing that its true purpose is unadulterated, heavenly devotion free from material cravings.

6

Vallabhacharya established the Krishna-centered Puṣṭimarga sect in the Braj (Vraja) region of India.

7

The Puṣṭimarga emphasizes devotion (bhakti) and grace (pushti) as the central tenets of spiritual practice.

### Early Life

- Vallabhacharya was born in **1479 AD** at Kankaravaḍa on the southern bank of the Godavari River to a **Telugu Brahmin** family.
- His deep devotion to **Lord Krishna** shaped his spiritual journey.

### Philosophy: Suddhadvaita

- Vallabhacharya propounded the philosophy of **Suddhadvaita** (pure non-dualism).
- According to this doctrine, the individual soul (j va) is eternally connected to **Lord Krishna** and exists in a state of blissful union with the divine.
- Vallabhacharya emphasized **divine grace** as the means to attain liberation.
- While residing in his native town of Kankaravaḍa, Vallabha learned about a philosophical discussion (shastrartha) occurring at the court of King Krishnadevaraya of Vijayanagara. He also learned that Advaita Vedanta philosophers were defeating the Vaiṣṇava schools of thought. Vallabha promptly proceeded for Vijayanagara to participate in the argument, where he joined the Vaiṣṇava camp, which was headed by Madhva school scholar Vyasaṭīrtha. Kṛṣṇadevaraya bestowed vast quantities of gold upon Vallabha after he vanquished the Advaita philosophers with his knowledge and debating abilities

### Bhakti Movement

- Vallabhacharya played a pivotal role in the **Indian Bhakti Movement**.
- His teachings inspired countless devotees to cultivate a loving relationship with Lord Krishna through **devotional practices**.
- Among the several works he wrote are the Aṅubhaṣya (his commentary on the Brahma Sutras), the Ṣoḍasa Grantha (sixteen tracts), and numerous commentaries on the Bhagavata Puraṇa.

### Principal Acharya

- Vallabhacharya is one of the **five principal Acharyas** in Hinduism.
- His influence extends beyond his time, leaving a lasting impact on spiritual seekers.

Mahaprabhu Vallabhacharya's legacy lies in his devotion to Lord Krishna, the establishment of the Pushti sect, and his profound philosophical contributions.

**SRI MADHAVA PERUMAL TEMPLE**

**Why in News:** Madhava Perumal Temple visible after Bhavanisagar dam water depletion.

**Key Details**

- **Ancient Trade Route:** Inscriptions at the submerged Sri Madhava Perumal Temple reveal a 1,000-year-old trade route connecting the Kongu region in Tamil Nadu with southern Karnataka and Kerala, highlighting Thuravalur village and trade activities in the area.
- **Historical Significance:** Under Hoysala rule, King Veera Ballala III ordered the construction of Dhandanayaka Fort, and his general's son built the temple. The fort, known as Danaikan Fort, is now destroyed, with the temple's remains visible due to low water levels in the Bhavanisagar dam.
- **Submerged Heritage:** The temple, submerged for 68 years, has partially collapsed but retains intact pillars with inscriptions. Historians believe more submerged temples and inscriptions could be revealed if water levels drop further.
- **Excavation and Protection:** Researchers advocate for excavations to uncover more historical artifacts. Due to the temple's recent visibility, local authorities have restricted visitor access to protect the site and ensure safety amid low water levels in the dam.

**EXPECTED QUESTIONS FOR UPSC CSE**

**Prelims MCQ**

Q. Which of the following statements are correct regarding Vallabhacharya?

1. He is the founder of Advaita Vedanta.
2. He believed in pure non dualism.
3. He is one of the principal acharya of Hinduism.

Choose the correct option

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

Answer: (b, (2 and 3 only)

**Descriptive Question**

Q. What is the principles of the philosophy of Suddhadvaita? Also discuss the social reforms of the Vallabhacharya? [15 Marks] [250 words]

**SRI MADHAVA PERUMAL TEMPLE**



**HISTORY AND SIGNIFICANCE**

**Ancient Origins**  
 The historical references used depicted that the temple was constructed around the 8th century and hence was probably built when the Pallavas were still in power.

**Vaishnavite Tradition**  
 There are temples dedicated to Lord Shiva, Lord Vishnu out of which the deity is Madhava Perumal. It belongs to the Sri Vaishnavism sect which follows practices that have deep roots in history.

**Alvars and Divya Desams**  
 This temple is one of the 108 Divya Desams and is the Oriya temple of the twelve poet-saints called the Alvars of the South.

**ARCHITECTURE**

**Dravidian Style**  
 The temple has a distinct Dravidian architectural style, notably characterized by high towering ginghamp (gateway) towers and carved stone pillars.

**Sacred Tank**  
 There is also a holy water tank also called as "Mathsya Theertham" which is believed to be an effective spiritual bathing spot.

**Alvars and Divya Desams**  
 This temple is one of the 108 Divya Desams and is the Oriya temple of the twelve poet-saints called the Alvars of the South.

**FESTIVALS AND RITUALS**

**Brahmotsavam**  
 Sri Venkateswara is a enjoyed year-round but the most important festival in the temple is the annual Brahmotsavam festival which claims high attendance of devotees.

**Vaikunta Ekadasi**  
 One more important festival is Vaikunta Ekadasi and it is the celebration of the opening of the doors of 'Vaikunta Dwaram' or the door to heaven.

**CULTURAL IMPACT**

**Literary Connections**  
 It has been referred in different tamils texts and hymns sung by the 'alvars' who are considered as the twelve precious gems of Vaishnavism.

**Local Community**  
 Mylapore in particular is home to one of the oldest and most important temples in southern India, which continues to be an important center for worship and other social activities.

### Bhavanisagar Dam

Bhavanisagar Dam, also called lower Bhavani Dam, is located in the Erode district of Tamilnadu, India, on the Bhavani River (a tributary of the Kaveri River). It is one of the oldest and biggest earthen dams in India.

#### EXPECTED QUESTIONS FOR UPSC CSE

##### Prelims MCQ

Q. Consider the following pairs:

Temple	Place
1. Shore temple	Karnatka
2. Konark Sun Temple	Odisha
3. Perumal Temple	Tamil Nadu

How many of the pairs given above is/are correctly matched?

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

Answer: (b) (2 and 3 only)

##### Descriptive Question

Q. What is the historical significance of the Madhava Perumal Temple? Discuss the bhakti movement in the south India. [10 Marks] [150 words]

## GANGA JATARA

**Why in News:** A folk festival that the state government celebrates annually in Tirupati to honour the local folk Goddess Thataiahagunta Gangamma, younger sister of Lord Venkateswara, has been rescheduled this year due to general elections.

### About Ganga Jatara

- Ganga Jatara is an annual folk festival observed in southern India, including Karnataka, Rayalaseema, and Andhra Pradesh.
- The festival is dedicated to Sri Thathaya Gunta Gangamma, the Gramadevata (village goddess) of Tirupati, who is regarded as the younger sister of Lord Venkateswara.
- The folk festival is organized with the purpose of appeasing the 'Grama Devatha' or village deity. It spans seven days and involves devotees wearing different costumes, applying colors to their bodies, and participating in processions along the streets near the temple.

### Why Ganga Jatara is celebrated?

Ganga Jatara, otherwise referred to as Gangamma Jatara is a popular folk festival primarily observed in the Rayalaseera region of Andhra Pradesh state in India. Another temple is situated in this village and dedicated to the deities Gangamma, who is the village deity as well as an avatar of Shakti.

- Veneration of the Local Deity:** The idol of Gangamma is mainly that of a fierce goddess who is revered as the deity that safeguards her devotees from the bad forces of the world and also bestows upon them abundance and prosperity in their lives. The celebration of the festival acts as a opportunity for the people in the community to show their worship and to seek her blessings.
- Harvest Celebration:** Ganga Jatara is supposedly to be related typically with agricultural cycles. It is held at the time of crops yield, and the performances are supposed to be an act of appreciating the goddess and a plea for better yield.

#### EXPECTED QUESTIONS FOR UPSC CSE

##### Prelims MCQ

Q. Match the following pairs

Festivals	Place associated
1. Ganga Jatara	Tirupati
2. Hornbill	Manipur
3. Durga Puja	Bihar

How many pairs given above are correctly matched?

- (a) One only
- (b) Two only
- (c) Three only
- (d) None

Answer: (b) (1 only)

##### Descriptive Question

Q. What is Ganga Jatara? Discuss the key traditions observed during Ganga Jatara? [15 Marks] [250 words]

## NYISHI TRIBE

**Why in News:** Kabak Yano, a renowned mountaineer and cricketer, has made history by becoming the fifth woman from Arunachal Pradesh and the first from the Nyishi tribe to scale Mount Everest.

## About Nyishi Tribe

### Ethnic and Linguistic Identity

- The Nyishi tribe is the largest ethnic group in **Arunachal Pradesh, India**.
- The term “Nyishi” is derived from their language, where “Nyi” means “a man” and “shi” signifies “a being,” collectively translating to “a civilized human being.”
- The **Nyishi language belongs to the Sino-Tibetan family**, although its precise origins remain a topic of academic debate.

### Geographical Distribution

- The Nyishi people predominantly reside in eight districts of Arunachal Pradesh: East Kameng, Pakke Kesang, Papum Pare, Lower Subansiri, Kamle, Kra Daadi, Kurung Kumey, and Upper Subansiri.
- There are also smaller populations in the Sonitpur and North Lakhimpur districts of Assam.
- They are the largest tribal group in Arunachal Pradesh, with an estimated population of around 300,000.

### Socio-Economic Practices

- The Nyishi community traditionally engages in **slash-and-burn agriculture**, hunting, and fishing.
- They are also known for their **craftsmanship in weaving**, cane and bamboo work, pottery, blacksmithing, wood carving, and carpentry.
- These skills not only support their economy but also preserve their cultural heritage.

### Religious Beliefs and Practices

- According to the **2011 Census**, **31% of Nyishis follow Christianity**, and 29% adhere to Hinduism.
- Many continue to practice their indigenous religion, Donyi Polo, which involves the worship of the Sun (Donyi) and the Moon (Polo) as divine entities.

### Cultural Festivals

- Nyishi cultural life is marked by three **major festivals: Boori-Boot and Nyokum in February, and Longte in April**.
- These festivals are communal celebrations aimed at appeasing deities to ensure bountiful harvests, health, wealth, and overall prosperity.
- They are integral to maintaining social cohesion and cultural identity.

The Nyishi society is **patrilineal and organized into various clans**, with polygyny being a common practice.

Unlike many other communities, the **Nyishis do not have a caste system** or rigid social classes, although they recognize flexible social distinctions not based on birth or occupation.

### Social Structure and Gender Roles

The **‘reciprocal marital exchange’** system further highlights the importance of women in their social structure.

**Women hold a significant place in Nyishi society**, often seen as pillars of peace, progress, and prosperity.

### Challenges

- The Nyishi tribe, like many indigenous communities, faces issues such as economic marginalization, limited access to education and healthcare, and the erosion of cultural practices due to modernization.
- Addressing these challenges requires sustained efforts from both governmental and non-governmental organizations.

### Conclusion

Kabak Yanó’s historic ascent of Mount Everest is more than just a personal triumph; it is a beacon of hope and inspiration for the Nyishi tribe and beyond. By addressing the challenges and building on the positive impacts of her achievement, there is a path forward for greater recognition, empowerment, and development of the Nyishi community and other indigenous groups in Arunachal Pradesh.

### EXPECTED QUESTIONS FOR UPSC CSE

#### Prelims MCQ

- Q. Which one of the following statements is correct about Nyishi tribe?
- It is one of the major tribe of Assam.
  - There is no major role of women in Nyishi society.
  - First time in the history Nyishi tribe reached Mt Annapurna.
  - Boori-Boot, Nyokum, and Longte are the major festivals celebrated by Nyishi tribes.

Answer: d





### Challenges

- **Market Competition** Despite the GI tag, artisans face stiff competition from machine-made and synthetic alternatives, which are often cheaper and more widely available.
- **Awareness and Promotion** Raising awareness about the GI tag and its benefits among both consumers and artisans remains a challenge. Effective marketing strategies are essential to highlight the uniqueness of Kutch Ajrakh.
- **Sustainability of Natural Resources** Ensuring a steady supply of natural dyes and materials is crucial. Over-reliance on specific natural resources can lead to depletion and environmental degradation.

### Conclusion

The GI tag for Kutch Ajrakh is a significant milestone that celebrates the rich cultural heritage and exceptional craftsmanship of the Kutch artisans. It offers an opportunity to enhance economic conditions, promote sustainability, and preserve a unique cultural legacy.

#### EXPECTED QUESTIONS FOR UPSC CSE

##### Prelims MCQ

Q. Which of the following has/have been accorded 'Geographical Indication' status?

1. Kapdaganda Shawl
2. Kutch Ajrakh
3. Kachchhi Desi Kharek

Select the correct answer using the code given below:

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

Answer: c

##### Descriptive Question

Q. How Ajrakh traditional art form reflect the country's cultural heritage and exceptional craftsmanship? [10 marks] [150 words]

## UNESCO ADDS THREE INDIAN LITERARY MASTERPIECES

**Why in News:** During the tenth session of the Memory of the World Committee for Asia and the Pacific (MOWCAP) held in Ulaanbaatar, Mongolia, three Indian literary works—Ramcharitmanas, Panchatantra, and Sahrdyaloka-Locana—were included in UNESCO's Memory of the World Asia-Pacific Regional Register.

### Significance of the Recognized Works

- The inclusion of these texts highlight their global appeal and profound influence on both Indian and international audiences.
- Each work is celebrated for its unique contributions to literature, culture, and philosophy.

**Ramcharitmanas**

**Global Reach**

The Ramayana, and specifically the Ramcharitmanas, are widely read across Southeast Asia, in countries like Cambodia, Thailand, Sri Lanka, and Indonesia.

**Versions Submitted**

UNESCO recognized two versions of the **Ramcharitmanas—one by Goswami Tulsidas and another translated into Arabic** in the 18th century, demonstrating its broad appeal in West Asia.

**Panchatantra**

**Universal Lessons**

Selected for its **timeless moral lessons**, the Panchatantra has been a cornerstone of ethical storytelling, influencing cultures worldwide with its fables that teach wisdom and justice.

**Sahrdyaloka-Locana**

**Aesthetic Significance**

Authored by renowned Kashmiri scholars Acharya Anandvardhan and Abhinavagupta, this work is celebrated for its profound aesthetic insights, contributing to Indian and global literary and philosophical traditions.

#### About the Memory of the World (MOW) Program

- The UNESCO Memory of the World (MOW) program is a **global initiative aimed at preserving, protecting, and enhancing access to documentary heritage**.
- This includes collections that are rare and at risk of being lost.

#### Program Launch and Objectives

- **Initiation:** The MOW program was **launched in 1992** with the goal of preventing "collective amnesia" by safeguarding invaluable archives and library collections worldwide.
- **Key Objectives:** The program focuses on preservation, equitable access, and widespread dissemination of documentary heritage.

#### Way Forward

- **Enhanced Digital Archiving:** Develop robust digital archives to preserve and provide global access to these texts.
- **Government Support:** Increase government funding and support for the preservation and promotion of literary heritage.

- **Educational Integration:** Integrate these texts into educational curricula to ensure that younger generations understand their significance.
- **Public Engagement:** Utilize media and public campaigns to raise awareness about the importance of these literary works.
- **International Collaboration:** Foster international partnerships to share best practices in preservation and access, and to promote these works globally.

### Conclusion

The inclusion of Ramcharitmanas, Panchatantra, and Sahrdayaloka-Locana in UNESCO's Memory of the World Asia-Pacific Regional Register is a significant step in preserving India's literary heritage. It underscores the importance of these works in global culture and calls for continued efforts in preservation, accessibility, and education to ensure their legacy.

### EXPECTED QUESTIONS FOR UPSC CSE

#### Prelims MCQ

Q. 'Sahrdayaloka-Locana', a Sanskrit commentary on the Dhvanyaloka, is authored by:

- (a) Rokeya S Hossain                      (b) Vishnu Sharma  
(c) Acharya Anandvardhan              (d) Goswami Tulsidas

Answer: (a)

#### Descriptive Questions

Q. Highlights the significance of inclusion of Indian literary works like Ramcharitmanas, Panchatantra, and Sahrdayaloka-Locana in 'UNESCO's Memory of the World Asia-Pacific Regional Register'. [10 Marks] [150 words]



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# GOVERNMENT SCHEMES

## UNIVERSAL IMMUNISATION PROGRAM

**Why in News:** The Expanded Programme on Immunization (EPI), which was started by the World Health Organization (WHO), recently celebrate its 50th anniversary, World Immunization Week (24 to 30 April).

