WISDOM IAS

WEEKLY

9 MARCH - 16 MARCH, 2025

CURRENT AFFAIRS

For UPSC, PCS and Other Exams | Pre & Mains Practice Questions

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Gender Gap in the Higher Judiciary

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Gender Gap in the Higher Judiciary

Context: Despite progress in women's representation across professions, the **judiciary remains male-dominated**, reflecting systemic barriers and societal inequalities.

Current Gender Representation
- Women constitute only **14% of High Court** judges and **9.3% in the Supreme Court** (4 out of 34 judges).
- **Some High Courts**, including those in Bihar, Chhattisgarh, Jharkhand, Manipur, Odisha, and Uttarakhand, have either no women judges or just one.

Global Perspective
- On average, **women make up 25% of the world's judiciary**, with regional disparities.
- In **OECD countries**, women hold **54% of judicial positions** due to increased legal education opportunities.
- Despite progress in countries like the USA, UK, and Canada, **gender gaps persist** at higher levels.

Why Gender Diversity Matters?
- **Diverse Perspectives:** Women judges bring varied insights, enriching judicial decision-making.
- **Gender-Sensitive Judgments:** Their presence enhances rulings on sexual violence, harassment, and family law.
- **Public Trust:** Greater representation boosts confidence in the judiciary, especially among female litigants.

Reasons Behind the Gender Gap
- **Collegium System Bias:** The male-dominated selection process often overlooks qualified women.
- **Systemic Barriers:** Workplace discrimination, lack of mentorship, and family responsibilities hinder women's career progression.
- **Lack of Structural Support:** Absence of **flexible work policies** and **safety measures** deters long-term legal careers.
- **Limited Role Models:** Few women in higher positions make it harder for young female lawyers to aspire to top judicial roles.

Bridging the Gender Gap
- **Judicial Appointment Reforms:** Ensure **gender-sensitive selection** in the collegium system and promote more women for higher judicial positions.
- **Mentorship & Leadership Development:** Establish mentorship programs to support female legal professionals.
- **Workplace Reforms:** Implement **family-friendly policies**, better maternity leave, and **gender-sensitization training**.
- **Encouraging Women in Litigation:** Provide **incentives and fellowships** to promote women's participation in litigation—a key pathway to judicial elevation.
- **Role of Judiciary:** The **CJI and High Courts** should set **gender diversity benchmarks** and track progress.

Conclusion: The gender gap in the higher judiciary mirrors broader societal disparities. Addressing it requires **transparent policies, mentorship, and systemic reforms** to create a more inclusive and equitable judiciary, upholding the constitutional principles of **equality and fairness**.

India's Legacy in UN Peacekeeping

News: India remains a key contributor to UN peacekeeping, emphasizing dialogue, diplomacy, and **cooperation as pillars** of its foreign policy.

UN Peacekeeping: An Overview
- **A United Nations** mechanism to maintain global peace and security.
- **Works alongside** conflict prevention, peacemaking, peace enforcement, and peacebuilding efforts.
- **Peacekeepers,** known as Blue Helmets, operate in conflict zones worldwide.

India's Contribution to UN Peacekeeping
- **Active since 1953** (Korea mission), with 2,90,000+ personnel serving in 50+ UN missions.
- **Currently, 5,000+ Indian** peacekeepers are deployed across 9 active missions.
- **Rooted in the philosophy** of "Vasudhaiva Kutumbakam" (The world is one family).

Women in Peacekeeping
- **UN aims for 15%** women in military contingents and 25% in police units by 2028.
- **India's pioneering role:**
  - **1960s:** First female medical officers in Congo.
  - **2007:** First all-female Formed Police Unit (FPU) in Liberia.
  - **2025:** 150+ **Indian women peacekeepers deployed** in 6 key missions (Congo, South Sudan, Lebanon, Golan Heights, Western Sahara, Abyei).

Key Achievements
- **2023:** India received the UN's highest peacekeeping honor, the Dag Hammarskjöld Medal, for Shishupal Singh, Sanwala Ram Vishnoi, and Shaber Taher Ali (posthumously).
- Major Radhika Sen was awarded "**Military Gender Advocate of the Year 2023**".
- Centre for **United Nations Peacekeeping** (CUNPK), New Delhi trains global peacekeepers.
- **2025:** Hosted the 'Conference on Women Peacekeepers from the Global South'.

Conclusion: India's legacy in **UN peacekeeping reflects** its commitment to global peace, security, and multilateralism. From its early role in the **Korean War** to ongoing deployments worldwide, India continues to uphold UN Charter principles, reinforcing its position as a responsible global power.

Platform Workers to Register on e-Shram Portal for Formal Recognition

News: The Ministry of Labour and Employment has urged **gig and platform workers to register on the e-Shram portal** for formal recognition and access to Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (AB-PMJAY) benefits.

About the Gig and Platform Economy
- **Gig Economy:** A labor market with short-term, flexible jobs instead of traditional employment. Workers take up on-demand tasks (gigs).
- **Platform Economy:** A subset of the gig economy where digital platforms (e.g., Zomato, Ola) connect workers with customers.
- **Growth Projection:**
  - **1 crore gig workers** in 2024-25, expected to reach 2.35 crore by 2029-30 (NITI Aayog).
  - **Medium-skilled jobs are declining**, while low- and high-skilled jobs are rising.

Challenges Faced by Gig Workers
- **Job insecurity:** No fixed salary or long-term contracts.
- **Lack of social security:** No EPFO, ESIC, health insurance, paid leave, or retirement benefits.
- **Unregulated work conditions:** Long hours, inconsistent pay, potential exploitation.
- Platform dependence: Earnings are dictated by platform policies and algorithms.

Government Initiatives & Recommendations

Union Budget 2025-26 Announcements

- **e-Shram registration** for platform workers.
- **Identity cards** for gig workers.
- **Healthcare coverage** under AB-PMJAY (₹5 lakh per family per year for hospitalization).

Strengthening the Gig & Platform Economy

- **Platform India Initiative:** Funding, skilling, and financial inclusion.
- **Financial Support:** Collateral-free loans and priority lending for gig entrepreneurs.
- **Skill Development:** Government-platform collaboration for training and certification.
- **Social Security:** Health insurance, accident coverage, sick leave, and retirement plans.

Legal Framework for Gig Workers

- **Code on Social Security**, 2020 formally defined:
  a. Aggregator
  b. Gig Worker
  c. Platform Worker
- First-time **legal provisions** for including gig workers in social security measures.

Conclusion: The formal recognition of gig workers through **e-Shram registration** is a crucial step toward ensuring social security, financial stability, and better work conditions. Strengthening the gig economy will promote **financial inclusion**, skill development, and economic growth in India's evolving digital workforce.
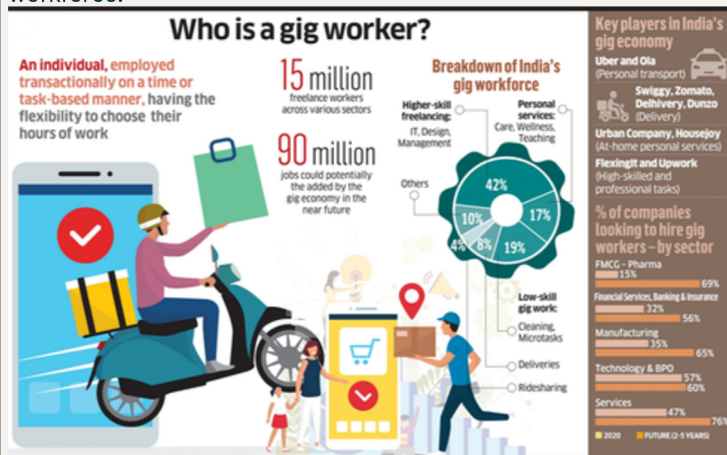
India's Share in the Global Spices Market

Context: The **World Spice Organisation (WSO)** is collaborating with **Farmer Producer Organizations** (FPOs) to improve spice quality, safety, and sustainability through farmer training programs.

India's Position in the Spices Market

- India, known as the **"Spice Bowl of the World,"** is the **largest producer, consumer, and exporter** of spices.
- Despite this, India holds **only 0.7%** of the **$14 billion global seasoning market**, compared to China's 12% and the USA's 11%.
- India exports **1.5 million tonnes of spices worth $4.5 billion, accounting for 25%** of the $20 billion global spice market.
- Currently, **only 48% of spice exports are value-added**. To achieve the **$10 billion export target by 2030**, this share must rise to 70%.
- **Major spice-producing states:** Madhya Pradesh, Rajasthan, Gujarat, Andhra Pradesh, Telangana, Karnataka, Maharashtra, Assam, Odisha, Uttar Pradesh, West Bengal, Tamil Nadu, and Kerala.

Challenges in the Spices Sector

- **Climate Change Impact:** Erratic rainfall, droughts, and rising temperatures affect production.
  - **Example: Cardamom cultivation** in Kerala has declined due to irregular monsoons and heatwaves.
- **Pests & Diseases:** Spices are **vulnerable to infections** and crop diseases.
  - **Example:** Black pepper crops in Karnataka have suffered from quick wilt disease.
- **Quality Control & Adulteration:** Contamination affects export credibility and food safety.
  - **Example:** Turmeric adulteration with toxic dyes like metanil yellow has raised health concerns.
- **Export Barriers & Global Standards:** Strict pesticide residue limits (MRLs) by the EU & US restrict exports.
  - **Example: Chili exports** to the EU were rejected due to high pesticide levels.
- **Low Farmer Income & Price Fluctuations:** Middlemen and market volatility reduce profits.
  - **Example: Cumin farmers** in Gujarat face financial losses due to oversupply and price crashes.

Way Forward

- **Expand Nutraceutical & Pharma Use:** Promote spices for medicinal and wellness applications.
- **Boost Production & Value-Addition:** Lower costs, enhance quality, and increase processed spice exports.
- **Develop Climate-Resistant Varieties:** Research institutions like ICAR and National Research Centre on Seed Spices must focus on high-yield, climate-resilient spice varieties.

Conclusion: India's spices sector needs **urgent reforms in production, quality control, and export strategies**. Strengthening value addition, research, and farmer support will enhance India's global market share and economic growth in the spices industry.

Surge in India's Cotton Imports

Context: India's cotton imports have surged, rising from $19.62 million in **January 2024 to $184.64 million** in January 2025, driven by lower global prices.

Reasons for Increased Cotton Imports

- **Lower Global Prices:** Cotton from **Brazil, the U.S.**, and Australia is cheaper than Indian cotton.
  - **Example:** Indian cotton costs 80-85 cents per pound, while Brazilian cotton is 60-65 cents per pound.
- **High Domestic Prices:** Indian mills are importing cotton despite **11% import duty** due to cost advantages.
- **Growing Export Demand:** Over 60% of India's textile exports are cotton-based.

India's Cotton Industry

- **Major Crop:** Contributes 25% to global production and is called **"White Gold"** for its economic value.
- **Growing Conditions:** Requires **21°C-30°C temperature** and 50-100 cm annual rainfall.
- **Key Producing States:** Gujarat, Maharashtra, Telangana (65% of national production).
- **Soil Variations:**
  - **Alluvial soils** (North: Punjab, Haryana, Rajasthan)
  - **Black clayey soils** (Central: Maharashtra, Gujarat)
  - **Mixed black-red soils** (South: Andhra Pradesh, Tamil Nadu)

Cotton Varieties in India

India is the **only country growing all four** species of cotton:
1. Gossypium arboreum & Gossypium herbaceum (Asian Cotton)
2. Gossypium barbadense (Egyptian Cotton)
3. Gossypium hirsutum (American Upland Cotton)

Hybrid & Bt Cotton

- Hybrid Cotton: Cross-bred for better yield and quality.
- Bt Cotton: Genetically modified to resist bollworm pests.

Economic & Industrial Importance

- **Global Leader:** Largest cotton producer, vital to global markets.
- **Textile Backbone:** Primary raw material for India's textile industry, a key GDP and export contributor.
- **Employment Generator:** Supports millions across agriculture, manufacturing, and trade.
- **Cultural Significance:** Integral to traditional clothing and crafts.

Government Initiative

The Union Budget 2025 introduced the **Cotton Mission** to enhance productivity and support farmers.

The Rise of Quick Commerce in India

Context: Quick commerce is transforming **India's retail and last-mile delivery sector**, emerging as a key trend in e-commerce.

What is Quick Commerce?

- A subsector of e-commerce focused on **ultra-fast delivery** (typically 10–20 minutes).
- Relies on **hyperlocal fulfillment centers**, dark stores, and efficient supply chains.
- **Valued at $3.34 billion**, projected to reach $9.95 billion by 2029.
- Industry **grew 76% YoY** in FY 2024.

Growth Drivers

- **Changing Consumer Behavior:** Urban consumers demand instant delivery.
- **Internet Penetration:** Widespread smartphone and digital payment adoption.
- **Technological Advancements:** AI-driven inventory, data analytics, and last-mile optimization.
- **Affordable Workforce:** Low-cost labor improves efficiency.

Benefits of Quick Commerce

- **Urban Convenience:** Groceries, medicines, and essentials delivered in 10–30 minutes.
- **Job Creation:** Supports the gig economy, projected to 23.5 million workers by 2029-30.
- **Tech Innovation:** AI-powered demand forecasting, route optimization, and micro-warehousing.
- **Tier-2 & Tier-3 Expansion:** 60% of e-commerce growth is from smaller cities.
- **Emergency Support:** Rapid access to medicines and essentials (e.g., Blinkit's ambulance service).

Government Support

- **Digital India:** Improved digital infrastructure and e-services.
- **Start-up India:** Encourages innovation in e-commerce.
- **UPI & RuPay:** Streamlined digital payments.
- **BharatNet:** Expanded broadband access, supporting e-commerce in rural areas.
- **ONDC:** Integrates small vendors into digital commerce.
- **100% FDI (automatic route):** Encourages foreign investment in B2B e-commerce.

Challenges

- **Gig Economy Issues:** Job insecurity, long hours, and lack of social security for delivery workers.
- **Anti-Competitive Practices:** Predatory pricing by VC-funded platforms threatens smaller competitors.
- **Data Exploitation:** Personalized pricing based on user data and location.
- **Impact on Traditional Retailers:** Small businesses struggle against deep-discounting platforms.
- **Quality Concerns:** Speedy deliveries sometimes compromise product quality.

Way Forward

- **Fair Employment Practices:** Better wages, insurance, and benefits for delivery personnel.
- **Integration of Local Kirana Stores:** Strengthen partnerships with small retailers.
- **Tech Enhancement:** AI, blockchain, and IoT to improve efficiency and compliance.

Conclusion: Quick commerce is **redefining convenience** in India's e-commerce space. A balanced **regulatory approach** is essential to ensure sustainability, fair labor practices, and economic inclusivity.

Future of quick commerce

$5 Bn	#3	57%	$18 Bn	$300 Mn	10-15X
Expected market value of India's Q-commerce sector by 2025	Largest grocery market globally is India	CAGR of Indian grocery market	Predicted market size for online grocery by 2024	Market value of Indian quick commerce in 2021	Growth rate is expected in this sector in the next 5 years

Farm Lending: Rising Kisan Credit Card (KCC) Bad Loans

Context: Bad loans under the Kisan Credit Card (KCC) scheme have surged by **42% in four years**, reflecting financial stress in agriculture.

Kisan Credit Card (KCC) Scheme (1998)

- Provides **short-term credit for agriculture** and allied activities.
- Based on **R.V. Gupta Committee** recommendations.
- Loans issued by **commercial banks**, cooperative banks, and regional rural banks.
- **Covers crop production**, allied activities, farm machinery, irrigation, and post-harvest expenses.
- **A KCC loan becomes an NPA** if unpaid for three years.

Non-Performing Assets (NPAs) in Agriculture

- **Definition:** Loans where **principal/interest** is overdue for **90+ days**.
- **Types of NPAs:**
  - **Substandard:** Overdue for ≤12 months.
  - **Doubtful:** Overdue for >12 months.
  - **Loss Assets:** Considered unrecoverable.
- **RBI Guidelines:**
  - **Short-term crop loans:** NPA if overdue for two crop seasons.
  - **Long-term agricultural loans:** NPA if overdue for one crop season.

KCC: REVOLVING CASH CREDIT FACILITY OFFERED TO FARMERS

Year	Number of operative accounts (crore)	Amount outstanding in operative accounts (₹ crore)	Amount outstanding in NPA accounts (₹ crore)
FY2021	3.07	4,56,736	68,547
FY2022	2.69	4,76,271	84,637
FY2023	2.83	5,18,485	90,832
FY2024	2.98	5,74,974	93,370
Q1 FY2025*	2.96	5,70,982	95,616
Q2 FY2025*	2.95	5,86,833	96,918
Q3 FY2025*	2.94	5,91,533	97,543

Rising Agricultural NPAs: Key Trends

- **KCC NPAs rose from ₹68,547** crore (March 2021) to ₹97,543 crore (December 2024).
- Indicates **growing repayment challenges** for farmers.