### Background of Immunization (India)

- In 1978, the Expanded Program on Immunization was started by the Ministry of Health and Family Welfare. When its scope beyond metropolitan areas in 1985, it was dubbed the Universal Immunization Programme.
- It joined the **Child Survival and Safe Motherhood Program in 1992**, and the **National Reproductive and Child Health Program** took it under its wing in 1997.
- Universal Immunization Program has been a key component of the **National Rural Health Mission** since its inception in 2005.
- Immunization against **12 vaccine-preventable diseases** is provided free of cost under UIP:
- **Nationwide campaign against nine illnesses:** severe childhood tuberculosis, hepatitis B, meningitis, pneumonia spurred by hemophiles influenza type B, pertussis, polio, measles, rubella, and severe form of tuberculosis in children
- **Sub-nationally against three diseases:** Japanese encephalitis, Pneumococcal Pneumonia, and Rotavirus Diarrhea. Of these, the Pneumococcal Conjugate and Rotavirus Vaccines are now being expanded, while the JE Vaccine is only available in endemic districts.
- But in the past, it was seen that the increase in immunization coverage had slowed down and it increased at the rate of 1% per year between 2009 and 2013.
- To accelerate the coverage, Mission Indradhanush was envisaged and implemented since 2015 to rapidly increase the full immunization coverage to 90%.

### Vaccines

- **Inactivated Polio Vaccine (IPV):** To reduce the risk of the tOPV to bOPV switch, IPV was included to the UIP as part of the global polio end-game strategy.
- **The rotavirus vaccine (RVV):** It was first made available in March 2016 with the goal of lowering the death and

morbidity rates associated with rotavirus diarrhea. Since 2019–20, the vaccination is made available nationwide.

- **Measles Rubella (MR) vaccine:** India is dedicated to achieving the goals of rubella control and measles eradication. In 2017, the MR vaccination was gradually introduced to the nation through a campaign approach. The MR campaign aims to **immunize 41 crore children** between the ages of **9 months and 15 years** with two doses of the regular vaccine given at 9–12 months and 16–24 months.
- **Pneumococcal Conjugate Vaccine (PCV):** This vaccine was introduced in May 2017 with the goal of lowering infant pneumonia-related morbidity and mortality.
- **Tetanus and adult diphtheria (Td) vaccine:** To prevent older age groups' decreasing immunity to diphtheria, the Td vaccine has taken the place of the TT vaccine in the UIP.

## Mission Indradhanush

Launched in December 2014, Mission Indradhanush (MI) aimed to cover all those children who are partially vaccinated or unvaccinated. 'Mission Indradhanush' special focus was on 201 high focus districts.

Mission Indradhanush has been completed in six phases, encompassing 554 districts nationwide.

## Intensified Mission Indradhanush 4.0:

- 1 It will ensure that Routine Immunization (RI) services reach unvaccinated and partially vaccinated children and pregnant women. Children up to two years will be covered in this drive.
- 2 Three rounds of IMI 4.0 will be conducted in 416 districts, including 75 districts identified for Azadi ka Amrit Mahotsav across 33 States/UTs.
- 3 These districts have been identified based on vaccination coverage as per the latest National Family Health Survey-5 report, Health Management Information System (HMIS) data and burden of vaccine-preventable diseases.

**Innovative Approaches**

- **Building capacity:** The National Cold Chain Training Center (NCCTE) in Pune and the National Cold Chain & Vaccine Management Resource Center (NCCVMRC) -NIHFW in New Delhi were established as training centres.
- **The Electronic Vaccine Intelligence Network (eVIN):**
  - This is being implemented under National Health Mission (NHM) by Ministry of Health and Family Welfare.
  - In order to digitize vaccine stock management, logistics, and temperature tracking at every stage of vaccine storage from national to sub-district level.

**EXPECTED QUESTIONS FOR UPSC CSE**

**Prelims MCQ**

Q. The Electronic Vaccine Intelligence Network (eVIN) is an initiative of:

(a) Ministry of Home Affairs  
 (b) Ministry of Women & Child Development  
 (c) Ministry of Health and Family Welfare  
 (d) Ministry of Electronics and Information Technology

Answer: c

**Descriptive Question**

Q. How has the EPI evolved since its inception in 1974, and what have been the major developments and innovations in immunization strategies and technologies? [15 Marks] [250 words]

**AGNIPATH SCHEME**

**Why in News:** Agni path scheme’s two-year review by Defence Ministry underway.

**Key Details**



<b>Agnipath scheme ENTITLEMENTS</b>		
<b>₹ 4.76 lakh</b> First year salary	Upgradation of up to <b>₹ 6.92 lakh</b> in 4th year	Compensation on death <b>₹ 1 crore</b>
Post release: Seva Nidhi exit package of <b>₹ 11.71 lakh</b> (Tax Free)	Disability compensation <b>₹ 44/25/15 lakh</b> for 100%/75%/50% disability	
<b>₹ 48 lakh</b> Non-contributory life insurance cover		

- Agni path scheme was launched on June 14, 2022, for recruiting soldier in three services; Indian Army, Indian navy and Indian air force has run for two years.

**Agnipath Scheme**

**Introduction and Purpose**

- Also known as force on force, it was implemented on the 14/06/2022 as a means of recruiting soldiers in the fighting force for short term contractual basis.
- Aims to modernize and make the armed forces younger and more dynamic.



**Recruitment Details**

- New admission policy that limits the number of students that may be admitted in a year to 1.75 lakhs until 2026.
- About 25 percent of in-shore Agni veers may be absorbed into the regular cadre every four years through a new selection process.

**Training and Service**

- A member of Agni veers needs to undergo through extensive military training.
- Work in various positions in the operations offices of the Army, Navy and Air Force sections.

Year	Customised Package (Monthly)	In Hand (70%)	Contribution to Agniveers Corpus Fund (30%)	Contribution to Corpus fund by Gol
<b>All Figures in Rs. (Monthly Contribution)</b>				
1 <sup>st</sup> Year	30000	21000	9000	9000
2 <sup>nd</sup> Year	33000	23100	9900	9900
3 <sup>rd</sup> Year	36500	25550	10950	10950
4 <sup>th</sup> Year	40000	28000	12000	12000
<b>All Figures in Rs. (Monthly Contribution)</b>				
Total Contribution in Agniveers Corpus Fund after four years			Rs. 5.02 lakh	Rs. 5.02 lakh
Exit after 4 year		<b>Rs. 10.04 Lakhs as Seva Nidhi Package</b> (absolute amount excluding interest)		



general premium of its policies are consequently sold in rural areas.

**Way Forward**

- **Implementation of Distribution Channels:** Take help of Bima Vistaar agents so that the Bima Vistaar is popularised and should reach every gram sabha few Bima Vistaars should be established for popularizing the product at the grass root level.
- **Leveraging Digital Platforms:** Introduce Bima Vistaar with the Bima Sugam digital platform to facilitate purchasing, renewals, and claims so that making insurance more reachable and driving extension to the rural population.
- **Enhancing Financial Literacy and Inclusion:** Organize campaigns and enlightenment programs with a view to sensitizing the countryside about the value of Bima Vistaar and encourage insurance as an essential evil of fiscal security and accessibility.

- This exceptional National Entrepreneurship Development Project under the Skill India Mission is intended for recipients of the PM SVANidhi scheme.

**Purpose**

- To equip individuals with comprehensive entrepreneurship training, creating job providers rather than job seekers.
- **Enhancing competitiveness and adaptability** in the face of disruptive technological advancements requires upskilling and reskilling workers.

**Execution**

- **Target:** The project will be piloted initially in selected districts, with a focus on ensuring 40% participation by women.
- **Training Length:** Provides comprehensive training in entrepreneurship for 22 weeks in hybrid, online, and offline formats.
- **Certificates:** At the conclusion of the course, certificates are given out to increase the course’s legitimacy and worth.
- **Pilot Program:** Ten major cities’ street vendors will receive training and stipends to grow their enterprises from Flipkart. Under the pilot program, street vendors of 10 big cities of the country will be given a stipend along with training to expand their businesses.
- **Implementation:** In the pilot phase, the project will be implemented through 20 Centres of National Institute of Entrepreneurship and Small Business Development (NIESBUD), Noida and 10 Centres of Indian Institute of Entrepreneurship (IIE), Guwahati.

**EXPECTED QUESTIONS FOR UPSC CSE**

**Prelims MCQ**

Q. Consider the following statements about Bima Vistaar insurance policy:

1. It will provide a coverage of Rs 2 lakh against property insurance and Rs 5 lakh for life and personal accident.
2. The agent distributing Bima Vistaar policie is expected to receive a minimum commission rate of 25 per cent.

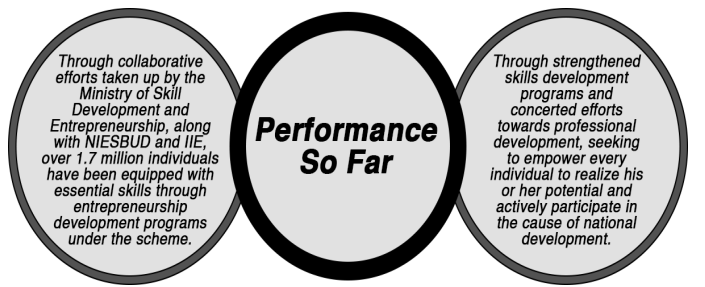
Which of the statements given above is/are correct?

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

Answer: d

**Descriptive Question**

Q. Making insurance more reachable to the rural population can help empowering rural population in unforeseen tragedies in the life. Critically substantiate. [10 Marks] [150 words]



**RASHTRIYA UDYAMITA VIKAS PARIYOJANA**

**About Rashtriya Udyamita Vikas Pariyojana**

- **Rashtriya Udyamita Vikas Pariyojana (RUVAP)**, also known as the **National Entrepreneurship Development Project**, is an initiative by the Government of India to promote entrepreneurship and self-employment among the youth.

**PM SVANidhi (Pradhan Mantri Street Vendor’s AtmaNirbhar Nidhi)**

- The PM SVANidhi (Pradhan Mantri Street Vendor’s AtmaNirbhar Nidhi) scheme is a central-sector micro-credit initiative launched by the **Ministry of Housing and Urban Affairs (MoHUA)** in India. Its primary objective is to provide handholding support to street vendors who have been impacted by the COVID-19 pandemic.
- **Working Capital Loans:** PM SVANidhi facilitates collateral-free working capital loans for street vendors. The initial loan amount can be up to ₹10,000.



Housing for All, and Swachh Bharat Mission to foster overall development of cities.

- **Implementation:** The implementation of SCM at the City level is done by SPV created for the purpose. At State level, Mission implementation is monitored by the State Level High Powered Steering Committee (HPSC). At the National level, implementation is monitored by an Apex Committee headed by Secretary, Ministry of Housing and Urban Affairs (MoHUA). The period of implementation of SCM has been extended up to June 2024 and all Smart Cities are expected to complete their projects within the stipulated time.

## Challenges of Smart Cities

- 1 Funding Constraints**  
Thus, only 30% of the target amount for the mobilization of resources to support infrastructure development has been achieved. Lack of adequate funding to support the investment in technology required for smart city projects slows down the development of urbanization and growth that is economically and socially inclusive.
- 2 Slow Project Implementation**  
Out of the proposed projects, only 27% has been completed, which shows a high level of implementation backlog. Such factors as bureaucratic formalism, complicated approaches to urban planning, and inter-agency cooperation issues hamper the process of city transformations.
- 3 Technology Integration**  
Although, currently, only 40% of the cities have integrated the SWM systems. Challenges such as outdated IT systems, data handling issues and poor technological support hamper the efficient harnessing of smart technologies for the development of smart cities.

### Way Forward

It involves re-evaluating the SCM to ensure inclusivity and alignment with local needs. Emphasizing participatory governance, sustainable infrastructure, and equitable resource distribution can address urban realities effectively. Enhancing public engagement, increasing investment, and integrating resilience against environmental challenges will foster more adaptive and inclusive urban growth.

**EXPECTED QUESTIONS FOR UPSC CSE**

**Prelims MCQ**

Q. Consider the following statements about the Smart Cities Mission (SCM):

1. At the National level, implementation is monitored by High Powered Steering Committee headed by Prime Minister.
2. The implementation of SCM at the state level is done by Special Purpose Vehicle created for the purpose.
3. The period of implementation of Smart Cities Mission has been extended upto June 2026.

How many of the above statements are correct?

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

Answer: d

### Descriptive Question

Q. "Bureaucratic formalism, complicated approaches to urban planning, and inter-agency cooperation issues hamper the process of city transformations." Do you agree? Justify your views. [15 Marks] [250 words]

## MID-DAY MEAL SCHEME

**Why in News:** Midday meals extended to special schools in TN, 8,000 students to benefit.

### What is midday meal scheme?

MDMS is one of the largest of the social security and welfare schemes in the Republic of India and is intended to ensure that children in school have an adequate and nutritious meal at midday. It offers free lunches for students in the grain government and aided schools all over the country.

### Historical Background

- **Origins:** The idea to form such establishments predates the independence of India however the directing of such governmental scheme actually came into picture in 1995.
- **Supreme Court Mandate:** This policy became a law in 2001 after the Supreme Court of India ordered that mid-day meals should be prepared and served to all students at the primary schools.

### Key Features of the Mid-Day Meal Scheme

- **Coverage**
  - **Target Group:** Government and government-aided schools and classes I -V and VI to VIII of local body schools and students studying therein.
  - **Beneficiaries:** As at 2023, over 118 million children across the country's states and union territories gain from the scheme.
- **Nutritional Standards**
  - **Primary Classes:** Every dish delivers a minimum of 450 calories per serving along with 12 grams of protein.
  - **Upper Primary Classes:** All meals contain at least 700 calories and 20g of protein whereas breakfast and dinner, in particular, offer more than the recommended value.
  - **Components:** The foods cooked by this diet include grain/ breads, beans, vegetables, and a little fat and salt.

- **Funding and Cost Sharing**
  - **Central Government:** Offers food grains throughout the day without any charges taken for the grains and bears a major part of the charges of making the food.
  - **State Governments:** As for the fourth proposed solution, divide the cooking cost among all participants, pay the honorarium to the cooks combined with help, and pay for the kitchen devices as well as infrastructure.
  - **Budget:** The centre in its budgetary allocation of the financial year 2022-2023 has sanctioned almost INR 11,000 crore (approx. USD 1.5 billion) to the Scheme.
- **Implementation and Monitoring**
  - **Local Administration:** With support from the school management committees, village education committees and Parent Teacher Associations.
  - **Monitoring:** To support the quality and effectiveness of state government programs, Cadillac recommended the following: regular state government program inspections, third-party assessments, and other feedback methods.
  - **Information Technology:** In order to combat the problem of early sales and non-reporting of irregularities concerning meal distributions, technological tools such as mobile apps and online monitoring systems can be utilized.

### About Mid-Day Meal

- The CCEA cleared the **PM POSHAN (POshan SHAKti Nirman)** Scheme for providing one hot cooked meal in Government and Government-aided schools from 2021-22 to 2025-26, earlier known as 'National Programme for Mid-Day Meal in Schools' popularly known as Mid-Day Meal Scheme.
- Serving 120 million children in over 1.27 million schools and Education Guarantee Scheme centres, the Midday Meal Scheme is the largest of its kind in the world.
- The Midday Meal Scheme is covered by the **National Food Security Act, 2013**.
- **Nodal Ministry:** Ministry of Education

### Challenges of Mid-Day Meal

- **Quality Control:** Ensuring food safety and hygiene standards are maintained to prevent health hazards among children.
- **Logistics:** Efficiently managing the procurement, storage, and distribution of ingredients to schools in remote areas.
- **Funding:** Securing consistent financial resources to sustain the program without compromising on food quality and quantity.
- **Infrastructure:** Providing adequate kitchen facilities and clean water in schools to prepare and serve meals safely.

### Way Forward

It is therefore proposed that the following measures be adopted in the future of Mid – Day Meal scheme for India: Nutritional diversity; monitoring of quality and hygiene; promotion of local foods; implementing technology for transparency; developing a community based; nutrient supplement program to address specific issues of malnutrition which reduces the health and educational potential of children.