Major Causes of Rising NPAs in Agriculture

- **Unpredictable Weather:** Climate change, droughts, floods, and erratic rainfall reduce yields and repayment capacity.
- **Low Farm Income & Market Volatility:** Unstable prices, low productivity, and limited MSP coverage affect earnings.
- **Loan Waiver Culture:** Frequent government waivers encourage willful defaults.
- **Weak Risk Assessment by Banks:** Loans sanctioned without proper risk evaluation.
- **Limited Institutional Credit Access:** 86% of farmers are small/marginal, relying on informal moneylenders.
- **Delayed Crop Insurance Settlements:** Pradhan Mantri Fasal Bima Yojana (PMFBY) faces payout delays, preventing loan repayment.

Implications of Rising NPAs

- **Stress on Banks:** Limits fresh lending, affecting agricultural credit.
- **Fiscal Burden:** Loan waivers strain government finances.
- **Rural Distress:**
  - **Indebtedness fuels** farmer suicides (e.g., Maharashtra, Karnataka, Punjab).
- **Credit Crunch for Genuine Farmers:**
  - **High defaults** lead to stricter loan eligibility.

Measures to Address Rising Agricultural NPAs

- **Strengthening Crop Insurance & Risk Mitigation:**
  - **Faster PMFBY** claim settlements.
  - Promoting **climate-resilient farming** & crop diversification.
- **Improving Credit Discipline:**
  - **Restricting loan waivers** to genuinely distressed farmers.
  - **Timely repayment incentives** (e.g., interest rate discounts).
- **Enhancing Institutional Credit Access:**
  - **Expand KCC coverage** to all small/marginal farmers.
  - **Strengthen** Farmer Producer Organizations **(FPOs)** for better credit terms.
  - **Online KCC** applications via banks & CSCs.
  - **Link KCC** with PM-KISAN & Aadhaar for easy verification.
- **Better Bank Supervision & Credit Monitoring:**
  - **Tech-driven loan** tracking for early distress detection.
  - **Financial literacy programs** to educate farmers on loan management.
- **Encouraging Diversification & Value Addition:**
  - **Support agribusiness**, food processing, and non-farm activities.
  - **Improve supply chains** & storage infrastructure to reduce post-harvest losses.

Conclusion: The rising KCC NPAs signal **deepening financial distress** in agriculture. A **balanced approach combining risk mitigation**, financial discipline, and better credit access is essential for long-term sustainability.

Gene-Edited Bananas

Context: A **UK-based biotech company** has developed **genetically-engineered bananas** with a **longer shelf life** and **reduced browning**.

Ripening Process in Bananas

- Bananas ripen due to **ethylene**, a hormone they produce in large amounts.
- Ethylene **activates genes** responsible for producing **polyphenol oxidase (PPO)**, an enzyme that causes **browning**.
- **Bruising increases ethylene production**, accelerating ripening and browning.

Latest Developments

- Scientists have used **genetic modification** to **silence the PPO gene**, preventing browning.
- The modification **does not stop ripening** but **prolongs freshness**.
- A similar technique was used in **Arctic apples**, commercially sold since 2017.

What is Gene Editing?

- A technique that allows **modification of DNA** in plants, animals, and bacteria.
- Alters **physical traits** (e.g., color) and **disease resistance**.
- Early **genome editing technologies** emerged in the **late 1900s**.
- The **CRISPR tool (2009)** revolutionized gene editing, making it **faster, cheaper, and more accurate**.
- CRISPR is **widely used** for precise genome editing.

Recent Trends in Gene Editing

- **CRISPR Advancements:** Research is expanding beyond **Cas9** to enzymes like **Cas12 and Cas13**.
- **Improved Delivery Methods:** Scientists are working on **viral vectors, lipid nanoparticles**, and **other targeted delivery systems**.
- **Gene Therapy:** Used for treating **genetic disorders** like **sickle cell disease, cystic fibrosis, and Huntington's disease**.

- **Crop Improvement:** Gene editing enhances **yield, nutritional value, and pest resistance** in crops.

Regulations in India

- **Genetic Engineering Appraisal Committee (GEAC)** under **MoEFCC** oversees gene-editing approvals.
- **Food Safety and Standards Authority of India (FSSAI)** regulates **genetically modified (GM) food products**.

Current Status in India

- India has approved **GM Mustard hybrid DMH-11** for **seed production and testing**.
- **CRISPR-based crops are not yet approved**.
- **Indian Council of Agricultural Research (ICAR)** is researching **climate-resilient and pest-resistant crops** using gene editing.

Conclusion: Gene-edited bananas represent **a major advancement in biotechnology**, reducing **food waste** and improving **freshness**. As gene editing evolves, **India must develop clear policies** to balance **innovation and regulation**. 🍌
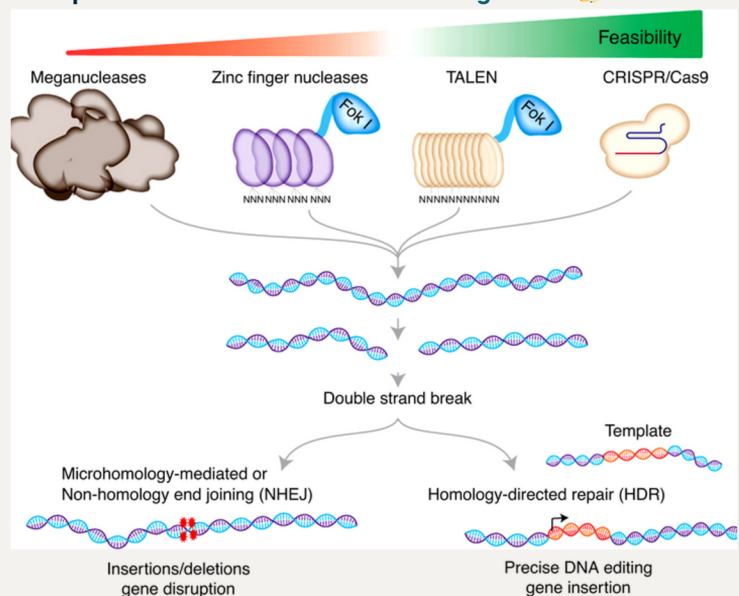
Space-Tech for Good Governance

Context: India's space technology is playing a transformative role in governance, as highlighted by the Minister of Science and Technology at the **"Good Governance"** Conclave.

What is Space Technology?

- Space technology includes **Earth observation, satellite communication, satellite navigation**, and space exploration.
- Governments use **geospatial data** and **satellite-based insights** for **planning, monitoring, and evaluating** developmental projects.

Future Prospects & Economic Growth

- **Expanding Space Economy:**
  - **India's space budget** has tripled, with 300+ space startups contributing to innovation.
  - The sector is projected to grow from **$8 billion to $44 billion**, making India a global space leader.
- **Key Missions:**
  - **Gaganyaan Mission** trials will begin by late 2025.
  - India aims to send an **astronaut to the Moon by 2040** and establish the Bharat Antariksh Station by 2035.

Use of Space Technology in Governance

- **Disaster Management & Response:**
  - The **National Remote Sensing Centre** (NRSC) provides satellite data for flood mapping, disaster assessment, and rehabilitation planning.
  - The **National Disaster Management Authority** (NDMA) uses satellite technology for relief operations.
- **Agriculture & Rural Development:**
  - **FASAL** (Forecasting Agricultural output using Space, Agrometeorology, and Land-based observations) helps predict crop yields.
  - **Remote sensing** aids in soil health monitoring and irrigation management.

Land & Property Management: The **Swamitva Yojana** uses satellite mapping for land records, ensuring transparency and ease of land verification.

- **Environmental Monitoring:**
  - **Bhuvan** (ISRO's web-based GIS platform) provides satellite data for environmental and land-use applications.
  - **Oceansat satellites** track sea surface temperatures, coastal erosion, and climate patterns.
- **Security & Defense: Remote sensing satellites** enhance border surveillance and national security.
- **Digital & Administrative Efficiency: Space-based technologies** support the Digital India initiative, ensuring better access to e-governance services.

Challenges

- **High Costs:** Satellite development, launch, and maintenance are expensive.
- **Infrastructure Gaps:** Limited ground infrastructure and trained personnel, especially in rural areas.
- **Data Accuracy & Interpretation:** Errors in processing space-based data can lead to flawed governance decisions.
- **Privacy & Security Concerns:** Increased satellite surveillance raises data privacy issues.
- **Environmental Impact:** Growing space missions contribute to space debris and pollution.

Way Forward

- **Strengthen Infrastructure:** Upgrade ground stations, data centers, and communication networks for efficient space-based services.
- **Public-Private Collaboration:** Encourage startups and private sector investment to lower costs and drive innovation.
- **Expand Satellite Coverage:** Deploy more satellites to cover remote and underserved areas.
- **Research & Development:** Advance space tech solutions for tackling climate change, urban planning, and governance challenges.
- **Sustainability in Space Missions:** Adopt eco-friendly satellite launch practices and improve space debris management.

Conclusion: India's space technology is redefining governance by **enhancing efficiency, transparency, and disaster preparedness.** To maximize its potential, India must focus on **cost reduction, infrastructure development**, and sustainability in space exploration.

Disruptions in Parliament and State Assemblies

Context: The **Lok Sabha Speaker** recently expressed concerns over the **growing trend of deliberate disruptions** in Parliament and State Assemblies, stating that they **undermine democracy**.

About Parliamentary & Legislative Disruptions

- Disruptions in **India's legislative bodies** have become a frequent issue, affecting **governance and democratic accountability**.
- While disruptions occurred occasionally in the **1970s and 1980s**, they intensified in the **1990s**, coinciding with the rise of **coalition politics**.
- **State Assemblies**, such as those in **West Bengal, Tamil Nadu, and Karnataka**, have also witnessed major disruptions, sometimes leading to **physical altercations**.

Legislative Productivity Data

- **Reduced Sitting Days:**
  - The **16th Lok Sabha (2014-2019)** had just **331 sitting days**, the lowest for any **full-term Lok Sabha**.
  - The **2021 Monsoon Session** saw Lok Sabha function for **only 21%** of scheduled time, and Rajya Sabha for **28%**.
- **Decreased Working Hours (Winter Session 2024):**
  - **Lok Sabha** functioned at **52% efficiency**.
  - **Rajya Sabha** operated at **39% efficiency**.
- **Frequent Disruptions:**
  - In **Winter 2024**, Lok Sabha lost **65+ hours** to interruptions.
- **Impact on Question Hour** (Winter 2024):
  - **Rajya Sabha:** Non-functional for **15 out of 19 days**.
  - **Lok Sabha:** Ran for **less than 10 minutes** on **12 out of 20 days**.

- **Legislative Backlog:**
  - **Only one bill** (Bharatiya Vayuyan Vidheyak, 2024) was passed, marking the **lowest legislative output in six Lok Sabha terms**.

Causes of Disruptions

1. **Political Strategies & Protest Culture**: Parties **disrupt proceedings** to avoid debates on **sensitive issues**.
2. **Contentious Issues & Lack of Consensus**:
   - Laws like the **Farm Bills (2020), CAA (2019), and GST (2017)** triggered protests.
   - **Lack of dialogue** worsens disagreements.
3. **Weak Enforcement of Rules**: Presiding officers **lack authority** to enforce discipline effectively.
4. **Media Attention & Public Perception**: Disruptions are often **used for media visibility**.
5. **Decline in Constructive Debate: Question Hour & Zero Hour** are frequently disrupted.
6. **Ethnic & Regional Issues**: Caste-based policies, **federal conflicts**, and regional demands spark walkouts.
7. **Suspension of MPs**: Mass suspensions further escalate political standoffs.

Impact of Disruptions

- **Legislative Paralysis:**
  - **Critical bills, budgetary discussions, and national security debates** are delayed.
- **Erosion of Public Trust:**
  - **Voter apathy** increases when lawmakers engage in disorderly conduct.
- **Economic & Administrative Costs:**
  - **Wastage of taxpayer money** due to unproductive sessions.

Key Reforms to Minimize Disruptions

1. **Stricter Enforcement of Rules**:
   - Implement **Rule 374A (Lok Sabha) & Rule 255 (Rajya Sabha)** to **suspend disorderly members**.
   - Set **clear guidelines** to prevent unnecessary adjournments.
2. **Code of Conduct for Legislators**:
   - Introduce a **mandatory conduct code** to penalize repeated disruptions.
   - Establish a **Parliamentary Conduct Committee**.
3. **Increased Use of Technology**:
   - **Live tracking of disruptions** for public accountability.
   - **Digital screens** to display names of disruptors.
4. **Institutional Reforms**:
   - **Grant more autonomy** to presiding officers for disciplinary action.
   - Set up an **independent parliamentary ethics committee**.
5. **Encouraging Dialogue & Consensus-Building**:
   - **Pre-legislative consultations** to resolve disputes before sessions.
   - Use of **mediation committees** for conflict resolution.
   - Strengthen **Constitution Club** for **informal discussions**.
6. **Public Accountability Measures**:
   - **Disruption-tracking mechanism** for citizens to monitor legislative productivity.
   - **Media reforms** to encourage coverage of debates over theatrics.
7. **Reforming Zero Hour & Question Hour**:
   - **Structured debate slots** for the opposition to reduce disruptions.
8. **Revisiting the Anti-Defection Law**:
   - Prevent misuse of **anti-defection provisions**, which force legislators to disrupt instead of dissent constructively.

Conclusion: Frequent **disruptions weaken governance** and **undermine democracy**. A combination of **rule enforcement, ethical conduct, dialogue, and technology** can **restore parliamentary dignity** and **enhance legislative productivity**.

Starlink Satellite Internet

Context: SpaceX, owned by Elon Musk, has partnered with Airtel and **Jio to distribute Starlink**, its satellite internet service in India. However, the final rollout depends on regulatory approvals.

What is Satellite Internet?
- **Definition:** A wireless broadband technology that delivers internet using satellites instead of traditional fiber-optic or mobile networks.
- **How it Works:** Satellites beam internet data to user terminals on Earth, bypassing terrestrial infrastructure.
- **Types of Satellite Internet:**
  - **Geostationary Orbit (GEO) Satellites** – Used for VSAT services, positioned at 36,000 km altitude.
  - **Low-Earth Orbit (LEO) Satellites** – Used by Starlink, OneWeb, operate at 550–1,200 km altitude for low-latency connectivity.

About Starlink
- Operates through a constellation of **7,000+ LEO satellites**.
- Provides high-speed, **low-latency internet**, especially in remote and underserved areas.

Benefits of Satellite Internet in India
1. **Bridging the Digital Divide**
   - Expands broadband access to rural and remote regions.
   - Supports Digital India, improving e-learning, telemedicine, and e-governance.
2. **Disaster-Resilient Communication**
   - Works even when **fiber-optic** cables and mobile towers fail.
   - **Example:** Starlink provided emergency internet after the 2023 **Turkey-Syria earthquake**.
3. **Boost to Defence & Strategic Communication**
   - **Enables secure military communication** in border regions (e.g., Ladakh, Northeast, Andaman & Nicobar).
   - **Example:** Ukraine used Starlink for military communications during the Russia-Ukraine war.
4. **Alternative to Traditional ISPs**
   - Increases competition in the **broadband market**, leading to better services and lower prices.
   - Helps rural businesses by **providing stable internet** for e-commerce, banking, and digital payments.
5. **Support for Emerging Technologies**
   - Enables **AI-driven smart agriculture** and remote monitoring systems.
   - **Facilitates IoT-based** solutions for healthcare, logistics, and education.

Challenges & Concerns
1. **Environmental Concerns**
   - Satellite re-entries release **aluminium oxide particles**, which may harm the ozone layer.
2. **Astronomical Interference**
   - **Geomagnetic storms** can disrupt LEO satellites, affecting internet services.
   - The **brightness of Starlink** satellites interferes with ground-based telescopes, impacting astronomical research.

Conclusion: Satellite internet, particularly Starlink, has the potential to **transform digital connectivity** in India, but concerns regarding environmental impact and **astronomical interference** must be addressed for sustainable implementation.
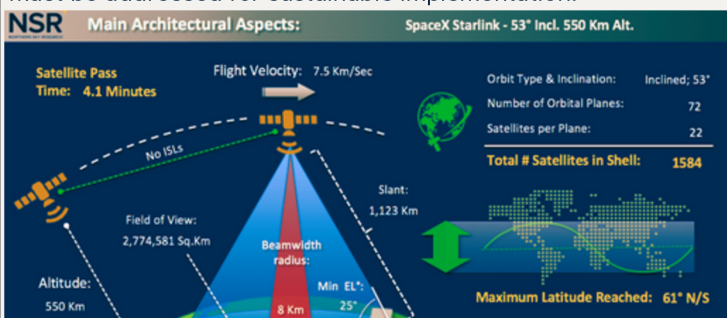
STEM Labs in Government Schools: A Case Study

Context: In **East Kameng district**, Arunachal Pradesh, government schools have introduced **Science, Technology, Engineering, and Mathematics (STEM)** labs to enhance practical learning and foster scientific curiosity among students.