### EXPECTED QUESTIONS FOR UPSC CSE

#### Prelims MCQ

Q. Consider the following statements about Mid-Day Meal scheme:

1. The Midday Meal Scheme is covered by the National Food Security Act, 2013
2. Ministry of child and women development is designated as a nodal ministry.
3. Post implementation, the prevalence of undernutrition and anaemia has drastically reduced among children attending school.

How many of the above statements are correct?

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

Answer: a (1 only)

#### Descriptive Question

Q. Critically evaluate the implementation of Mid-Day Meal scheme. [10 marks] [150 words].

## Data Highlights

Impact on Enrolment and Attendance

#### Enrolment Increase

Researchers found that the enrolment of students in school has boosted up to the 10-15% since the implementation of MDMS.

#### Attendance Improvement

This would help in maintaining a low rate of tr Selecting the target group of students to enrolled in the institution, where girls and children from less privileged backgrounds.

Nutritional Outcomes

#### Reduction in Malnutrition

It is however revealed that the prevalence of undernutrition and anaemia has slightly reduced among children attending schools that implement the MDMS regulation.

#### Daily Nutrient Intake

This makes it possible to provide for at least 35-40% of the child's daily calorific and protein needs for the school going children and youths.

Financial Allocation and Expenditure

#### Annual Allocation

An increase has also been noted in regard to Central government allocation towards MDMS, with a sizable budget of INR 11,000 crore having been proposed for the financial year 2022-2023.

#### Expenditure Efficiency

In order to perform massive and effective operations, regular audits and evaluation should be conducted to ascertain whether funds and available resources were used effectively and in the right manner.

## SOLAR POWER IN INDIA

**Why in News:** India overtakes Japan to become world's third largest solar power generator.

### Key Details

- India surpassed Japan in solar power, **generating 113 BU in 2023.**
- **China led with 584 BU in 2024, exceeding US, Japan, Germany, and India combined.**
- Globally, **renewables reached 30% in 2023**, mainly driven by China.
- Forecasts predict decline in fossil fuels, continued rise of renewables beyond 2024.

### About the solar power

- Solar technologies harness clean energy from the sun. **Solar thermal** heats water, while **solar photovoltaic (PV)** converts sunlight into electricity through solar cells, reducing reliance on polluting fossil fuels.
- **Solar Potential in India**
  - India is blessed with abundant solar energy potential. Approximately **5,000 trillion kWh of solar energy falls on India's land area each year.**
  - Most regions receive **4-7 kWh per sqm per day of sunlight**, making it an ideal location for solar power generation.
  - As of April 2024, **India's solar power installed capacity stands at 82.63 GW.**

### Importance of Clean Electricity

- Increasing clean energy electricity not only reduces carbon emissions but also meets rising electricity demand in an increasingly electrified economy.
- Decoupling economic growth from emissions is crucial for tackling climate change, highlighting the importance of transitioning to renewable energy sources.

### Challenges in Solar Power in India

- **Intermittency and Variability:** Solar power generation is affected by weather conditions, leading to intermittency and variability in output.
- **Grid Integration:** Integrating solar power into the existing grid infrastructure poses technical challenges, including voltage fluctuations and grid stability issues.

- **Land Acquisition and Utilization:** Acquiring land for large-scale solar projects can face challenges due to land availability, legal issues, and community resistance.
- **High Initial Investment:** The upfront cost of solar power infrastructure, including solar panels and inverters, can be prohibitive, hindering widespread adoption.
- **Policy and Regulatory Uncertainty:** Inconsistent policies, regulatory hurdles, and lack of long-term incentives can deter investment in solar power projects.

### Solutions for Solar Power in India

- **Energy Storage Solutions:** Implementing energy storage systems, such as batteries, can mitigate intermittency issues by storing excess solar energy for use during low generation periods. **Example: Tesla's Powerwall battery storage solutions.**
- **Advanced Grid Infrastructure:** Upgrading grid infrastructure with smart grid technologies and grid-scale energy management systems can enhance grid stability and accommodate fluctuating solar power generation. **Example: Power grid modernization projects in states like Gujarat and Rajasthan.**
- **Agro-Photovoltaics (Agri-PV):** Integrating solar panels with agriculture can optimize land use and provide additional income to farmers. **Example: Solar panels installed above agricultural fields, allowing crops to grow underneath.**
- **Financial Incentives and Support:** Offering subsidies, tax incentives, and low-interest loans to promote solar power adoption can reduce the financial burden on consumers and incentivize investment.

### Government Schemes in solar power in India

- **PM-KUSUM:** Promotes solar adoption among farmers. Provides aid for solar pumps, grid solarization, and solar plants on barren lands.
- **Solar Rooftop Subsidy Scheme:** Encourages rooftop solar in residential, commercial, and industrial sectors through subsidies. Facilitates installations nationwide.
- **Atal Solar Krishi Pump Yojana:** Promotes solar pumps for agriculture. Offers subsidies, reducing reliance on conventional electricity and diesel.
- **National Solar Mission:** Govt. initiative aiming for 100 GW solar capacity by 2022. Facilitates solar park establishment and utility-scale projects nationwide.



lost nutrients, farmers may resort to increased use of chemical fertilizers, which can have long-term negative consequences for soil health.

is not just an agricultural concern; it is vital for maintaining ecological balance and food security.

### Impact on Environment

- **Water Scarcity:** Soil erosion decreases the soil's water-holding capacity, leading to increased runoff and less water infiltration.
- **Biodiversity Loss:** Erosion disrupts the delicate ecological balance, impacting soil organisms and altering habitats.
  - This can lead to a decline in biodiversity, with far-reaching consequences for the ecosystem.
- **Sedimentation:** Detachment and transportation of soil particles by wind and water lead to sedimentation in rivers and waterways.

## Multi-Dimensional Strategy

### Preventive Measures

- **Sustainable Agriculture Practices:** Promoting practices like crop rotation, cover cropping, and conservation tillage can minimize soil disturbance and erosion.
- **Afforestation:** Planting trees and vegetation cover strengthens soil structure and reduces wind and water velocity, thereby preventing erosion.
- **Terrace Farming:** This technique, prevalent in hilly areas, creates leveled steps that slow down water runoff and prevent erosion on slopes.

### Restorative Measures

- **Soil Rejuvenation Techniques:** Techniques like biofertilizers and compost application can help replenish nutrients and improve soil health.
- **Reclamation of Eroded Lands:** Implementing measures like gully plugging and check dams can reclaim degraded lands for potential agricultural use.

### Policy and Awareness

- **Strengthening Policies :** Enacting and enforcing stricter land-use regulations can prevent deforestation and unsustainable practices that exacerbate erosion.
- **Community Outreach Programs:** Educating farmers about the long-term consequences of erosion and promoting sustainable practices is crucial.
- **Investing in Research & Development:** Funding research on drought-resistant crops, erosion-control technologies, and soil regeneration techniques can offer long-term solutions.

### Conclusion

The "Geospatial modelling and mapping of soil erosion in India" study serves as a wake-up call. Addressing soil erosion

### EXPECTED QUESTIONS FOR UPSC CSE

#### Prelims MCQ

Q. Consider the following pairs:

Sl. No.	Soil type	:	Found in
1.	Usara soil	:	Sunderban areas of West Bengal
2.	Black soil	:	Northern plains
3.	Alluvial soils	:	Deccan Plateau

How many of the above pairs are correctly matched?

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

Answer: a (1 only)

#### Descriptive Question

Q. What factors contribute to soil erosion in India? Discuss strategies and interventions recommended to address soil erosion in different Agro-climatic zones and land-use types. [15 Marks] [250 words]

## BENGALURU WATER CRISIS

**Why in News:** Recently, Bengaluru city has faced a worsening water crisis, leading to significant shortages in various areas.

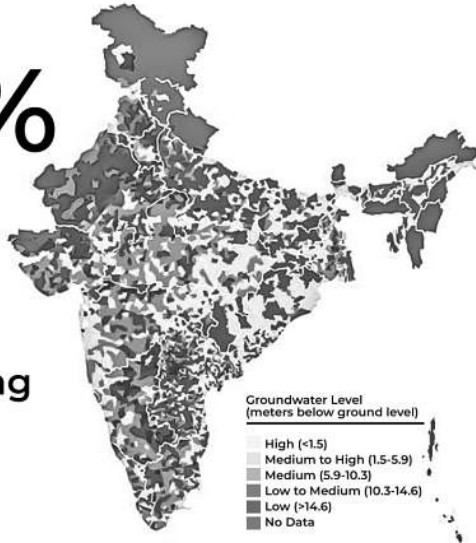
### Reasons

- **Declining Water Sources:** The Cauvery River's water level have significantly dropped as a result of insufficient rainfall leading to shortage of water for human purposes.
- **Loss of Traditional Resources:** Bengaluru's historical network of lakes and tanks has suffered due to rapid urbanization.
- **Inadequate Wastewater Management:** Untreated wastewater pollutes lakes and rivers instead of being reused, further straining the water supply.
- **Arkavathi Reservoir Depletion:** This once-important source lies polluted and depleted due to unchecked development, encroachment, excessive borewell use, and eucalyptus plantations.

### India's Water Crisis Landscape

- **Water Scarcity:** India, with 18% of the global population, possesses only 4% of its water resources, making it severely water stressed.
- **A National Emergency:** According to a 2018 NITI Aayog report, over 600 million Indians face acute water shortages, marking India's worst water crisis ever.

# 54% of India's Ground- water Wells Are Decreasing



### Government Initiatives

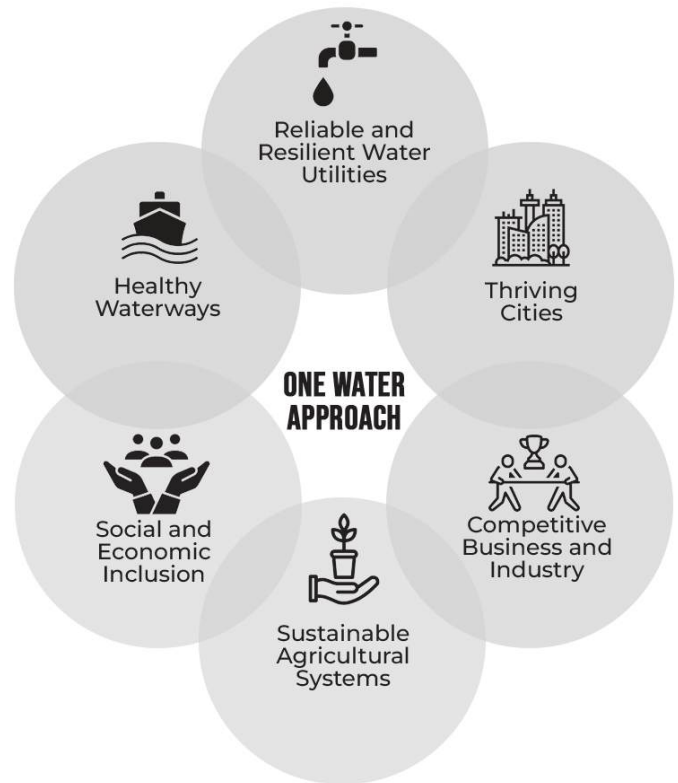
- **Jal Shakti Abhiyan (JSA) (2019):** Aims to improve water availability, including groundwater levels, in water-stressed districts across India.
- **Amrit Sarovar Mission:** Focuses on developing and rejuvenating 75 water bodies in each district.
- **National Aquifer Mapping Programme (NAQUIM):** Delineates and characterizes India's aquifer systems.
- **Jal Jeevan Mission (JJM) (2019):** Aims to provide functional tap connections within all rural households by 2024.

In response to the ambitious 2030 Agenda, the Water Action Decade 2018-2028 initiative will accelerate efforts towards meeting water-related challenges, including limited access

to safe water and sanitation, increasing pressure on water resources and ecosystems, and an exacerbated risk of droughts and floods.

### Way Forward

- **Technological Solutions:** Exploring desalination, wastewater treatment, and rainwater harvesting technologies can create new water sources.
- **Circular Water Economy:** Implementing a circular water economy aims to maximize water utility and minimize dependence on external sources.



### Conclusion

By adopting a multi-pronged approach that combines infrastructure development, technological innovation, and public participation, Bengaluru and India can navigate this growing water crisis.

### EXPECTED QUESTIONS FOR UPSC CSE

#### Prelims MCQ

Q. Consider the following statements about

1. Amrit Sarovar Mission aimed at developing/rejuvenating 100 Ponds in each district of India.
2. Jal Shakti Abhiyan aims to improve water availability, including groundwater levels, in each district of India.
3. Jal Jeevan Mission aims to provide functional tap connections within all rural households by 2022.

How many of the above statements are correct?

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

Answer: (a) Only

**Descriptive Question**

Q. Analyze the factors contributing to the worsening water crisis in Bengaluru city, considering both natural and anthropogenic causes. Evaluate the socio-economic impacts of the water shortage on different segments of population. [15 Marks] [250 words]

**INDIA LOSES TREE COVER**

**Why in News:** India’s forest cover has been a cause for concern, with the latest data from **Global Forest Watch** highlighting a significant decline.

**Key Details**

- **Overall Decrease:** India has lost 2.33 million hectares (Mha) of tree cover from 2001 to 2023, a 6% decline. This highlights an alarming trend of deforestation.

**Causes of Tree Cover Loss**

- Infrastructure Development**  
Land conversion for infrastructure projects like roads, dams, and power lines fragments forests and leads to habitat loss.
- Unsustainable Practices**  
Shifting cultivation, illegal logging, and fuelwood collection contribute to deforestation.
- Forest Fires**  
From 2002 to 2022, fires destroyed 35,900 hectares of tree cover, with Odisha experiencing the highest loss rate. These fires can be caused by natural events or human activities.

**Consequences of Tree Cover Loss**

- Climate Change**  
Deforestation reduces carbon sequestration capacity, contributing to greenhouse gas emissions and climate change. While India’s forests act as a net carbon sink, a decrease in tree cover weakens this crucial function.
- Biodiversity Loss**  
Forests are biodiversity hotspots, and their loss leads to species extinction and ecosystem imbalance.
- Soil Erosion**  
Loss of tree cover increases soil erosion, impacting agricultural productivity and leading to land degradation.
- Livelihood Loss**  
Communities dependent on forest resources for their livelihoods suffer due to deforestation.

- **Primary Forest Loss:** The loss of 4,14,000 hectares of primary forest (18% of total loss) is particularly concerning due to its irreplaceable ecological value.
- **Spatial Distribution:** Five northeastern states - Assam, Mizoram, Arunachal Pradesh, Nagaland, and Manipur - contribute to 60% of the total loss, indicating regional variations.

**Initiatives for Forest Conservation**

- **Joint Forest Management (JFM):** This program empowers local communities to participate in forest management, fostering a sense of ownership.
- **National Afforestation Programme (NAP):** This scheme aims to increase forest cover through plantation drives and improved forest management practices.
- **Mission Green India:** This flagship program focuses on large-scale afforestation efforts across the country.
- **Improved Monitoring:** Satellite data from platforms like Global Forest Watch provides valuable information for monitoring deforestation trends.

**India’s Role as a Carbon Sink**

- **Balancing Act:** Despite the loss, Indian forests still function as a net carbon sink, removing 141 million tons of carbon dioxide equivalent (CO<sub>2</sub>e) annually while emitting 51 million tons.

**Way Forward**

1. **Strengthen Forest Protection:** Implement stricter measures to curb deforestation activities like illegal logging and encroachment.
2. **Promote Sustainable Practices:** Encourage sustainable forestry practices and community involvement in forest management.
3. **Fire Prevention and Management:** Invest in fire prevention strategies and equip forest departments for effective fire control.
4. **Increase Forest Cover:** Continue afforestation efforts, focusing on native species and ecological restoration.
5. **Technological Solutions:** Utilize satellite monitoring and real-time data to track changes and identify vulnerable areas.

By addressing these challenges and capitalizing on existing initiatives, India can achieve a sustainable balance between development and environmental protection.