What are STEM Labs?
- **Dedicated learning spaces** in schools where students engage in experiments, simulations, and hands-on projects.
- **Equipped with:**
  - **3D Printers** – For prototyping and design experiments.
  - **Robotics Kits** – To teach coding and automation.
  - **Engineering Tools** – For design and testing projects.

Importance of STEM Labs in Rural Education
1. **Enhancing Conceptual Understanding**
   - **Encourages interactive** and practical learning.
   - **Example:** Government Higher Secondary School, Balijan uses experiments and models for better retention.
2. **Bridging the Urban-Rural Education Gap:** Provides rural students access to modern technology, reducing disparities.
3. **Fostering Innovation & Scientific Thinking**
   - **Encourages problem-solving,** coding, and engineering skills.
   - Helps students prepare for **STEM-related** careers and higher education.

Government Initiatives & Policy Support
1. **Atal Tinkering Labs (ATLs) – NITI Aayog:** Part of the Atal Innovation Mission, providing funding and mentorship to schools for innovation labs.
2. **PM SHRI Schools Initiative**
   - A centrally sponsored scheme integrating **STEM learning** into government schools.
   - Aligned with the **National Education Policy** (NEP) 2020 under Samagra Shiksha.

Challenges in Implementation
- **Teacher Upskilling:** Educators need training in STEM pedagogy and lab management.
- **Student Participation:** Encouraging active engagement in STEM activities remains a challenge.
- **Infrastructure Gaps:** Many government schools lack proper facilities and resources.

About East Kameng District, Arunachal Pradesh
- Shares an international **border with China** in the north.
- Located in western Arunachal Pradesh.
- **Kameng River**, a tributary of the Brahmaputra, flows through the district (known as Jia Bharali in Assam).
- Home to **Pakke Tiger Reserve**.
- Major tribes: **Monpa, Sherdukpen, and Aka**.

Conclusion: The integration of STEM labs in rural schools is a significant step towards **quality education and skill development**. With proper training, funding, and infrastructure, these initiatives can empower students and bridge the digital divide. 🚀

Rise in India's Patent Applications: WIPO Report

Context: India has seen a significant increase in **intellectual property (IP) filings** over the past decade, showcasing its shift toward an innovation-driven economy.

Key Highlights
- Patent applications in India have **more than doubled**.
- Trademark filings have risen 2.5 times.
- Design filings have tripled.
- **India ranks 39th** in the 2024 Global Innovation Index, leading in Central & Southern Asia.

What is Intellectual Property (IP)?
1. **Intellectual property** refers to creations of the mind, including inventions, literary **works, artistic creations**, symbols, and and designs, which are protected by law.

Types of Intellectual Property:
1. **Patent** – Grants an **exclusive right** for an **invention** (product or process) that offers a **new technical solution**.
2. **Copyright** – Protects **literary, artistic, and creative works**.
3. **Trademark** – Distinguishes **goods or services** of one business from another.
4. **Industrial Design** – Covers the **ornamental or aesthetic** aspects of an article.

Challenges in India's IP Regime
- **Patent Backlog** – Delays in **examination and approval**.
- **IP Infringement** – **Counterfeiting and piracy** due to weak enforcement.
- **Low Patent Commercialization** – Limited **industry-academia collaboration**.
- **Global Competitiveness** – Majority of **Indian patents** filed by **foreign entities**, indicating low **domestic R&D investment**.

Government Initiatives to Strengthen IP Protection
- **National IPR Policy (2016)** – Unified framework to **monitor & implement IP laws**.
- **Cell for IPR Promotion and Management (CIPAM)** – Ensures **efficient execution** of the IPR policy.
- **National Intellectual Property Awareness Mission (NIPAM)** – Promotes **IP education & awareness** in schools and universities.
- **Scheme for Facilitating Startups Intellectual Property Protection (SIPP)** – Supports **startups in managing & protecting** their IP assets.
- **Atal Innovation Mission (AIM) – NITI Aayog (2016)** – Encourages **innovation and entrepreneurship** through:
  - **Atal Tinkering Labs**
  - **Atal Incubation Centers**
  - **Atal New India & Grand Challenges**
  - **Mentor India Program**

Global IP Framework – WIPO & International Treaties
- **World Intellectual Property Organization (WIPO)**
  - **A self-funding UN agency** (est. 1967) ensuring **global IP protection**.
  - **Members:** 193 countries, including **India (joined in 1975)**.
  - HQ: **Geneva, Switzerland**.
- **Key Global Treaties**
  - **Madrid Protocol (1989)** – **Simplifies trademark registration** across 131 countries.
  - **Hague System (1925)** – Allows **industrial design protection** in multiple nations (**India is not a member**).

Conclusion: India's **surge in patent applications** reflects its **commitment to innovation** and **economic growth**. By **strengthening IP enforcement**, **fostering industry-academia collaboration**, and **expanding R&D investments**, India can enhance its **global competitiveness** and drive **technological advancements**.

Trends and Progress of Housing in India 2024

Context: The **National Housing Bank (NHB)** has released its annual report on the **Trends and Progress of Housing in India, 2024**, highlighting key trends, challenges, and opportunities in the housing sector.

Key Findings
- **Housing Finance Market**:
  - **Banks** account for **81%** of total housing loans, while **Housing Finance Companies (HFCs)** contribute **19%**.
  - Housing loans distribution:
    - **Economically Weaker Sections (EWS) & Low-Income Groups (LIG): 39%**
    - **Middle-Income Groups (MIG): 44%**
    - **High-Income Groups (HIG): 17%**
- **Sustainability in Housing**:
  - Only **5% of buildings** in India are classified as **'green'**.

Government Initiatives Driving Growth
- **Pradhan Mantri Awas Yojana (PMAY)**:
  - PMAY-Gramin (PMAY-G) – Focuses on **affordable rural housing**.
  - PMAY-Urban (PMAY-U) – Supports **low-cost urban housing projects**.
- **Urban Infrastructure Development Fund (UIDF)** – Enhances **infrastructure financing** for affordable housing.
- **Affordable Rental Housing Complexes (ARHCs)** – Provides **housing for migrant workers and urban poor**.

Challenges in Housing Finance
- **Regional Disparities**:
  - Western, Southern, and Northern states receive **higher housing finance disbursements**, while **Eastern and Northeastern states** experience **low credit penetration**.
- **Limited Reach of HFCs**:
  - HFCs offer **flexible loan eligibility** but have a **limited branch network** in rural and underdeveloped areas.
- **Low Adoption of Green Buildings**:
  - High initial costs, lack of incentives, and limited awareness **hinder sustainable housing adoption**.

Opportunities for Growth
- **Technological Advancements**:
  - **AI, data analytics, 3D printing, and land record digitization** can improve efficiency in the housing sector.
- **Increasing Demand**:
  - **Smart cities and affordable housing** in **metro, Tier-II, and Tier-III cities** are driving sectoral growth.

About National Housing Bank (NHB)
- **Established**: 1988 under the **National Housing Bank Act, 1987**.
- **Objective**: Regulates, promotes, and develops the **housing finance market** in India.
- **Ownership: 100% government-owned**.
- **Regulation**: Supervises **HFCs** (while **RBI** remains the primary regulator).
- **Functions**:
  - Expands **credit facilities** for **middle-class and low-income groups**.
  - Promotes **financial inclusion** and housing accessibility.
- **Headquarters: New Delhi**.

AI in Healthcare Governance

Context: The **Digital Ethics Centre** at **Delft University of Technology, Netherlands**, has been designated as a **WHO Collaborating Centre on AI for Health Governance**.

AI in Healthcare
AI is revolutionizing healthcare through **improved diagnostics, precision medicine, electronic medical records (EMRs), drug discovery, and resource optimization**.

Benefits of AI in Healthcare
- **Optimized Resource Allocation**: Predicts **patient admissions**, improves hospital efficiency, and reduces waste.
- **Cost Reduction & Efficiency**: Automates administrative tasks, enabling **better patient care**.
- **Enhanced Diagnostics**: Enables **early disease detection** and **minimally invasive treatments**.
- **Predictive Analytics**: Forecasts **disease outbreaks** and enhances public health responses.
- **Personalized Treatment**: Develops tailored **care plans**, improving patient outcomes.
- **AI in Pharmaceuticals**: Speeds up **drug discovery**, optimizes formulations, and enhances **clinical trials**.

Challenges in AI Integration
- **Data Fragmentation & Accuracy Issues**: Errors in health data can lead to misdiagnoses.
- **Complex Disease Prediction**: AI struggles with multifactorial diseases like **cancer and diabetes**.
- **Ethical & Legal Concerns**: Issues of **privacy, informed consent**, and social inequalities persist.

- **Limited Accessibility**: AI adoption remains low in **developing countries** due to lack of infrastructure.

AI Developments in India
- **Early AI Research (1960s-1980s)**: IIT Kanpur & IISc Bangalore laid the foundation.
- **Growth Phase (2000s)**: Indian IT firms like **TCS, Infosys, and Wipro** expanded AI investments.
- **Acceleration (2010s-Present)**:
  - **2018**: NITI Aayog launched the **National Strategy for AI**.
  - **Ayushman Bharat Digital Mission (ABDM)**: NHA & IIT Kanpur partnered to develop **AI-driven healthcare solutions**.
  - **"AI for All" initiative** integrates AI across **education, governance, and public health**.

Way Forward: AI can **enhance diagnosis, treatment, public health monitoring, and drug development**. Effective AI governance requires **ethical safeguards, stakeholder collaboration, and investment in research** to ensure equitable healthcare access.

India's Need for a Flexible Fiscal Deficit Target

Context: As India aims to become a developed nation by 2047, adopting a **flexible fiscal deficit target** is essential for ensuring long-term investments while maintaining **fiscal prudence**.

Understanding Fiscal Deficit Target

A **fiscal deficit** occurs when **government expenditure exceeds revenue (excluding borrowings)**. The **FRBM Act, 2003** initially mandated strict deficit targets, but evolving economic conditions have necessitated a **more flexible approach**.

Key Components of Flexibility
- **Counter-Cyclicality**: Higher deficits during downturns and fiscal consolidation in growth phases.
- **Expenditure Prioritization**: Focus on infrastructure and welfare while cutting non-essential spending.
- **Revenue Considerations**: Adjusting targets based on tax revenues, disinvestment, and fiscal inflows.
- **Escape Clauses**: Allowing deviations in crises (e.g., pandemics, global shocks).

Evolution of Flexible Deficit Targeting in India
- **FRBM Act (2003)**: Fixed fiscal deficit target of **3% of GDP**.
- **FRBM Review (2017, N.K. Singh Panel)**: Recommended **2.5%–3% target** with a **0.5% escape clause**.
- **COVID-19 (2020-21)**: Fiscal deficit increased to **9.5% of GDP**, proving the need for flexibility.
- **Budget 2021-22 & Beyond**: Set a medium-term goal of **4.5% of GDP by FY2025-26**, emphasizing a **gradual deficit reduction** and prioritizing **infrastructure investment** over aggressive fiscal tightening.

Why India Needs a Flexible Deficit Target
- **Economic Shocks & Global Uncertainty**: COVID-19, geopolitical tensions, and oil price volatility necessitate fiscal space for **counter-cyclical measures**.
- **Investment-Driven Growth**: Sustained capital expenditure (CapEx) in **infrastructure, health, and education** may require deficit deviations.
- **Counter-Cyclical Fiscal Policy**: Government spending must **increase during slowdowns** and **tighten during high growth**.
- **Private Sector Confidence**: A **balanced approach**—fiscal discipline without excessive rigidity—boosts investor confidence.

Challenges of Flexible Deficit Targeting
- **Risk of Fiscal Indiscipline**: Unchecked borrowing could increase **debt-to-GDP ratios** and risk **credit rating downgrades**.
- **Market Perception & Investor Confidence**: Frequent deficit

adjustments may create **policy uncertainty** and impact **bond markets & FDI inflows**.
- **Inflationary Pressure**: Higher borrowing can **fuel inflation**, especially if supply constraints exist.
- **Higher Interest Costs**: Persistent deficits **increase debt servicing burdens**, limiting funds for development.

International Best Practices
- **USA**: Uses **countercyclical fiscal policies** to allow higher deficits during recessions.
- **Germany**: Temporarily relaxed its **strict fiscal rules** during COVID-19.
- **Japan**: Prioritizes **economic growth** over strict deficit control.
- **Australia**: Uses **Public-Private Partnerships (PPP)** to finance infrastructure, reducing public debt reliance.

Way Forward: Balancing Flexibility with Responsibility
- **Range-Based Deficit Target**: Adopting a **2.5%–4% GDP deficit range** instead of a fixed cap.
- **Institutional Oversight**: Establishing an **independent Fiscal Council** for responsible deficit deviations.
- **Gradual Deficit Reduction**: Committing to a **credible fiscal roadmap** without abrupt spending cuts.

Conclusion: India's shift towards **Flexible Deficit Targeting** reflects the need for **adaptive fiscal policies** in an unpredictable economic landscape. While **flexibility** is crucial for crisis management and growth, it must be **implemented prudently** to ensure **long-term fiscal sustainability**.

Digital Technologies: Empowering Women in Indian Agriculture

Context: Recent advancements in digital technology are **enhancing the role of women farmers**, empowering them with better **decision-making, financial access, and market connectivity**.

Key Contributions of Women in Agriculture
- Agriculture employs **54.6% of India's workforce**, with **75% of full-time farm labor** being women.
- **80% of rural women** depend on agriculture for their livelihood (ICAR data).
- Rural women contribute **60-80% of India's food production**, playing a crucial role in agricultural sustainability.

Role of Digital Technologies in Women's Agricultural Work
- **Enhanced Decision-Making**: Mobile-based advisory platforms like **Digital Green** and **Precision Agriculture for Development** provide weather updates, market prices, and best farming practices.
- **Increased Productivity & Labor Efficiency**: **Drip irrigation, solar-powered pumps**, and **climate-resilient crops** improve water management and climate adaptability.
- **Market Access Through Digital Solutions**: Platforms like **eNAM, Kisan Suvidha, AgriMarket App, and Pusa Krishi** help women farmers connect directly with buyers and access expert advice.
- **Financial Inclusion & Digital Payments**:
  - **Aadhaar-enabled Payment Systems (AePS)** and **Direct Benefit Transfer (DBT)** ensure secure payments and financial independence.
  - **Pradhan Mantri Jan Dhan Yojana (PMJDY)** and **Self Help Group (SHG)–Bank Linkage** enable women to access loans.
- **Smart Farming & AI Integration**: **AI-powered crop disease detection**, **IoT-based smart irrigation**, and **GPS-guided precision farming** enhance efficiency.
- **Online Training & Capacity Building**:
  - Initiatives like **Digital India, NRLM, and Digital Green** offer **digital literacy and farming skills** to women.
  - **YouTube agricultural channels** provide free tutorials.

- **Gender-Inclusive Agri-Tech Startups:** Startups like **Kalgudi, CropIn, and DeHaat** provide AI-driven advisory services, soil analysis, and weather alerts to women farmers.

Challenges in Adopting Digital Technologies

- **Limited Land Ownership:** Only **12.8% of landholdings** are owned by women, restricting their access to formal credit and technology.
- **Gender Wage Gap:** Women earn **20-30% less** than male agricultural workers.
- **Limited Digital Literacy:** Many rural women lack exposure to **smartphones and digital platforms**.
- **Socio-Cultural Barriers:** Restrictions on **mobility and decision-making** hinder women's access to technology.
- **Financial Constraints: High costs** of smartphones and internet access remain a barrier.
- **Language Barriers:** Many digital tools are in **English or Hindi**, limiting regional accessibility.

Initiatives Supporting Women in Digital Agriculture

- **Digital Agriculture Mission (2021-2025):** Promotes AI, IoT, blockchain, and precision farming, offering **women farmers access to digital advisory services**.
- **National e-Governance Plan in Agriculture (NeGPA):** Focuses on **ICT-based solutions** to provide mobile advisories and digital market access for women farmers.
- **Mahila Kisan Sashaktikaran Pariyojana (MKSP):** Empowers women with **digital training in climate-resilient agriculture**.
- **Kisan Suvidha App:** Provides weather updates, market prices, and expert guidance to help women make **informed agricultural decisions**.
- **PM KISAN & Direct Benefit Transfers:** Ensures **financial support** directly to women farmers' bank accounts, encouraging financial independence.
- **AGRI STACK:** A **digital farmer database** offering customized financial and market support to women.