**EXPECTED QUESTIONS FOR UPSC CSE**

**Prelims MCQ**

Q. Which of the following can be the possible consequences of Tree Cover Loss:

1. Decline in agricultural productivity

- 2. Species extinction and ecosystem imbalance
- 3. Reduces carbon sequestration capacity

Select the correct answer using the code given below:

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

Answer: d

**Descriptive Question**

Q. Explain the specific factors contributing to the decline in India’s forest cover. What role can satellite remote sensing, geospatial technologies, and citizen science initiatives play in monitoring, identifying deforestation hotspots, and informing evidence-based decision-making? [15 Marks] [250 words]

**DGCA’S FLIGHT DUTY TIME RULES**

**Why in News:** Indian airlines were asked by the Directorate General of Civil Aviation to specify when they would be able to begin enforcing the new Flight Duty Time Limitation (FDTL) regulations.

**Key Details**

- The revised FDTL regulations are effective immediately, and the airline operators must comply with the revised regulations at the latest by June 1, 2024.

**Current Flight Duty Time Limitation (FDTL) Rules in India**

- **ICAO Mandate:** The International Civil Aviation Organization (ICAO) requires the nation in which an airline or aircraft operator is headquartered to set up rules on fatigue management.
- **Regulations released in 2019:** The 2019 FDTL regulations in India classify the maximum flight duty durations per day according to the maximum number of landings and flight durations that are allowed.
- **Rest Periods and Guidelines:** The regulations set maximum cumulative flight time and duty period limitations per week, two weeks, four weeks, 90 days, and year.
  - They also specify other mandatory rest periods, in-flight rest periods for long-haul flights, and other mandatory rest periods.
  - Additionally, there are specific rules for ultra-long-haul flights.
- **Airlines’ Duties:** Within the regulator’s framework, airlines must set their own restrictions based on FAA, EASA, and ICAO best practices.

**Key Highlights of the revised FDTL Regulations**

- **Extended Weekly Rest Intervals:** In order to provide flight crew members more time to recuperate from accumulated exhaustion, the updated regulations mandated an increase in weekly rest intervals from 36 hours to 48 hours.
- **Night Duty:** The term “night” has been redefined to include the hours between 0000-0600 in the updated regulations, as opposed to the hours between 0000-0500 in the prior regulations.
  - The addition of one hour to the early morning shift will guarantee sufficient sleep and coincide with the night duty period, which spans the Window of Circadian Low (WOCL) from 0200 to 0600 hours, or the period when the circadian body clock cycle is at its least alert.
- **Maximum Flight Duration, Maximum Flight Duty Hours, and Maximum Number of Night Landings:** Different kinds of operations across time zones have been considered in the amended regulations.
  - In order to improve flight safety, the maximum flight time and maximum flight duty period for flight operations that are getting close to night have been lowered to 8 hours and 10 hours, respectively.
  - Additionally, only two landings are allowed during night operations, as opposed to the maximum 6 landings that were previously permitted.
  - Furthermore, the DGCA has required that all airline operators produce quarterly reports on tiredness following analysis, along with the actions taken in response to those reports.
  - Additionally, it has been stated that a non-punitive and confidential policy will apply to fatigue reports.

**Airline’s Concerns**

- Airlines had been voicing concerns that implementation of the new rule would result in a requirement of around 20-25 per cent more pilots, whom they would not be able to hire and train in such a short period.

**Conclusion**

FDTL norms are crucial as they guarantee sufficient rest for pilots, minimising the risk of untoward incidents. The aviation industry hopes for safer skies with the adoption of the updated FDTL regulations.

**EXPECTED QUESTIONS FOR UPSC CSE**

**Prelims MCQ**

Q. Consider the following statements about new Flight Duty Time Limitation (FDTL) regulations:

- 1. A mandatory weekly rest period for pilots will be increase to 48 hours from the current 36.

2. The definition of 'night' will cover the time between midnight to 6 AM.
3. Only two landings are allowed during night operations.

How many of the above statements are correct?

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

Answer: c

**Descriptive Question**

Q. What are the key provisions of the new Flight Duty Time Limitation (FDTL) regulations, and how do they differ from previous guidelines? [15 Marks] [250 words]

**UNEP'S REPORT FOR BUILDINGS AND CONSTRUCTION - 2024**

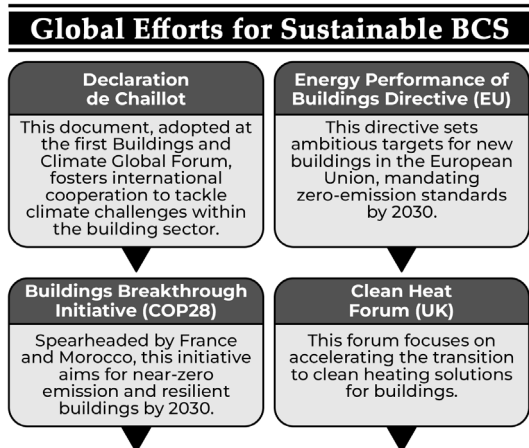
**Why in News:** A recent report by the United Nations Environment Programme (UNEP) and the Global Alliance for Buildings and Construction (GlobalABC) paints a concerning picture.

**Global ABC**

It was founded at COP21, as the leading global platform for governments, private sector, civil society, research, and intergovernmental organizations committed to a common vision: A zero-emission, efficient and resilient buildings and construction sector.

**Key Details**

- The **Global Status Report for Buildings and Construction (Buildings-GSR) 2024** reveals that the Building and Construction Sector (BCS) is a significant contributor to global warming, accounting for a staggering **21% of global greenhouse gas (GHG) emissions**.
- This translates into a substantial energy footprint. In 2022 alone, buildings were responsible for a whopping **34% of global energy demand and 37% of energy and process-related carbon dioxide (CO2) emissions**.



- In India, the situation is even more alarming, with buildings contributing a significant **40% of the country's CO2 emissions**.

**Indian Initiatives for Sustainable BCS**

- **Zero Carbon Buildings Action Plan (ZCBAP):** Nagpur became the first Indian city to launch this plan, outlining a roadmap for achieving net-zero emissions in its buildings.
- **Energy Conservation (Amendment) Act, 2022:** This act paves the way for the implementation of the Energy Conservation and Sustainability Building Code, promoting energy-efficient building practices.

**Measures for India**

- **Promoting Green Building Materials:** Encouraging the use of low-carbon materials like recycled steel, bamboo, and fly ash bricks can significantly reduce embodied carbon in construction.
- **Retrofitting Existing Buildings:** Retrofitting existing buildings to improve energy efficiency through better insulation, energy-efficient appliances, and renewable energy sources can significantly reduce operational carbon emissions.

**Conclusion**

The BCS holds **immense potential for mitigating climate change**. By adopting a multi-pronged approach that includes promoting green building materials, retrofitting existing buildings, and upskilling the workforce, India can make significant strides towards decarbonizing the BCS.

**EXPECTED QUESTIONS FOR UPSC CSE**

**Prelims MCQ**

- Q. "GlobalABC" which tracks the progress in decarbonization in the buildings and construction sector is a
- (a) database created by a coalition of research organisations.
  - (b) global platform hosted by "United Nations Environment Programme (UNEP)."
  - (c) committee under "United Nations Framework Convention on Climate Change."
  - (d) agency promoted and financed by World Wide Fund for Nature and Asian Development Bank.

Answer: b

**Descriptive Question**

Q. What specific environmental issues are associated with buildings and construction? How can stakeholders, including governments, businesses, and consumers, contribute to sustainable building practices? [15 Marks] [250 words]

## YOJANA SUMMARY (MAY 2024)

## KNOW YOUR WEAVES – REGIONAL DIVERSITY IN INDIAN WEAVING

Weaves	State/Place	Features
Pochampally Ikat	Telangana	<ul style="list-style-type: none"> <li>Traditional geometric &amp; abstract patterns</li> <li>Woven in both cotton &amp; silk</li> </ul>
Paithani Sari	Maharashtra	<ul style="list-style-type: none"> <li>Silk saree with ornamented zari and border</li> <li>Motifs – traditional vines, flowers, fruit shapes &amp; stylised forms of birds</li> <li>No mechanical means are used to produce the design</li> </ul>
Patan Patola	Gujarat	<ul style="list-style-type: none"> <li>Double ikat saree – warp &amp; weft are tied &amp; dyed by exact counting of threads before being woven on a hanging loom</li> </ul>
Kancheepuram Silk	Tamil Nadu	<ul style="list-style-type: none"> <li>Sarees woven with mulberry silk in warp &amp; weft</li> <li>Solid colour borders &amp; pallavs using intricate korvai &amp; petni techniques</li> </ul>
Kota Doria	Rajasthan	<ul style="list-style-type: none"> <li>Blend of cotton &amp; silk in square check pattern (khat)</li> </ul>
Banarasi Satin Tanchoi Sari with Zari	Uttar Pradesh	<ul style="list-style-type: none"> <li>Multi-colours interwoven in a satin weave</li> <li>Small intricate motifs – flowers, small birds, peacock &amp; parrot</li> </ul>
Kunbi Sari	Goa	<ul style="list-style-type: none"> <li>Adivasi cotton sari</li> </ul>
Pashmina Woolen Sari	Kashmir	<ul style="list-style-type: none"> <li>Hand spun fibre/yarn</li> </ul>
Mangalagiri Sari	Andhra Pradesh	<ul style="list-style-type: none"> <li>Zari work embellished with Nizam border &amp; Pallav</li> </ul>
Paturu Cotton Silk Sari	Andhra Pradesh	<ul style="list-style-type: none"> <li>Lightweight saris with plain zari border</li> <li>Pallav is woven with stripes</li> </ul>
Gopalpur Tussar Silk Sari	Odisha	<ul style="list-style-type: none"> <li>GI Tag</li> <li>Motifs – birds, chakra (wheel), animal motifs inspired by nature</li> </ul>
Mekhala Sari	Assam	<ul style="list-style-type: none"> <li>Zari figures inspired by traditional Assamese motifs</li> </ul>
Kanchi Cotton Sari	Tamil Nadu	<ul style="list-style-type: none"> <li>Broad borders &amp; pallav with traditional motifs</li> </ul>

## INDIAN WEAVES PROMOTING SUSTAINABILITY

Cotton holds immense significance in India. It is a symbol of country's rich textile heritage and an emblem of tradition, artistry & sustainability.

**Sustainability of Indian weaves:** By supporting Indian weavers, consumers invest in sustainable fashion as well as contribute to the preservation of traditional crafts and welfare of artisan communities.

- Indian weaves are inherently eco-friendly and are celebrated for their unparalleled craftsmanship & artistic expressions.
- Traditionally Indian weavers relied on natural fibres (cotton, silk, jute, wool).
- The fibres were sourced locally and processed using age-old techniques that have minimal impact on the environment.
- The fibres are biodegradable, renewable and support biodiversity.
- Traditional Indian weaving practices are deeply ingrained in local communities, fostering a sense of social cohesion and economic empowerment.



power. A purely economic activity became a powerful political weapon.

Production of khadi is eco-friendly and suits the producer.

The decentralised production will help in distribution of income to the masses which will lead to increased purchasing power of the people.

## HANDLOOM PRODUCTS OF INDIA: FROM LOCAL TO GLOBAL

### Introduction

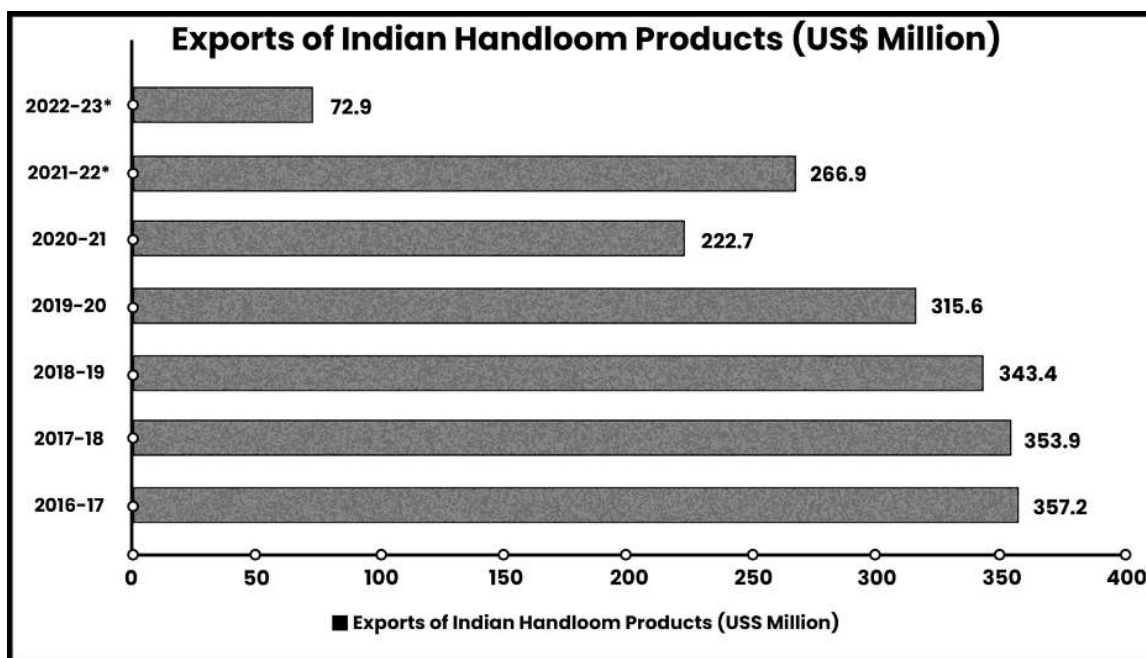
The handloom sector is the largest cottage industry in the country and is ranked number two after agriculture as an unorganised sector providing employment to more than 3 million people.

Though Indian handloom products are produced in small towns & villages. They are recognised globally because of their uniqueness, quality, variety and endurance.

HANDLOOM PRODUCT	STATE/PLACE	HANDLOOM PRODUCT	STATE/PLACE
Pashmina	Kashmir	Pochampally Ikkat	Telangana
Phulkari	Punjab	Kancheepuram Saree	Tamil Nadu
Chikankari	Uttar Pradesh	Mysore Silk	Karnataka
Muga Silk	Assam	Bandhani	Gujarat
Naga Shawls	Nagaland	Paithani	Maharashtra

### Internationalisation of Indian Handloom

- Indian handloom products have significant demand in more than 20 countries. USA accounts for around 40% of export demand for India's handloom products (2021-22).
- The major items in India's handloom exports include mats & mattings, carpet, rugs, bedsheets, cushion covers etc.



### Branding of Handloom Products: 'India Handloom' Trademark

- Introduction of 'Handloom Mark' provides the customers assurance that the concerned handloom product is authentic.
- The 'India Handloom' provides a branding of handloom products that are of high quality with zero defects and zero effect on the environment.
- 'India Handloom' has been registered as a trademark under Trade Marks Act, 1999.

## IPR Protection for Indian Handloom Products in International Markets

- Intellectual property (IP) protection for handloom producers in India is granted through the Geographical Indications of Goods Act, 1999 and the Designs Act, 2000.
- In India, GI Tag is provided to a number of handloom products – Pochampally Ikat, Chanderi Sarees, Solapur Chaddar, Mysore Silk, Kancheepuram Silk etc.



## Potential Global Opportunities

- Modern consumer and new generation are style-conscious yet environment savvy and prefers stylish & sustainable products. Handloom products satisfy both these requirements.
- Growing e-commerce and availability of digital platforms provide opportunities to handloom producers to tap international markets, even from small towns and remote locations.

## Challenges

- Handloom products face significant challenge of keeping the tradition of hand weaving alive.

- Traditional artisans are not inclined to bring their new generation to the hand weaving profession as it is labour-intensive and low paying.
- Competition from machine made fabrics which are cheaper and less labour-intensive.
  - With advancement of technology, machine made products look like replicas of handwoven products, therefore it becomes difficult to differentiate between authentic handwoven products and machine-made products.

## Conclusion

The handloom products from India represent tradition & modernity at the same time. The unique designs, quality & variety of these products have helped create a niche market in other countries and they are endorsed by international models & celebrities. Thus, it can be said that handloom products of India are making significant global imprints with their local characteristics.

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**The Indian EXPRESS**

**THE HINDU**

## GS Paper-I (Set A)

Q1. Consider the following statements:

Statement-1:

The atmosphere is heated more by incoming solar radiation than by terrestrial radiation.

Statement-II:

Carbon dioxide and other greenhouse gases in the atmosphere are good absorbers of long wave radiation.

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, but 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

Q2. Consider the following statements:

Statement-I:

Thickness of the troposphere at the equator is much greater as compared to poles.

Statement-II:

At the equator, heat is transported to great heights by strong convectional currents.