Conclusion: Digital technologies are **revolutionizing agriculture** by empowering women farmers with **better market access, financial inclusion, and skill development**. As **technology adoption increases**, women are set to play an even **stronger role in shaping India's agricultural future**.

India-Mauritius Relations: Strengthening Strategic Ties

Context: Prime Minister Narendra Modi's visit to Mauritius as the **guest of honor at its Independence Day celebrations** underscores the deep strategic, economic, and cultural ties between the two nations amid evolving global geopolitical dynamics.

Historical and Cultural Connections

- **Shared Colonial Past:** Mauritius, a former **British and French colony**, gained independence in **1968**.
- **Indian Diaspora:** Nearly **70% of Mauritians trace their roots to India**, strengthening bilateral cultural ties.
- **Mahatma Gandhi's Visit (1901):** Advocated for **education and political empowerment**, shaping Indo-Mauritian relations.
- **Cultural Institutions:** Institutions like the **Mahatma Gandhi Institute** and the **World Hindi Secretariat** promote Indian culture, language, and traditions.

Political and Diplomatic Engagement

- **Diplomatic Ties Since 1948:** Mauritius has been a consistent supporter of **India in global forums** like the UN and the Commonwealth.
- **Support on Territorial Disputes:** India backs **Mauritius' claim over the Chagos Archipelago** in its dispute with the UK.

Economic and Trade Relations

- **Bilateral Trade Growth:** Increased from $206.76 million (2005-06) to **$851.13 million** (2023-24).
- **Comprehensive Economic Cooperation** and Partnership Agreement (CECPA): **First such agreement between India and an African nation**, granting preferential market access.

- **Foreign Direct Investment (FDI):** Mauritius was the **second-largest FDI source** for India in **FY 2023-24**, after Singapore.
- **Decline in FDI from Mauritius:** Following **Double Taxation Avoidance Agreement (DTAA) revisions**, FDI inflows dropped from **$15.72 billion (2016-17) to $6.13 billion (2022-23)**.
- **Financial Assistance:** India has extended multiple **lines of credit**, including a **$100 million defense credit line**.
- **Infrastructure Development:** India supports **Special Economic Zones (SEZs)** in Mauritius.

Development Assistance

- **Metro Express Project:** Enhancing public transport connectivity.
- **Social Housing Project:** Providing affordable housing solutions.
- **Healthcare Support:** Assistance in building hospitals and **COVID-19 vaccine aid**.

Strategic and Defense Cooperation

- **Maritime Surveillance:** India helps Mauritius monitor its **Exclusive Economic Zone (EEZ)**, countering piracy and illegal fishing.
- **Naval Infrastructure:** India has contributed to the **construction of a naval dockyard** and **radar networks** for enhanced maritime security.
- **Agalega Islands Development:** Strengthening **air and naval connectivity** for strategic advantage.
- **Defense Equipment Supply:** India provides defense equipment under **favorable credit terms**.
- **Anti-Piracy Operations:** Joint efforts to combat piracy and **illicit maritime activities**.

Vision SAGAR and Regional Growth: Under **India's Vision SAGAR (Security and Growth for All in the Region)**, Mauritius plays a key role in ensuring regional maritime security and stability.

Emerging Areas of Cooperation

- **Digital Economy and FinTech:** India is assisting Mauritius in **developing digital payment systems** modeled after **UPI** and improving **cybersecurity**.
- **Renewable Energy & Climate Change:**
  - India supports **solar and wind energy projects** in Mauritius.
  - Mauritius is a member of the **International Solar Alliance (ISA)**, an Indian-led initiative.
- **Space Cooperation:** India is providing Mauritius with **satellite technology and remote sensing capabilities** for disaster management and maritime security.

Key Challenges

- **Tax Treaty Amendments:** Revisions to the **DTAA** have reduced Mauritius' attractiveness as an **FDI gateway**.
- **Chinese Influence:** China's increasing economic presence in Mauritius, especially in **infrastructure and trade**, challenges India's strategic leverage.
- **Maritime Security Threats:** Rising instances of **piracy and illegal fishing** demand stronger cooperation.

Future Prospects

- **Expanding CECPA:** Incorporating **IT and healthcare services** to boost trade.
- **Strengthening Defense Ties:** Enhancing **Mauritius' defense modernization and joint military exercises**.
- **Regional Cooperation:** Mauritius can serve as a **gateway for India's deeper engagement with Africa** and the **Indian Ocean Rim Association (IORA)**.

Conclusion: India-Mauritius relations serve as a **model bilateral partnership**, built on **shared history, strategic alignment, and economic cooperation**. As India expands its **Indo-Pacific and Africa outreach**, Mauritius remains a **key partner** in fostering regional stability and economic growth. With **deepening collaboration in trade, defense, technology, and climate action**, the relationship is poised for further strengthening in the coming years.

Mycelium Bricks: A Sustainable Alternative for the Construction

Context: Amid growing concerns over **climate change**, the construction industry is exploring **low-carbon materials**, with **mycelium bricks** emerging as an innovative, eco-friendly solution.

What are Mycelium Bricks?

- **Composition:** Made from **fungal spores, husk, and sawdust**, forming a **lightweight, fibrous structure**.
- **Environmental Impact:** Unlike traditional **fired clay bricks**, which contribute nearly **300 million tonnes of CO$_2$ emissions annually**, mycelium bricks offer a **sustainable, biodegradable alternative**.
- **Key Properties:**
  - **Biodegradable** and **eco-friendly**.
  - **Fire-resistant** and **lightweight**.
  - **Good heat insulators**, making them ideal for **energy-efficient buildings**.
- **Potential Applications:**
  - **Interior panelling** in buildings.
  - **Liquid filters** for industrial and environmental use.
  - **Sports equipment** and **electronic components**.

Challenges Hindering Adoption

- **Low Load-Bearing Capacity:** Makes them unsuitable for **structural applications**.
- **High Moisture Absorption:** Increases **degradation in humid environments**.
- **Short Lifespan:** Prone to **biodegradation** and **termite attacks**, reducing durability.
- **Climate and Infrastructure Constraints:**
  - India's **tropical climate** and **high humidity** accelerate degradation.
  - **Lack of infrastructure** for large-scale manufacturing makes production **costly and impractical**.

Potential Solutions

- **Flame Retardants & UV Coatings:** Improve **fire resistance and durability**.
- **Research & Development (R&D):** Innovation in material science can **enhance strength and moisture resistance**.
- **Policy Support:** Government incentives and **regulatory backing** can make **mycelium bricks competitive** with **traditional clay bricks**.

Conclusion: While **mycelium bricks** present a **sustainable alternative** with significant **environmental benefits**, challenges like **durability, climate resistance, and scalability** must be addressed through **technological advancements and policy interventions**. With continued research, **mycelium-based construction materials** could play a key role in **low-carbon, eco-friendly architecture**.

MYCELIUM BRICKS

- Mycelium is being grown around substrates like coconut husk, rice bran or clay to create a type of brick.
- These mycelium composite bricks have been proven to have 30% higher compression and torsion (flexural) strength than normal bricks. They are less flammable, and notably less brittle in nature.