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, but 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

Q3. Consider the following:

1. Pyroclastic debris
2. Ash and dust
3. Nitrogen compounds
4. Sulphur compounds

How many of the above are products of volcanic eruptions?

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

Q4. Which of the following is/are correct inference/inferences from isothermal maps in the month of January?

1. The isotherms deviate to the north over the ocean and to the south over the continent.
2. The presence of cold ocean currents, Gulf Stream and North Atlantic Drift make the North Atlantic Ocean colder and the isotherms bend towards the north.

Select the answer using the code given below:

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

Q5. Which of the following countries are well known as the two largest cocoa producers in the world?

- (a) Algeria and Morocco
- (b) Botswana and Namibia
- (c) Côte d'Ivoire and Ghana
- (d) Madagascar and Mozambique

Q6. With reference to the Himalayan rivers joining the Ganga downstream of Prayagraj from West to East, which one of the following sequences is correct?

- (a) Ghaghara - Gomati - Gandak - Kosi
- (b) Gomati - Ghaghara - Gandak - Kosi

- (c) Ghaghara - Gomati - Kosi - Gandak
- (d) Gomati - Ghaghara - Kosi - Gandak

Q7. Consider the following statements:

Statement-1:

Rainfall is one of the reasons for weathering of rocks.

Statement-II:

Rain water contains carbon dioxide in solution.

Statement-III:

Rain water contains atmospheric oxygen.

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

- (a) Both Statement-II and Statement-III are correct and both of them explain Statement-I
- (b) Both Statement-II and Statement-III are correct, but only one of them explains Statement-I
- (c) Only one of the Statements II and III is correct and that explains Statement-I
- (d) Neither Statement-II nor Statement-III is correct

Q8. Consider the following countries:

- 1. Finland      2. Germany
- 3. Norway      4. Russia

How many of the above countries have a border with the North Sea?

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

Q9. Consider the following information:

	Waterfall	Region	River
1	Dhuandhar	Malwa	Narmada
2	Hundru	C h o t a Nagpur	Subarnarekha
3	Gersoppa	Western Ghats	Netravati

In how many of the above rows is the given information correctly matched?

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

Q10. Consider the following information:

	Region	Name of the mountain	Type of Mountain
1	Central Asia	Vosges	Fold mountain
2	Europe	Alps	Block mountain
3	North America	Appalachians	Fold mountain
4	South America	Andes	Fold mountain

In how many of the above rows is the given information correctly matched?

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

Q11. Consider the following airports:

- 1. Donyi Polo Airport
- 2. Kushinagar International Airport
- 3. Vijayawada International Airport

In the recent past, which of the above have been constructed as Greenfield projects?

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

Q12. With reference to "water vapour", which of the following statements is/are correct?

- 1. It is a gas, the amount of which decreases with altitude.
- 2. Its percentage is maximum at the poles.

Select the answer using the code given below:

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

Q13. Consider the following description:

- 1. Annual and daily range of temperatures is low.
- 2. Precipitation occurs throughout the year.
- 3. Precipitation varies between 50 cm - 250 cm.

What is this type of climate?

- (a) Equatorial climate
- (b) China type climate
- (c) Humid subtropical climate
- (d) Marine West coast climate

Q14. With reference to "Coriolis force", which of the following statements is/are correct?

- 1. It increases with increase in wind velocity.
- 2. It is maximum at the poles and is absent at the equator.

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Select the answer using the code given below:

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

Q15. On June 21 every year, which of the following latitude(s) experience(s) a sunlight of more than 12 hours?

1. Equator                              2. Tropic of Cancer  
3. Tropic of Capricorn              4. Arctic Circle

Select the correct answer using the code given below:

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

Q16. One of the following regions has the world's largest tropical peatland, which holds about three years worth of global carbon emissions from fossil fuels; and the possible destruction of which can exert detrimental effect on the global climate. Which one of the following denotes that region?

- (a) Amazon Basin              (b) Congo Basin  
(c) Kikori Basin                      (d) Rio de la Plata Basin

Q17. With reference to perfluoroalkyl and polyfluoroalkyl substances (PFAS) that are used in making many consumer products, consider the following statements:

1. PFAS are found to be widespread in drinking water, food and food packaging materials.
2. PFAS are not easily degraded in the environment.
3. Persistent exposure to PFAS can lead to bioaccumulation in animal bodies.

Which of the statements given above are correct?

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

Q18. Consider the following:

1. Carabid beetles
2. Centipedes
3. Flies
4. Termites
5. Wasps

Parasitoid species are found in how many of the above kind of organisms?

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

Q19. Consider the following plants:

1. Groundnut
2. Horse-gram
3. Soybean

How many of the above belong to the pea family?

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

Q20. Consider the following statements:

Statement-I:

The Indian Flying Fox is placed under the "vermin" category in the Wild Life (Protection) Act, 1972.

Statement-II:

The Indian Flying Fox feeds on the blood of other animals.

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, but 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

Q21. The organisms "Cicada, Froghopper and Pond skater" are:

- (a) Birds                      (b) Fish  
(c) Insects                      (d) Reptiles

Q22. Consider the following statements:

Statement-I:

Many chewing gums found in the market are considered a source of environmental pollution.

Statement-II:

Many chewing gums contain plastic as gum base.

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, but 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

Q23. Consider the following pairs:

	Country	Animal found in its natural habitat
1.	Brazil	Indri
2.	Indonesia	Elk
3.	Madagascar	Bonobo

How many of the pairs given above are correctly matched?

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

Q24. Consider the following statements regarding World Toilet Organization:

- It is one of the agencies of the United Nations.
- World Toilet Summit, World Toilet Day and World Toilet College are the initiatives of this organization, to inspire action to tackle the global sanitation crisis.
- The main focus of its function is to grant funds to the least developed countries and developing countries to achieve the end of open defecation.

Which of the statements given above is/are correct?

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

Q25. Consider the following statements:

- Lions do not have a particular breeding season.
- Unlike most other big cats, cheetahs do not roar.
- Unlike male lions, male leopards do not proclaim their territory by scent marking.

Which one of the statements given above are correct?

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

Q26. Which one of the following is the correct description of "100 Million Farmers"?

- (a) It is a platform for accelerating the transition towards food and water systems that are net-zero (carbon), nature-positive and that aims to increase farmer resilience.
- (b) It is an international alliance and a network of individuals and farming organisations interested in supporting and strengthening the development of the organic animal husbandry.

(c) It is a digital platform fully integrated with service providers and built on blockchain that lets buyers, sellers and third parties trade fertilizers quickly and securely.

(d) It is a platform with the mission of encouraging the farmers to form Farmer Product Organisations or Agribusiness Consortia, thus facilitating the access to global open markets to sell their products.

Q27. Consider the following

- Battery storage
- Biomass generators
- Fuel cells
- Rooftop solar photovoltaic units

How many of the above are considered "Distributed Energy Resources"?

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

Q28. Which one of the following shows a unique relationship with an insect that has coevolved with it and that is the only insect that can pollinate this tree?

- (a) Fig      (b) Mahua  
(c) Sandalwood      (d) Silk cotton

Q29. Consider the following:

- Butterflies
- Fish
- Frogs

How many of the above have poisonous species among them?

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

Q30. Consider the following:

- Cashew
- Papaya
- Red sanders

How many of the above trees are actually native to India?

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

Q31. With reference to radioisotope thermoelectric generators (RTGs), consider the following statements:

- RTGs are miniature fission reactors.

2. RTGs are used for powering the onboard systems of spacecrafts.
3. RTGs can use Plutonium-238, which is a by-product of weapons development.

Which of the statements given above are correct?

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

Q32. Consider the following statements:

Statement-I:

Giant stars live much longer than dwarf stars.

Statement-II:

Compared to dwarf stars, giant stars have a greater rate of nuclear reactions.

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, but 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

Q33. Which one of the following is synthesised in human body that dilates blood vessels and increases blood flow?

- (a) Nitric oxide (b) Nitrous oxide  
(c) Nitrogen dioxide (d) Nitrogen pentoxide

Q34. Consider the following activities:

1. Identification of narcotics on passengers at airports or in aircraft
2. Monitoring of precipitation
3. Tracking the migration of animals

In how many of the above activities can the radars be used?

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

Q35. Consider the following aircraft:

1. Rafael 2. MiG-29 3. Tejas MK-1

How many of the above are considered fifth generation fighter aircraft?

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

Q36. In which of the following are hydrogels used?

1. Controlled drug delivery in patients
2. Mobile air-conditioning systems
3. Preparation of industrial lubricants

Select the correct answer using the code given below:

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

37. Which one of the following is the exhaust pipe emission from Fuel Cell Electric Vehicles, powered by hydrogen?

- (a) Hydrogen peroxide (b) Hydronium  
(c) Oxygen (d) Water vapour

Q38. Recently, the term "pumped-storage hydropower" is actually and appropriately discussed in the context of which one of the following?

- (a) Irrigation of terraced crop fields  
(b) Lift irrigation of cereal crops  
(c) Long duration energy storage  
(d) Rainwater harvesting system

Q39. "Membrane Bioreactors" are often discussed in the context of:

- (a) Assisted reproductive technologies  
(b) Drug delivery nanotechnologies  
(c) Vaccine production technologies  
(d) Wastewater treatment technologies

Q40. With reference to the Indian economy, "Collateral Borrowing and Lending Obligations" are the instruments of:

- (a) Bond market (b) Forex market  
(c) Money market (d) Stock market

Q41. The total fertility rate in an economy is defined as:

- (a) the number of children born per 1000 people in the population in a year.  
(b) the number of children born to a couple in their lifetime in a given population.  
(c) the birth rate minus death rate.

(d) the average number of live births a woman would have by the end of her child-bearing age.

Q42. Consider the following statements:

1. In India, Non-Banking Financial Companies can access the Liquidity Adjustment Facility window of the Reserve Bank of India.
2. In India, Foreign Institutional Investors can hold the Government Securities (G-Secs).
3. In India, Stock Exchanges can offer separate trading platforms for debts.

Which of the statements given above is/are correct?

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

Q43. In India, which of the following can trade in Corporate Bonds and Government Securities?

1. Insurance Companies
2. Pension Funds
3. Retail Investors

Select the correct answer using the code given below:

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

Q44. Consider the following:

1. Exchange-Traded Funds (ETF)
2. Motor vehicles
3. Currency swap

Which of the above is/are considered financial instruments?

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

Q45. With reference to the sectors of the Indian economy, consider the following pairs:

	Economic activity	Sector
1.	Storage of agricultural produce	Secondary
2.	Dairy farm	Primary
3.	Mineral exploration	Tertiary
4.	Weaving cloth	Secondary

How many of the pairs given above are correctly matched?

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

Q46. Consider the following materials:

1. Agricultural residues
2. Corn grain
3. Wastewater treatment sludge
4. Wood mill waste

Which of the above can be used as feedstock for producing Sustainable Aviation Fuel?

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

Q47. With reference to physical capital in Indian economy, consider the following pairs:

	Items	Category
1.	Farmer's plough	Working capital
2.	Computer	Fixed capital
3.	Yarn used by the weaver	Fixed capital
4.	Petrol	Working capital

How many of the above pairs are correctly matched?

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

Q48. Which one of the following words/phrases is most appropriately used to denote "an interoperable network of 3D virtual worlds that can be accessed simultaneously by millions of users, who can exert property rights over virtual items"?

- (a) Big data analytics    (b) Cryptography  
(c) Metaverse    (d) Virtual matrix

Q49. With reference to the rule/rules imposed by the Reserve Bank of India while treating foreign banks, consider the following statements:

1. There is no minimum capital requirement for wholly owned banking subsidiaries in India.
2. For wholly owned banking subsidiaries in India, at least 50% of the board members should be Indian nationals.

Which of the statements given above is/are correct?

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



In which of the above rows is the given information correctly matched?

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

Q56. Who of the following rulers of medieval India gave permission to the Portuguese to build a fort at Bhatkal ?

- (a) Krishnadevaraya      (b) Narasimha Saluva  
(c) Muhammad Shah III      (d) Yusuf Adil Shah

Q57. With reference to revenue collection by Cornwallis, consider the following statements:

- Under the Ryotwari Settlement of revenue collection, the peasants were exempted from revenue payment in case of bad harvests or natural calamities.
- Under the Permanent Settlement in Bengal, if the Zamindar failed to pay his revenues to the state, on or before the fixed date, he would be removed from his Zamindari.

Which of the statements given above is/are correct?

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

Q58. Consider the following statements:

- There are no parables in Upanishads.
- Upanishads were-composed earlier than the Puranas.

Which of the statements given above is/are correct?

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

Q59. Consider the following statements:

- India is a member of the International Grains Council.
- A country needs to be a member of the International Grains Council for exporting or importing rice and wheat.

Which of the statements given above is/are correct?

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

Q60. Which one of the following was the latest inclusion in the Intangible Cultural Heritage List of UNESCO?

- (a) Chhau dance      (b) Durga puja  
(c) Garba dance      (d) Kumbh mela

Q61. Who was the Provisional President of the Constituent Assembly before Dr. Rajendra Prasad took over?

- (a) C. Rajagopalachari  
(b) Dr. B.R. Ambedkar  
(c) T.T. Krishnamachari  
(d) Dr. Sachchidananda Sinha

Q62. With reference to the Government of India Act, 1935, consider the following statements:

- It provided for the establishment of an All India Federation based on the union of the British Indian Provinces and Princely States.
- Defence and Foreign Affairs were kept under the control of the federal legislature.

Which of the statements given above is/are correct?

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

Q63. Which one of the following is a work attributed to playwright Bhasa?

- (a) Kavyalankara      (b) Natyashastra  
(c) Madhyama-vyayoga      (d) Mahabhashya

Q64. Sanghabhuti, an Indian Buddhist monk, who travelled to China at the end of the fourth century AD, was the author of a commentary on:

- (a) Prajnaparamita Sutra      (b) Visuddhimagga  
(c) Sarvastivada Vinaya      (d) Lalitavistara

Q65. Consider the following properties included in the World Heritage List released by UNESCO:

- Shantiniketan
- Rani-ki-Vav

3. Sacred Ensembles of the Hoysalas
4. Mahabodhi Temple Complex at Bodhgaya

How many of the above properties were included in 2023?

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

Q66. As per Article 368 of the Constitution of India, the Parliament may amend any provision of the Constitution by way of:

1. Addition    2. Variation    3. Repeal

Select the correct answer using the code given below:

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

Q67. Consider the following countries:

1. Italy                      2. Japan
3. Nigeria                4. South Korea
5. South Africa

Which of the above countries are frequently mentioned in the media for their low birth rates, or ageing population or declining population?

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

Q68. Which of the following statements are correct in respect of a Money Bill in the Parliament?

1. Article 109 mentions special procedure in respect of Money Bills.
2. A Money Bill shall not be introduced in the Council of States.
3. The Rajya Sabha can either approve the Bill or suggest changes but cannot reject it.
4. Amendments to a Money Bill suggested by the Rajya Sabha have to be accepted by the Lok Sabha.

Select the answer using the code given below:

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

Q69. Which of the following is /are correctly matched in terms of equivalent rank in the three services of Indian Defense forces?

	Army	Airforce	Navy
1.	Brigadier	Air Commodore	Commander
2.	Major General	Air Vice Marshal	Vice Admiral
3.	Major	Squadron Leader	Lieutenant Commander
4.	Lieutenant Colonel	Group Captain	Captain

Select the correct answer using the code given below:

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

Q70. The North Eastern Council (NEC) was established by the North Eastern Council Act, 1971. Subsequent to the amendment of NEC Act in 2002, the Council comprises which of the following members?

1. Governor of the Constituent State
2. Chief Minister of the Constituent State
3. Three Members to be nominated by the President of India
4. The Home Minister of India

Select the correct answer using the code given below

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

Q71. How many Delimitation Commissions have been constituted by the Government of India till December 2023?

- (a) One                    (b) Two  
(c) Three                (d) Four

Q72. The Constitution (71st Amendment) Act, 1992 amends the Eighth Schedule to the Constitution to include which of the following languages?

1. Konkani              2. Manipuri
3. Nepali                4. Maithili

Select the correct answer using codes given below:

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

Q73. Consider the following pairs:

	Party	Its leader
1.	Bharatiya Jana Sangh	Dr. Shyama Prasad Mukherjee
2.	Socialist Party	C. Rajagopalachari
3.	Congress for Democracy	Jagjivan Ram
4.	Swatantra Party	Acharya Narendra Dev

How many of the above are correctly matched?

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

Q74. Which of the following statements are correct about the Constitution of India?

1. Powers of the Municipalities are given in Part IX A of the Constitution.
2. Emergency provisions are given in Part XVIII of the Constitution.
3. Provisions related to the amendment of the Constitution are given in Part XX of the Constitution.

Select the correct answer using the code given below:

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

Q75. Which one of the following statements is correct as per the Constitution of India?

- (a) Inter-State trade and commerce is a State subject under the State List.
- (b) Inter-State migration is a State subject under the State List
- (c) Inter-State quarantine is a Union subject under the Union List.
- (d) Corporation tax is a State subject under the State List.

Q76. Under which of the following Articles of the Constitution of India, has the Supreme Court of India placed the Right to Privacy?

- (a) Article 15 (b) Article 16  
(c) Article 19 (d) Article 21

Q77. What are the duties of the Chief of Defence Staff (CDS) as Head of the Department of Military Affairs?

1. Permanent Chairman of Chiefs of Staff Committee
2. Exercise military command over the three Service Chiefs
3. Principal Military Advisor to Defence Minister on all tri-service matters

Select the correct answer using the code given below :

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

Q78. Operations undertaken by the Army towards upliftment of the local population in remote areas to include addressing of their basic needs is called:

- (a) Operation Sankalp (b) Operation Maitri  
(c) Operation Sadbhavana (d) Operation Madad

Q79. The longest border between any two countries in the world is between:

- (a) Canada and the United States of America  
(b) Chile and Argentina  
(c) China and India  
(d) Kazakhstan and Russian Federation

Q80. Which of the following statements about the Ethics Committee in the Lok Sabha are correct?

1. Initially it was an ad-hoc Committee.
2. Only a Member of the Lok Sabha can make a complaint relating to unethical conduct of a member of the Lok Sabha.
3. This Committee cannot take up any matter which is sub-judice.

Select the answer using the code given below:

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

Q81. Consider the following statements regarding 'Nari Shakti Vandan Adhiniyam':

1. Provisions will come into effect from the 18th Lok Sabha.
2. This will be in force for 15 years after becoming an Act.
3. There are provisions for the reservation of seats for Scheduled Castes Women within the quota reserved for the Scheduled Castes.

Which of the statements given above are correct?

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

Q82. Which of the following statements about 'Exercise Mitra Shakti-2023' are correct?

1. This was a joint military exercise between India and Bangladesh.
2. It commenced in Aundh (Pune).
3. Joint response during counter-terrorism operations was a goal of this operation.
4. Indian Air Force was a part of this exercise.

Select the answer using the code given below:

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

Q83. A Writ of Prohibition is an order issued by the Supreme Court or High Courts to:

- (a) a government officer prohibiting him from taking a particular action.
- (b) the Parliament/Legislative Assembly to pass a law on Prohibition.
- (c) the lower court prohibiting continuation of proceedings in a case.
- (d) the Government prohibiting it from following an unconstitutional policy.

Q84. Consider the following statements:

1. It is the Governor of the State who recognizes and declares any community of that State as a Scheduled Tribe.
2. A community declared as a Scheduled Tribe in a State need not be so in another State.

Which of the statements given above is/are correct?

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

Q85. With reference to Union Budget, consider the following statements:

1. The Union Finance Minister on behalf of the Prime Minister lays the Annual Financial Statement before both the Houses of Parliament.
2. At the Union level, no demand for a grant can be made except on the recommendation of the President of India.

Which of the statements given above is/are correct?

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

Q86. Who of the following is the author of the books "The India Way" and "Why Bharat Matters"?

- (a) Bhupender Yadav
- (b) Nalin Mehta
- (c) Shashi Tharoor
- (d) Subrahmanyam Jaishankar

Q87. Consider the following pairs:

	Country	Reason for being in the news
1.	Argentina	Worst economic crisis
2.	Sudan	War between the country's regular army and paramilitary forces
3.	Turkey	Rescinded its membership of NATO

How many of the pairs given above are correctly matched?

- (a) Only one pair                      (b) Only two pairs  
(c) All three pairs                      (d) None of the pairs

Q88. Consider the following statements:

Statement-I:

Sumed pipeline is a strategic route for Persian Gulf oil and natural gas shipments to Europe.

Statement-II:

Sumed pipeline connects the Red Sea with the Mediterranean Sea.

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, but 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

Q89. Consider the following statements:

1. The Red Sea receives very little precipitation in any form.
2. No water enters the Red Sea from rivers.

Which of the statements given above is/are correct?

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

Q90. According to the Environmental Protection Agency (EPA), which one of the following is the largest source of sulphur dioxide emissions?

- (a) Locomotives using fossil fuels  
(b) Ships using fossil fuels  
(c) Extraction of metals from ores  
(d) Power plants using fossil fuels

Q91. Consider the following statements:

Statement-1:

There is instability and worsening security situation in the Sahel region.

Statement-II:

There have been military takeovers/coups d'état in several countries of the Sahel region in the recent past.

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, but 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

Q92. Consider the following statements:

Statement-1:

India does not import apples from the United States of America.

Statement-II:

In India, the law prohibits the import of Genetically Modified food without the approval of the competent authority.

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

- (a) Both Statement-1 and Statement-II are correct and Statement-II explains Statement-I  
(b) Both Statement-I and Statement-II are correct, but Statement-II does not explain Statement-I  
(c) Statement-I is correct, but Statement-II is incorrect

(d) Statement-1 is incorrect, but Statement-II is correct

Q93. With reference to the Speaker of the Lok Sabha, consider the following statements: While any resolution for the removal of the Speaker of the Lok Sabha is under consideration

1. He/She shall not preside.
2. He/She shall not have the right to speak.
3. He/She shall not be entitled to vote on the resolution in the first instance.

Which of the statements given above is/are correct?

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

Q94. With reference to the Indian Parliament, consider the following statements:

1. A bill pending in the Lok Sabha lapses on its dissolution.
2. A bill passed by the Lok Sabha and pending in the Rajya Sabha lapses on the dissolution of the Lok Sabha.
3. A bill in regard to which the President of India notified his/her intention to summon the Houses to a joint sitting lapses on the dissolution of the Lok Sabha.

Which of the statements given above is/are correct?

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

Q95. With reference to the Parliament of India, consider the following statements:

1. Prorogation of a House by the President of India does not require the advice of the Council of Ministers.
2. Prorogation of a House is generally done after the House is adjourned sine die but there is no bar to the President of India prorogating the House which is in session.
3. Dissolution of the Lok Sabha is done by the President of India who, save in exceptional circumstances, does so on the advice of the Council of Ministers.

Which of the statements given above is/are correct?

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

Q96. Consider the following statements:

Statement-I:

The European Parliament approved The Net-Zero Industry Act recently.

Statement-II:

The European Union intends to achieve carbon neutrality by 2040 and therefore aims to develop all of its own clean technology by that time.

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, but 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

Q97. Consider the following statements:

Statement-I:

Recently, Venezuela has achieved a rapid recovery from its economic crisis and succeeded in preventing its people from fleeing/emigrating to other countries.

Statement-II:

Venezuela has the world's largest oil reserves.

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, but 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

Q98. With reference to the Digital India Land Records Modernisation Programme, consider the following statements:

1. To implement the scheme, the Central Government provides 100% funding.

2. Under the Scheme, Cadastral Maps are digitised.

3. An initiative has been undertaken to transliterate the Records of Rights from local language to any of the languages recognized by the Constitution of India.

Which of the statements given above are correct?

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

Q99. With reference to the 'Pradhan Mantri Surakshit Matritva Abhiyan', consider the following statements:

1. This scheme guarantees a minimum package of antenatal care services to women in their second and third trimesters of pregnancy and six months post-delivery health care service in any government health facility.

2. Under this scheme, private sector health care providers of certain specialities can volunteer to provide services at nearby government health facilities.

Which of the statements given above is/are correct?

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

Q100. With reference to the Pradhan Mantri Shram Yogi Maan-dhan (PM-SYM) Yojana, consider the following statements:

1. The entry age group for enrolment in the scheme is 21 to 40 years.

2. Age specific contribution shall be made by the beneficiary.

3. Each subscriber under the scheme shall receive a minimum pension of ₹ 3,000 per month after attaining the age of 60 years.

4. Family pension is applicable to the spouse and unmarried daughters.

Which of the statements given above is/are correct?

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

## Answer Key GS Paper-I (Set A)

Q. N.	Ans.	Q. N.	Ans.	Q. N.	Ans.	Q. N.	Ans.	Q. N.	Ans.
1.	D	21.	C	41.	D	61.	D	81.	C
2.	A	22.	A	42.	C	62.	A	82.	D
3.	D	23.	D	43.	D	63.	C	83.	C
4.	A	24.	A	44.	D	64.	C	84.	B
5.	C	25.	A	45.	B	65.	B	85.	B
6.	B	26.	A	46.	C	66.	D	86.	D
7.	A	27.	D	47.	B	67.	A	87.	B
8.	B	28.	A	48.	C	68.	C	88.	A
9.	A	29.	C	49.	B	69.	B	89.	C
10.	B	30.	A	50.	A	70.	D	90.	D
11.	A	31.	B	51.	A	71.	D	91.	A
12.	A	32.	D	52.	C	72.	A	92.	D
13.	D	33.	A	53.	D	73.	B	93.	A
14.	C	34.	B	54.	B	74.	D	94.	B
15.	D	35.	D	55.	B	75.	C	95.	C
16.	B	36.	D	56.	A	76.	D	96.	C
17.	D	37.	D	57.	B	77.	D	97.	D
18.	B	38.	C	58.	B	78.	C	98.	D
19.	B	39.	D	59.	A	79.	A	99.	B
20.	C	40.	C	60.	C	80.	C	100.	B

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## GS (CSAT) Paper-II (Set C)

### Passage 2

#### Directions for the following 3 (three) items :

Read the following two passages and answer the items that follow the passages. Your answers to these items should be based on the passages only.

#### Passage -1

By the time children reach class 8, the bulk of them tend to be in the age range of 13 years to 15 years. But in our country, about a quarter of all children in class 8 struggle with reading simple texts and more than half are still unable to do basic arithmetic operations like division. Every year about 25 million young boys and girls from elementary school move into the life that lies for them beyond compulsory schooling. They cannot enter the work force at least in the organized sector till they are 18. For many families, these children are the first from their families ever to get this far in school. Parents and children expect that such 'graduates' from school will go on to high school and college. Hardly anyone wants to go back to agriculture. On the other hand, abilities in terms of academic competencies are far lower than they should be even based on curricular expectations of class 8.

Q1. Based on the above passage, the following assumptions have been made:

1. For effective school education, parents have greater role than the governments.
2. School curriculum that conforms to today's requirements and is uniform for the entire country may address the issues brought out.

Which of the assumptions given above is /are valid?

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

Q2. Which one of the following statements best reflects the central idea conveyed by the passage?

- (a) Total eradication of poverty in the country will resolve the issue of under-performance of our school -children.
- (b) Monetary incentives to parents and teachers is a strategy to improve the children's academic performance.
- (c) Public policy should ensure that competencies and achievements of young people are aligned with their expectations.
- (d) India is not going to take advantage of the demographic dividend unless some school pass-outs go back to agriculture.

We take it for granted now that science has a social responsibility. The idea would not have occurred to Newton or Galileo. They thought of science as an account of the world as it is, and the only responsibility that they acknowledged was to tell the truth. The idea that science is a social enterprise is modern, and it begins at the industrial revolution. We are surprised that we cannot trace a social sense further back, because we nurse the illusion that the industrial revolution ended a golden age.

Q3. Which one of the following statements best reflects the thinking of the author about the science?

- (a) Science must value the commitment of the scientists.
- (b) Science is a product of civilized society and must be used for the promotion of scientific awareness in people.
- (c) Industrial revolution was made possible by the advancements in science.
- (d) Science must pursue truth but be responsible for social welfare.

Q4. Consider the sequence

A \_BCD \_BBCDABC\_DABC\_D

that follows a certain pattern. Which one of the following completes the sequence ?

- (a) B , A , D , C              (b) B , A , C , D  
(c) A , A , C , D              (d) A , A , D , C

Q5. Two persons P and Q enter into a business. P puts Rs. 14,000 more than Q, but P has invested for 8 months and Q has invested for 10 months. If P's share is Rs 400 more than Q's share out of the total profit of Rs 2000, what is the capital contributed by P ?

- (a) Rs 30,000      (b) Rs 26,000  
(c) Rs 24,000      (d) Rs 20,000

Q6. P's salary is 20 % lower than Q's salary which is 20 % lower than R's salary. By how much percent is R's salary more than P's salary?

- (a) 48.75%              (b) 56.25%  
(c) 60.50%              (d) 62.25%

Q7. A number is mistakenly divided by 4 instead of multiplying by 4. What is the percentage change in the result due to this mistake?

- (a) 25% (b) 50%  
(c) 72.75% (d) 93.75%

Q8. In an examination, 80% of students passed in English, 70% of students passed in Hindi and 15% failed in both the subjects? What is the percentage of students who failed in only one subject ?

- (a) 15% (b) 20%  
(c) 25% (d) 35%

Q9. A father said to his son, "n years back I was as old as you are now. My present age is four times your age n years back". If the sum of the present ages of the father and the son is 130 years, what is the difference of their ages?

- (a) 30 years (b) 32 years  
(c) 34 years (d) 36 years

Q10. Consider the following :

1. 1000 litres = 1 m<sup>3</sup>
2. 1 metric ton = 1000 kg
3. 1 hectare = 10000 m<sup>2</sup>

Which of the above are correct?

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

Directions for the following 4 (four) items :

Read the following two passages and answer the items that follow the passages. Your answers to these items should be based on the passages only.

**Passage -1**

According to the food and agriculture organization, one-third of food product for human consumption is lost or wasted globally. food is lost or wasted throughout the supply chain, from initial agriculture production to final household consumption. The increasing wastage also result in land degradation by about 45% mainly due to deforestation unsustainable agriculture practices, and excessive groundwater extraction. the energy spent over wasted food result in about 3.5 billion tonnes of carbon dioxide production every year. Decay also lead

to harmful emission of other gases in the atmosphere. Addressing the loss and wastage of food in all forms is critical to complete the cycle of food sufficiency and food sustainability.

Q11. Which of the following statements best reflect the most logical and rational inferences that can be made from the passage?

1. The current method of food distribution are solely responsible for the loss and wastage of food.
2. Land productivity is adversely affected by the prevailing trend of food loss and wastage.
3. Reduction in the loss and wastage of food results in lesser carbon footprint.
4. Post-harvest technologies to prevent or reduce the loss and wastage of food are not available.

Select the correct answer using the code given below.

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

Q12. Based on the above passage, the following assumptions have been made:

1. The food distribution mechanism needs to be reimaged and made effective to reduce the loss and wastage of food.
2. Ensuring the reduction of wastage and loss of food is a social and moral responsibility of all citizens.

Which of the assumptions give above is/ are valid?

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

**Passage 2**

As inflation rises, even governments previously committed to budget discipline are spending freely to help households. Higher interest rates announced by central bank are supposed to help produce modest fiscal austerity, because to maintain stable debts while paying more to borrow, government must cut spending or raise taxes. Without the fiscal backup, monetary policy eventually loses traction. Higher interest rates become inflationary, not disinflationary, because they simply lead government to borrow more to pay rising debt-service costs. The risk of monetary unmooring is greater when public debt rises, because interest rates become more important to budget deficits.

Q13. Which of the following statements best reflects/ reflect the most logical and rational inference/ inferences that can be made from the passage?

1. Central banks cannot bring down inflation without budgetary backing.
2. The effect of monetary policy depend on the fiscal policies pursued by the government.

Select the correct answer using the code give below.

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

Q14. Based on the above passage, the following assumptions have been made:

1. Fiscal policies of government are solely responsible for higher prices.
2. Higher prices do not affect the long-term government bonds.

Which of the assumptions given above is/are valid?

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

Q15. What is the least possible number of cuts required to cut a cube into 64 identical pieces?

- (a) 8                              (b) 9  
(c) 12                             (d) 16

Q16. In the expression  $5^*4^*3^*2^*1$ , \* is chosen from +, -, x each at most two times. What is the smallest non-negative value of the expression?

- (a) 3                              (b) 2  
(c) 1                              (d) 0

Q17. A certain number of men can complete a piece of work in 6k days, where k is a natural number. By what percent should the number of men be increased so that the work can be completed in 5k days?

- (a) 10%                              (b) (50/3) %  
(c) 20%                              (d) 25%

Q18. X, Y and Z can complete a piece of work individually in 6 hours, 8 hours and 8 hours respectively. However, only one person at a time can work in each hour and nobody can work for two consecutive hours. All are engaged to finish the work. What is the

minimum amount of time that they will take to finish the work ?

- (a) 6 hours 15 minutes  
(b) 6 hours 30 minutes  
(c) 6 hours 45 minutes  
(d) 7 hours

Q19. How many consecutive zeros are there at the end of the integer obtained in the product  $1^2 \times 2^4 \times 3^6 \times 4^8 \times \dots \times 25^{50}$ ?

- (a) 50                              (b) 55  
(c) 100                              (d) 200

Q20. On January 1<sup>st</sup>, 2023, a person saved Rs 1. On January 2<sup>nd</sup>, 2023, he saved Rs 2 more than that on the previous day. On January 3<sup>rd</sup>, 2023, he saved Rs 2 more than that on the previous day and so on. At the end of which date was his total savings a perfect square as well a perfect cube?

- (a) 7th January, 2023              (b) 8th January, 2023  
(c) 9th January, 2023              (d) Not possible

Directions for the following 4 (four) items :

Read the following two passages and answer the items that follow the passages. Your answers to these items should be based on the passages only.

**Passage -1**

“The history of science is the real history of mankind.” In this striking epigram, a nineteenth-century writer links science with its background. Like most epigrams, its power lies in emphasizing by contrast an aspect of truth which may be easily overlooked. In this case, it is easy to overlook the relations between science and mankind, and to treat the former as some abstract third party, which can sometimes be praised for its beneficial influences, but frequently and conveniently blamed for the horrors of war. Science and mankind cannot be divorced from time to time at men’s convenience. Yet we have seen that, in spite of countless opportunities of improvement, the opening years of the present period of civilization have been dominated by international conflict. Is this the inevitable result of the progress of science or does the fault lie elsewhere?

Q21. Which of the following is/are emphatically conveyed by the author of the passage?

1. Without science, mankind could not have continued to exist till today.
2. It is the science that will ultimately determine the destiny of mankind.

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

Q22. Based on the above passage, the following assumptions have been made:

1. The horrors of modern life are the inevitable result of the progress of science.
2. The aspect of truth likely to be overlooked is that science is what man has made it.

Which of the assumptions given above is/are correct?

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

### Passage-2

Only with long experience and opening of his wares on many a beach where his language is not spoken, will the merchant come to know the worth of what he carries, and what is parochial and what is universal in his choice. Such delicate goods as justice, love and honour, courtesy, and indeed all the things we care for, are valid everywhere but they are variously moulded and often differently handled, and sometimes nearly unrecognizable if you meet them in a foreign land, and the art of learning fundamental common values is perhaps the greatest gain of travel to those who wish to live at ease among their fellows.

Q23. When we meet other people while we travel, we learn to differentiate between

- (a) imagination and understanding  
(b) communities and nationalities  
(c) local values and universal values  
(d) friend and foes

Q24. With reference to the above passage, the following assumptions have been made:

1. Travel leads to an understanding of humans
2. Travel helps those who wish to learn fundamental common values
3. A person with long experience in travel can resolve differences amongst people

Which of the assumptions given above are valid?

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

Q25. Let X be a two-digit number and Y be another two-digit number formed by interchanging the digits of X. If  $(X+Y)$  is the greatest two-digit number, then what is the number of possible values of X?

- (a) 2                              (b) 4  
(c) 6                              (d) 8

Q26. Consider the following:

Weight of 6 boys = Weight of 7 girls = Weight of 3 men = Weight of 4 women

If the average weight of the women is 63 kg, then what is the average weight of the boys?

- (a) 40 kg                      (b) 42 kg  
(c) 45 kg                      (d) 63 kg

Q27. How many times the hour hand and the minute hand coincide in a clock between 10:00 a.m. and 2:00 p.m. (same day)?

- (a) 3 times                      (b) 4 times  
(c) 5 times                      (d) 6 times

Q28. The calendar for the year 2025 is same for

- (a) 2029                      (b) 2030  
(c) 2031                      (d) 2033

Q29. Let p, q, r and s be distinct positive integers. Let p, q be odd and r, s be even. Consider the following statements:

1.  $(p - r)^2 (qs)$  is even
2.  $(q - s) q^2 s$  is even
3.  $(q + r)^2 (p + s)$  is odd

Which of the statements given above are correct?

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

Q30. What is the angle between the minute hand and hour hand when the clock shows 4:25 hours?

- (a)  $12.5^\circ$                       (b)  $15^\circ$   
(c)  $17.5^\circ$                       (d)  $20^\circ$

Directions for the following 4 (four) items:

Read the following two passages and answer the items that follow the passages. Your answers to these items should be based on the passages only.

## Passage-1

Today, if we consider cities such as New York, London and Paris as some of the most iconic cities in the world, it is because plans carrying a heavy systems approach were imposed on their precincts. The backbone of the systems theory is the process of translating social, spatial and cultural desirables into mathematical models using computing, statistics, optimization and an algorithmic way of formulating and solving problems. The early universities of the West which began to train professionals in planning, spawned some of the most ingenious planners, who were experts in these domains. This was because these very subjects were absorbed into the planning curriculum that had its roots in the social sciences, geography and architecture. Planning in India, and its education differ from the West.

- Q31. Which one of the following statements best reflects the most logical and rational inference that can be made from the above passage?
- Curriculum for urban planning courses should have diverse and interdisciplinary approach.
  - In India, city administration is under bureaucracy which lacks formal training in urban planning and management.
  - In India, the management of urban areas is a local affair with a chronic problem of insufficient funds.
  - With high density of population and widespread poverty in our urban areas, planned development in them is very difficult.
- Q32. Based on the above passage, the following assumptions have been made:
- India needs a new generation of urban professionals with knowledge relevant to modern urban practice.
  - Indian universities at present have no capacity or potential to impart training in systems approach.

Which of the assumptions given above is/are correct?

- 1 only
- 2 only
- Both 1 and 2
- Neither 1 nor 2

## Passage-2

Not every voice on the internet commands the same kind of audience. When anonymous private entities with high capital can pay for more space for their opinions, they are effectively buying a louder voice.

If political discourse in the digital sphere is a matter of outshining one's opponent till the election is won, then the quality of politics suffers. The focus of social media is restricted to the promotion of content that generates more user engagement, regardless of how inflammatory the content may be.

- Q33. Which one of the following statements best reflects the central idea of the above passage?
- Constructed as a marketplace of views, social media ensures instant access to information.
  - Social media are not ideal or moral institutions but the products built by companies to make profits.
  - Social media have been created to strengthen democracies.
  - In today's world, social media are inevitable for well-informed social life.
- Q34. Based on the above passage, the following assumptions have been made:
- Internet is not inclusive enough.
  - Internet can adversely affect the quality of politics in a country.

Which of the assumptions given above is/are valid?

- 1 only
- 2 only
- Both 1 and 2
- Neither 1 nor 2

- Q35.  $222^{333} + 333^{222}$  is divisible by which of the following numbers?
- 2 and 3 but not 37
  - 3 and 37 but not 2
  - 2 and 37 but not 3
  - 2, 3 and 37
- Q36. What percent of water must be mixed with honey so as to gain 20% by selling the mixture at the cost price of honey?
- 20%
  - 10%
  - 5%
  - 4%
- Q37. What is the rightmost digit preceding the zeros in the value of  $30^{30}$ ?
- 1
  - 3
  - 7
  - 9

Q38. 421 and 427, when divided by the same number, leave the same remainder 1. How many numbers can be used as the divisor in order to get the same remainder 1?

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

Q39. A can X contains 399 litres of petrol and a can Y contains 532 litres of diesel. They are to be bottled in bottles of equal size so that whole of petrol and diesel would be separately bottled. The bottle capacity in terms of litres is an integer. How many different bottle sizes are possible?

- (a) 3 (b) 4  
(c) 5 (d) 6

Q40. Consider the following statements in respect of the sum  $S = x + y + z$ , where  $x$ ,  $y$  and  $z$  are distinct prime numbers each less than 10:

1. The unit digit of  $S$  can be 0.
2. The unit digit of  $S$  can be 9.
3. The unit digit of  $S$  can be 5.

Which of the statements given above are correct?

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

Directions for the following 3 (three) items :

Read the following three passages and answer the items that follow the passages. Your answers to these items should be based on the passages only.

**Passage-1**

In a robust democracy, reality, howsoever inconvenient it may be, finds its expression both in the speech of political leaders and the other social forms of assertion. The existence of the real has to be transparent, both through its circulation in and by the media as well as its argumentative articulation in deliberative democracy. A normatively responsible media through its communication effect has the responsibility to circulate the content of reality without distortion.

Q41. Which one of the following statements best reflects the crux of the above passage?

- (a) Responsible media should not distort the real in an ideal democracy.
- (b) Fake news seems inherent in the life of an ideal democracy.
- (c) There should not be any kind of restrictions on the freedom of expression in an ideal democracy.

(d) Irresponsible media and political leaders cannot be effectively controlled in an ideal democracy.

**Passage-2**

Now-a-days there is a growing trend to use interconnected home devices. As consumers increasingly network their homes, the connected home device manufacturers and service providers will seek to overcome "thin profit margins by gathering more of our personal data-with or without our agreement-turning the home into a corporate storefront", Corporate marketers will have powerful incentives to observe consumer behaviour to understand the buying needs and preferences of the device owners.

Q42. Which one of the following statements best reflects the most logical, rational and practical message implied by the passage?

- (a) Knowledge of consumer behaviour leads to more capital expenditure in manufacturing sector.
- (b) Knowledge of consumer behaviour stimulates the growth of commerce and trade and thus helps in the overall economic development of the country.
- (c) Interconnected devices give a lot of comfort to home users and improve the overall quality of life.
- (d) Interconnected devices can be at security risk and home users may have privacy risk.

**Passage-3**

Greengrowth involves rethinking growth strategies with regard to the impacts on environmental sustainability and the environmental resources available to poor and vulnerable groups. In rethinking growth, we need to focus on 'the current reality of resource-constrained world. Resource intensive and, in particular energy intensive processes will need to make way for more efficient and resource frugal development strategies if we are to avoid an economic dead end or a world in which only a small elite is able to enjoy affluence in the midst of a sea of poverty.

Q43. Which one of the following statements best reflects the crux of the above passage?

- (a) Environmental sustainability is inimical to our objective of achieving a high rate of GDP growth.
- (b) Poverty eradication is not possible without a rapid economic growth and the consequent environmental degradation.
- (c) Maintaining high environmental standards is now a prerequisite for achieving a steady, sufficient and inclusive growth.

(d) With large populations, rampant poverty and limited resources of today's world, environmental degradation cannot be prevented and inequalities are inevitable.

Q44. A Question is given followed by two Statements I and II. Consider the Question and the Statements.

Question:

What are the unique values of  $x$  and  $y$ , where  $x, y$  are distinct natural numbers?

Statement-I:  $x/y$  is odd.

Statement-II  $xy=12$ .

Which one of the following is correct in respect of the above Question and the Statements?

- (a) The Question can be answered by using one of the Statements alone, but cannot be answered using the other Statement alone
- (b) The Question can be answered by using either Statement alone.
- (c) The Question can be answered by using both the Statements together, but cannot be answered using either Statement alone
- (d) The Question cannot be answered even by using both the Statements together

Q45. A Question is given followed by two Statements I and II. Consider the Question and the Statements.

A certain amount was distributed among  $X, Y$  and  $Z$ .

Question: Who received the least amount?

Statement- I :  $X$  received  $4/5$  of what  $Y$  and  $Z$  together received.

Statement-II :  $Y$  received  $2/7$  of what  $X$  and  $Z$  together received.

Which one of the following is correct in respect of the above Question and the Statements?

- (a) The Question can be answered by using one of the Statements alone, but cannot be answered using the other Statement alone
- (b) The Question can be answered by using either Statement alone
- (c) The Question can be answered by using both the Statements together, but cannot be answered using either Statement alone
- (d) The Question cannot be answered even by using both the Statements together

Q46. A Question is given followed by two Statements I and II. Consider the Question and the Statements.

Question:

If the average marks in a class are 60, then what is the number of students in the class?

Statement-I:

The highest marks in the class are 70 and the lowest marks are 50.

Statement-II:

Exclusion of highest and lowest marks from the class does not change the average.

Which one of the following is correct in respect of the above Question and the Statements?

- (a) The Question can be answered by using one of the Statements alone, but cannot be answered using the other Statement alone
- (b) The Question can be answered by using either Statement alone
- (c) The Question can be answered by using both the Statements together, but cannot be answered using either Statement alone
- (d) The Question cannot be answered even by using both the Statements together

Q47. A Question is given followed by two Statements I and II. Consider the Question and the Statements.

There are three distinct prime numbers whose sum is a prime number.

Question:

What are those three numbers?

Statement-I: Their sum is less than 23.

Statement-II: One of the numbers is 5.

Which one of the following is correct in respect of the above Question and the Statements?

- (a) The Question can be answered by using one of the Statements alone, but cannot be answered using the other Statement alone
- (b) The Question can be answered by using either Statement alone
- (c) The Question can be answered by using both the Statements together, but cannot be answered using either Statement alone
- (d) The Question cannot be answered even by using both the Statements together

Q48. A Question is given followed by two Statements I and II. Consider the Question and the Statements.

Question: Is  $(x + y)$  an integer?

Statement-I:  $(2x + y)$  is an integer.

Statement-II:  $(x+2y)$  is an integer.

Which one of the following is correct in respect of the above Question and the Statements?

- (a) The Question can be answered by using one of the Statements alone, but cannot be answered using the other Statement alone
- (b) The Question can be answered by using either Statement alone
- (c) The Question can be answered by using both the Statements together, but cannot be answered using either Statement alone
- (d) The Question cannot be answered even by using both the Statements together

Q49. A Question is given followed by two Statements I and II. Consider the Question and the Statements.

A person buys three articles p, q and r for Rs. 50. The price of the article q is Rs. 16 which is the least.

Question:

What is the price of the article p?

Statement-I:

The cost of p is not more than that of r.

Statement-II:

The cost of r is not more than that of p.

Which one of the following is correct in respect of the above Question and the Statements?

- (a) The Question can be answered by using one of the Statements alone, but cannot be answered using the other Statement alone
- (b) The Question can be answered by using either Statement alone
- (c) The Question can be answered by using both the Statements together, but cannot be answered using either Statement alone
- (d) The Question cannot be answered even by using both the Statements together

Q50. A Question is given followed by two Statements I and II. Consider the Question and the Statements.

P, Q, R and S appeared in a test.

Question:

Has P scored more marks than Q?

Statement-I :

The sum of the marks scored by P and Q is equal to the sum of the marks scored by R and S.

Statement-II :

The sum of the marks scored by P and S is more than the sum of the marks scored by Q and R.

Which one of the following is correct in respect of the above Question and the Statements?

- (a) The Question can be answered by using one of the Statements alone, but cannot be answered using the other Statement alone
- (b) The Question can be answered by using either Statement alone
- (c) The Question can be answered by using both the Statements together, but cannot be answered using either Statement alone
- (d) The Question cannot be answered even by using both the Statements together

Directions for the following 4 (four) items :

Read the following two passages and answer the items that follow the passages. Your answers to these items should be based on the passages only.

### Passage-1

Conventional classrooms, by emphasizing fixed duration over learning effectiveness, resign themselves to variable outcomes. The tyranny of the classroom is that every learner is subjected to the same set of lectures in the same way for the same duration. In the end, a few learners shine, some survive, and the rest are left behind. After the fixed duration, the classroom model moves on, with not a thought spared for those left behind. This is how we end up with 10 percent employability in our graduates after a decade and half of formal education. Repeating the same ineffectual script in the realm of skill education will not produce different results.

Q51. Which of the following statements best reflects/reflect the most logical and rational inference/inferences that can be made from the passage?

1. In conventional classroom learning, the central goal is duration of learning rather than attainment of competency.

2. Conventional classrooms encourage one-size-fits-all approach and, stamp out all differentiation.

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

Q52. Based on the above passage, the following assumptions have been made:

- As a large number of workers in our country are employed in unorganized sector, India does not need to change its present conventional classroom system of education.
- Even with its present conventional classroom system of education, India produces sufficient number of skilled workers to fully realize the benefits of demographic dividend.

Which of the assumptions given above is/are valid?

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

**Passage-2**

When a child reaches adolescence, there is apt to be a conflict between the parents and the child, since the latter considers himself to be by now quite capable of managing his own affairs, while the former are filled with parental solicitude, which is often a disguise for love of power. Parents consider, usually, that the various moral problems which arise in adolescence are peculiarly their province. The options they express, however, are so dogmatic that the young seldom confide them, and usually go their own way in secret.

Q53. Based on the above passage, the following assumptions have been made:

- The adolescent does not feel comfortable his parents because they tend to be dominating and assertive.
- The adolescent of modern times does not have much respect for parents.

Which of the assumptions given above is/are valid?

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

Q54. Which one of the following statements best reflects the central idea of the above passage?

- Parents in general may not be of much help when children are on their way to becoming adults.
- When children reach adolescence, involvement of parents in their lives is unnecessary.
- Modern-day nuclear families are not capable of bringing up children properly.
- In modern societies, adolescents tend to be stubborn, disobedient and careless.

Q55. What is the number of fives used in numbering a 260-page book?

- (a) 55      (b) 56  
(c) 57      (d) 60

Q56. What is the sum of the first 28 terms in the following sequence?

1,1,2,1,3,2,1,4,3,2,1,5,4,3,2...

- (a) 83                      (b) 84  
(c) 85                      (d) 86

Q57. A person buys three articles P, O and R for Rs3,330. If P costs 25% more than R and R costs 20% more than Q, then what is the cost of P?

- (a) Rs. 1,000      (b) Rs. 1200  
(c) Rs. 1, 250      (d) Rs. 1,350

Q58. If the sum of two-digit numbers AB and CD is the three-digit number 1CE, where the letters A, B, C, D, E denote distinct digits, then what is the value of A?

- (a) 9      (b) 8  
(c) 7      (d) Cannot be determined due to insufficient data

Q59. Three numbers x, y, z are selected from the set of the first seven natural numbers such that  $x > 2y > 3z$  How many such distinct triplets (x, y, z) are possible?

- (a) One triplet                      (b) Two triplets  
(c) Three triplets                      (d) Four triplets

Q60. The total cost of 4 oranges, 6 mangoes and 8 apples is equal to twice the total cost of 1 orange, 2 mangoes and 5 apples. Consider the following statements:

1. The total cost of 3 oranges, 5 mangoes and 9 apples is equal to the total cost of 4 oranges, 6 mangoes and 8 apples.
2. The total cost of one orange and one mango is equal to the cost of one apple.

Which of the statements given above is/are correct?

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

**Directions for the following 2 (two) items:**

Read the following **two passages** and answer the items that follow the passages. Your answers to these items should be based on the passages only.

**Passage-1**

Unlike religion and science, poetry does not posit or expect any belief in absolute truths. Those forces or individuals who claim to have absolute truths in their grasp tend to turn dictatorial and tyrannical. Truth usually does not admit any contradictions or imperfections. It is Unitarian. It is, therefore, not of much use for poetry. Poetry abides by the plurality of life and existence. Perhaps poetry follows reality which is plural, anachronistic, full of contradictions. Against the tyranny of truth, poetry remains a partisan of democratic reality. Against the arrogance of power, wealth and hierarchy, poetry proposes both humility and defiance.

Q61. Which one of the following statements best reflects the most logical and rational message conveyed by the above passage?

- (a) It is the poetry, not science or religion, which recognizes and accepts imperfections in humans.
- (b) Truth is revealed through science or religion and poetry is anathema to truth.
- (c) Poetry is romantic, imaginary and is about feeling whereas science and religion are about truth.
- (d) In a world of violence, tyranny and bigotry, poetry is a form of dynamic resistance.

**Passage-2**

The flower was not invented to please us. It flaunted its petals and spread its perfume to attract an insect. The insect carries the pollen from flower to flower so that pollen is not carried away by wind and thus not

wasted. What we call a flower's beauty is merely a by-product and a human invention. The perfume is not there to please us, it pleases us because it is there and we have been conditioned to it.

Q62. Based on the above passage, the following assumptions have been made:

1. The author of the passage believes that flowers are creations of Nature's luxury.
2. The author of the passage does not believe in the usefulness of flowers except as things of beauty.

Which of the assumptions given above is/are valid?

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

Q63. A Question is given followed by two Statements I and II. Consider the Question and the Statements.

Age of each of P and Q is less than 100 years but more than 10 years. If you interchange the digits of the age of P, the number represents the age of Q.

Question:

What is the difference of their ages?

Statement-I :

The age of P is greater than the age of Q.

Statement-II :

The sum of their ages is  $11/6$  times their difference.

Which one of the following is correct in respect of the above Question and the Statements?

- (a) The Question can be answered by using one of the Statements alone, but cannot be answered using the other Statement alone
- (b) The Question can be answered by using either Statement alone
- (c) The Question can be answered by using both the Statements together, but cannot be answered using either Statement alone
- (d) The Question cannot be answered even by using both the Statements together

Q64. A Main Statement is followed by four Statements labelled, P, Q, R and S. Choose the ordered pair of the Statements where the first Statement implies the second, and the two Statements are logically consistent with the Main Statement.

Main Statement :

Pradeep becomes either a Director or a Producer.

Statement P: Pradeep is a Director.

Statement Q: Pradeep is a Producer.

Statement R: Pradeep is not a Director.

Statement S: Pradeep is not a Producer.

Select the correct answer.

- (a) SP only                      (b) RQ only  
(c) Both SP and RQ      (d) Neither SP nor RQ

Q65. If  $a + b$  means  $a - b$ ;  $a - b$  means  $a \times b$ ;  $a \times b$  means  $a \div b$ ;  $a \div b$  means  $a + b$ , then what is the value of  $10+30-100 \times 50 \div 25$ ? (Operations are to be replaced simultaneously)

- (a) 15                      (b) 0  
(c) -15                      (d) -25

Q66. If P means 'greater than (>)'; Q means 'less than (<)'; R means 'not greater than ( $\nlessgtr$ )'; S means 'not less than ( $\ngtr$ )' and T means 'equal to (=)', then consider the following statements:

- If  $2x(S)3y$  and  $3x(T)4z$ , then  $9y (P) 8z$ .
- If  $x(Q)2y$  and  $y(R)z$ , then  $x(R)z$ .

Which of the statements given above is/are correct?

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

Q67. If in a certain code, 'ABCD' is written as 24 and 'EFGH' is written as 1680, then how is 'IJKL' written in that code?

- (a) 11880                      (b) 11240  
(c) 7920                      (d) 5940

Q68. If in a certain code, 'POT' is written as ATOP and 'TRAP' is written as APART, then how is 'ARENA' written in that code?

- (a) AARENA      (b) AANREA  
(c) AANEAR      (d) AANERA

Q69. What will come in place of \* in the sequence 3, 14, 39, 84, \*, 258?

- (a) 150      (b) 155  
(c) 160      (d) 176

Q70. In some code, letters P, Q, R, S, T represent numbers 4, 5, 10, 12, 15. It is not known which letter represents which number. If  $Q-S=2S$  and  $T=R+S+3$ , then what is the value of  $P+R-T$ ?

- (a) 1      (b) 2  
(c) 3      (d) Cannot be determined due to insufficient data

Directions for the following 3 (three) items :

Read the following three passages and answer the items that follow the passages. Your answers to these items should be based on the passages only.

**Passage-1**

When an international team of scientists pumped a carbon dioxide and water mix into underground basalt rocks, basic chemistry took over. The acidic mixture dissolved rocks' calcium and magnesium and formed limestone. Basically, carbon dioxide is converted into stone, exclaimed the scientists.

Q71. Which one of the following statements best reflects the most logical, rational and practical suggestion implied by the passage?

- It is a cheap and practical method to produce limestone at commercial level for building purposes.
- This can be used as one of the methods of carbon sequestration.
- Basalt rock can be made a good source of calcium and magnesium minerals by this method.
- Good rock-dissolving acid can be produced by mixing carbon dioxide and water.

**Passage-2**

Geographers analyzed 175 satellite images of ocean colour, which is an indicator of phytoplankton productivity at the ocean's surface, and found that giant icebergs are responsible for storing up to 20 percent of carbon in the Southern Ocean. The researchers discovered that melting water from giant icebergs which contains iron and other nutrients, supports hitherto unexpectedly high levels of phytoplankton growth.

Q72. Based on the above passage, the following assumptions have been made :

- Giant icebergs have a bearing on primary productivity and food chains of the Southern Ocean.

2. Melting of giant icebergs can produce climate change effects and impact world fisheries.

Which of the assumptions given above is/are valid?

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

**Passage-3**

Evolution has endowed caterpillars that feed on corn with a unique ability, they can induce the plant to turn off its defence against insect predators. This helps caterpillars to eat more and grow faster. The agent that causes this effect is the caterpillar's faeces or frass. The find could throw new light on compounds associated with plant response to pathogens like fungi or bacteria.

Q73. Which one of the following statements best reflects the most logical, rational and practical message conveyed by the passage?

- (a) Farmers can use caterpillars to feed on weeds in their crop fields/ plantations.  
(b) This finding can help in the development of clinically useful antimicrobial compounds.  
(c) This finding can help in the development of organic, ecologically sustainable pesticides.  
(d) Caterpillars can be genetically modified to be predators of the other plant pests.

Q74.  $32^5 + 2^{27}$  is divisible by

- (a) 3                      (b) 7  
(c) 10                    (d) 11

Q75. Let p and q be positive integers satisfying  $p < q$  and  $p+q = k$ . What is the smallest value of k that does not determine p and q uniquely?

- (a) 3                      (b) 4  
(c) 5                      (d) 6

Q76. A person walks 100 m straight from his house, turns left and walks 100 m, again turns left and walks 300 m, then turns right and walks 100 m to reach his office. In which direction does he walk initially from his house if his office is exactly in the North-East direction?

- (a) North-West              (b) West  
(c) South                      (d) South-West

Q77. A person walks 100 m Westward, then turns left and walks 100 m. He then takes  $225^\circ$  turn clockwise. In which direction is he walking now?

- (a) South-West              (b) South-East  
(c) North-West              (d) North-East

Q78. A Statement is given followed by two Conclusions numbered I and II. Consider the Statement and the Conclusions.

Statement :India is the world's largest producer of milk.

Conclusion-I :India is the world's largest exporter of milk.

Conclusion-II : India does not import milk.

Which one of the following is correct?

- (a) Only Conclusion-I follows  
(b) Only Conclusion-II follows  
(c) Both Conclusion-I and Conclusion-II follow  
(d) Neither Conclusion-I nor Conclusion-II follows

Q79. A Question is given followed by two Statements I and II. Consider the Question and the Statements.

Question : What are the values of m and n, where m and n are natural numbers?

Statement-I :

$m+n > mn$  and  $m > n$ .

Statement-II: The product of m and n is 24.

Which one of the following is correct in respect of the above Question and the Statements?

- (a) The Question can be answered by using one of the Statements alone, but cannot be answered using the other Statement alone  
(b) The Question can be answered by using either Statement alone  
(c) The Question can be answered by using both the Statements together, but cannot be answered using either Statement alone  
(d) The Question cannot be answered even by using both the Statements together

Q80. A Question is given followed by two Statements I and II. Consider the Question and the Statements.

Question:What is the time required to download the software?

Statement-I: The size of the software is 12 megabytes.

Statement-II: The transfer rate is 2.4 kilobytes per second.

Which one of the following is correct in respect of the above Question and the Statements?

(a) The Question can be answered by using one of the Statements alone, but cannot be answered using the other Statement alone

(b) The Question can be answered by using either Statement alone

(c) The Question can be answered by using both the Statements together, but cannot be answered using either Statement alone

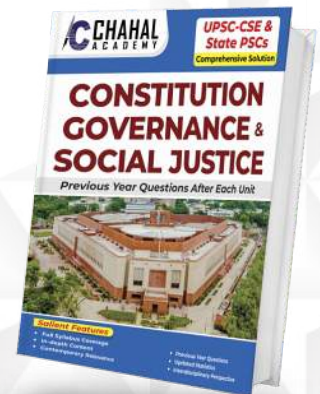
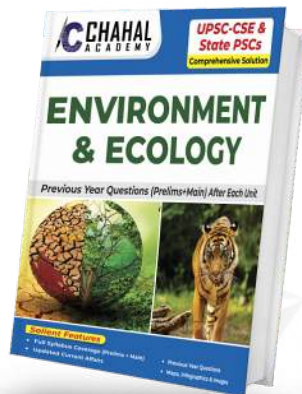
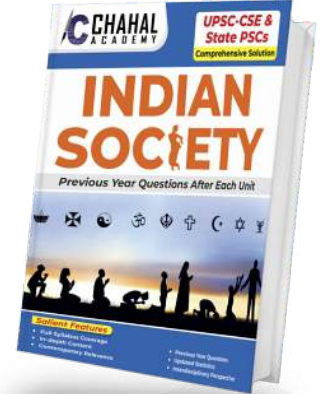
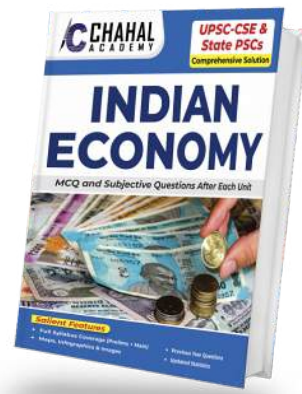
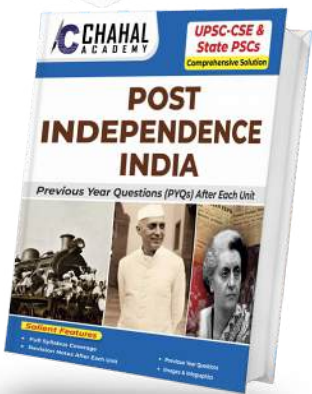
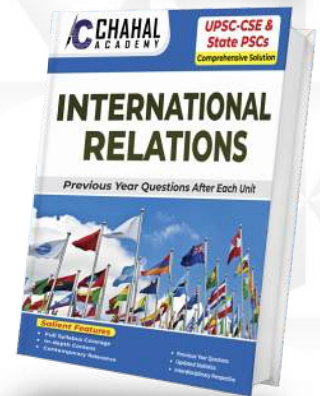
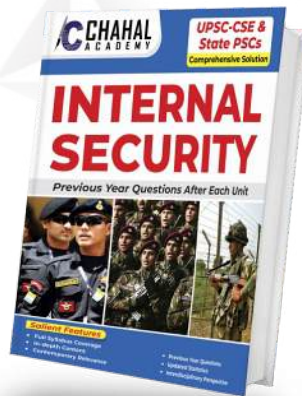
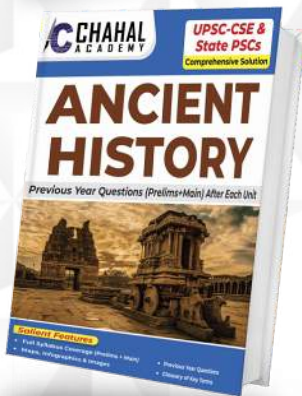
(d) The Question cannot be answered even by using both the Statements together

Answer Key GS (CSAT) Paper-II (Set C)							
Q. N.	Ans.	Q. N.	Ans.	Q. N.	Ans.	Q. N.	Ans.
1.	D	21.	D	41.	A	61.	D
2.	C	22.	B	42.	D	62.	D
3.	D	23.	C	43.	C	63.	A
4.	C	24.	A	44.	C	64.	C
5.	A	25.	D	45.	C	65.	D
6.	B	26.	B	46.	D	66.	D
7.	D	27.	A	47.	A	67.	A
8.	B	28.	C	48.	B	68.	D
9.	A	29.	D	49.	C	69.	B
10.	D	30.	C	50.	D	70.	B
11.	B	31.	A	51.	C	71.	B
12.	A/C	32.	A/D	52.	D	72.	A/C
13.	B/C	33.	B	53.	A	73.	B/C
14.	D	34.	C	54.	A	74.	C
15.	B	35.	B	55.	B	75.	C
16.	D	36.	A	56.	B	76.	C
17.	C	37.	D	57.	D	77.	D
18.	C	38.	C	58.	A	78.	D
19.	D	39.	B	59.	D	79.	C
20.	B	40.	C	60.	C	80.	C

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