Mains Questions

Governance & Judiciary

1. Examine the reasons behind the gender gap in India's higher judiciary. Suggest measures to promote gender diversity in the judicial system. (GS2 – Polity & Governance)
2. Discuss the role of space technology in improving governance in India. Provide examples of its applications in various sectors. (GS2 – Governance & Science & Tech)
3. Frequent disruptions in Parliament and State Assemblies have raised concerns about legislative efficiency. Analyze the causes and suggest reforms to improve parliamentary functioning. (GS2 – Polity & Governance)

International Relations & Economy

1. India has played a crucial role in UN peacekeeping operations. Analyze its contributions and discuss the challenges faced by Indian peacekeepers in conflict zones. (GS2 – International Relations)
2. India-Mauritius relations have strengthened in recent years. Examine the strategic significance of this partnership and its impact on India's regional diplomacy. (GS2 – International Relations)
3. The rise of quick commerce in India reflects changing consumer behavior and logistics innovation. Critically assess its impact on employment, economy, and urban infrastructure. (GS3 – Economy & Infrastructure)
4. India's fiscal deficit target needs greater flexibility to balance economic growth with financial discipline. Analyze the pros and cons of a flexible fiscal deficit framework. (GS3 – Economy)

Agriculture & Environment

1. Rising bad loans under the Kisan Credit Card (KCC) scheme indicate financial stress in Indian agriculture. Discuss the reasons behind this trend and suggest policy measures to improve credit accessibility while ensuring repayment. (GS3 – Agriculture & Economy)
2. India has a significant presence in the global spices market. Analyze the challenges and opportunities in expanding its market share amidst global competition and quality concerns. (GS3 – Economy & Agriculture)
3. Gene-edited crops offer promising solutions for food security but raise ethical and regulatory concerns. Discuss the potential of gene-edited bananas in India and the challenges in their large-scale adoption. (GS3 – Science & Tech & Agriculture)
4. Mycelium bricks are emerging as a sustainable alternative in construction. Evaluate their potential in addressing India's environmental and infrastructure challenges. (GS3 – Environment & Infrastructure)

Science, Technology & Innovation

1. The rise in India's patent applications, as highlighted in the WIPO report, indicates an evolving innovation ecosystem. Critically assess the factors driving this trend and the challenges in sustaining innovation-led growth. (GS3 – Science & Tech & Economy)
2. Starlink and similar satellite internet projects aim to bridge the digital divide. Analyze their potential to enhance rural connectivity and discuss the regulatory challenges in integrating satellite-based internet in India. (GS3 – Science & Tech & Governance)
3. AI in healthcare governance can revolutionize service delivery but also raises ethical and privacy concerns. Discuss the role of AI in India's healthcare system and the policy measures needed for its responsible use. (GS2/GS3 – Governance & Science & Tech)

Infrastructure & Education

1. The establishment of STEM labs in government schools can bridge the education gap and enhance scientific learning. Evaluate the effectiveness of such initiatives with relevant case studies. (GS2 – Education & Governance)

NEWS IN BRIEF

GOLDEN PASSPORT PROGRAM OF VANUATU

Context: Former IPL chief **Lalit Modi** has surrendered his Indian passport and acquired **Vanuatu's citizenship** under its **Golden Passport Program**.

About Vanuatu: A **Pacific island nation**, 800 km west of **Fiji** and 1,770 km east of **Australia**, located in the **Ring of Fire** (high seismic activity).

Golden Passport Program:
- **Citizenship by Investment (CBI)** allows individuals to acquire **Vanuatu's citizenship** by making **financial contributions** ($135,500–$155,500).
- **Processing time:** 30–60 days.

Benefits:
- Ranks **51st** in Henley Passport Index (higher than **India, China, Saudi Arabia**).
- **Tax haven:** No **personal income tax, capital gains tax, inheritance tax, or wealth tax**.

Criticism & Concerns:
- Citizenship granted to **criminals**, raising **security concerns**.
- Potential **backdoor entry** to **EU & UK**.
- Lax **tax laws** increase **money laundering risks**.
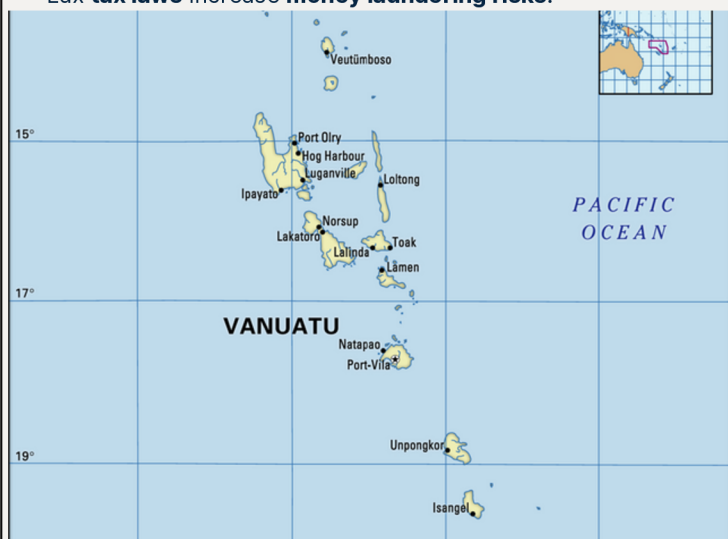
7 YEARS OF POSHAN ABHIYAAN

Context: POSHAN Abhiyaan, **launched in 2018,** completes seven years.

Objectives:
- Reduce stunting, **undernutrition,** and anemia in women and children (0-6 years).
- Improve **maternal and child healthcare** to reduce low birth weight.

Key Pillars:
- **Access to Quality Services:** ICDS, NHM, and PMMVY ensure healthcare during the first 1,000 days of life.
- **Cross-Sectoral Convergence:** Coordination with Swachh Bharat Mission and Drinking Water Mission.
- **Technology:** Poshan Tracker App for real-time monitoring.
- **Jan Andolan:** Mass awareness and behavioral change.

Mission Saksham Anganwadi & POSHAN 2.0 (2021): Merged with the Supplementary Nutrition Programme.

Funding:
- 60:40 (Union: State) for most states.
- 90:10 for Northeast and Himalayan States.

RASHTRIYA KARMAYOGI JAN SEVA PROGRAMME

Context: The Ministry of Social Justice launched the first batch of this programme to train civil servants.

About the Programme:
- Launched by the **Capacity Building Commission** (CBC) to promote a citizen-centric approach.
- Focuses on a service mindset and accountability.

Capacity Building Commission (CBC):
- Established in 2021.
- **Three-member body** including experts from public and private sectors, academia, and civil society.
- Standardizes public sector **training and development**.

Mission Karmayogi (2020):
- A National Programme for **Civil Services Capacity Building**.
- **Apex body** under the Prime Minister's Office, focuses on future-ready civil servants with the right skills and knowledge.

ORGANIZATION OF ISLAMIC COOPERATION (OIC)

Context: OIC supported the Arab League's proposal against **Trump's Gaza plan**.

About OIC:
- **Second-largest international organization** after the UN, with 57 member states across four continents.
- **Founded in 1969**; headquarters in Jeddah, Saudi Arabia.

Objectives:
- Promote **Islamic solidarity** among member states.
- **Defend Muslim interests** in politics, economy, and culture.
- **Protect Islamic holy sites**, especially in Palestine.

India & OIC:
- India is **not a member** but is mentioned in OIC **resolutions on Kashmir**.
- In 2019, India was **invited as a guest of honor** to an OIC meeting.

India rejects OIC's stance on Kashmir as interference in internal affairs.

CDS VISIT TO AUSTRALIA

Context: Chief of Defence Staff (CDS) General **Anil Chauhan** visited Australia to enhance defense cooperation.

Focus Areas:
- Maritime domain **awareness and reciprocal** information sharing.
- Joint military deployments from each other's territories.

About CDS:
- **First CDS:** General Bipin Rawat (appointed in 2019).
- Heads the Department of Military Affairs and oversees **coordination and modernization** of the Army, Navy, and Air Force.

India-Australia Defence Ties:
- **Mutual Logistics Support Agreement** (2020) enhances logistical cooperation.
- **Navy-to-Navy Agreement** (2021) strengthens maritime security.
- Ongoing discussions on **hydrography and air-to-air refueling**.

USE OF TOOLS BY ANCIENT ANCESTORS

Context: A recent study in Nature suggests that ancient ancestors used **bone tools 1.5 million years ago**, nearly a million years earlier than previously believed.

Evolution of Tool Use
- **Oldest Stone Tools:** Date back 3.3 million years.
- **Earliest Wooden Tools:** Found from 700,000 years ago.
- **Kenneth Oakley (1940s):** Initially identified tool-making as a uniquely human trait.
- **Current Understanding:**
  - Tool use predates the emergence of genus Homo.
  - Early ape-like ancestors likely used sticks and stones for daily tasks.

Key Discoveries in Tool Use
- **Charles Darwin (1871):** Noted that chimpanzees use tools (e.g., cracking nuts with stones).
- **Jane Goodall (1960s):** Observed chimps using sticks for termite fishing and leaves for drinking water.
- **Recent Findings:**
  - Chimps craft wooden spears for hunting.
  - Capuchin monkeys unintentionally create stone flakes similar to those made by early humans.

Stone Age: Phases of Tool Development
1. **Paleolithic Age (Old Stone Age)** – 2.6 million years ago to 10,000 BCE

- Early humans were **hunter-gatherers**, using stone tools for hunting and food processing.
- **Mesolithic Age – 10,000 BCE to 5,000 BCE**
  - **Featured specialized tools**, environmental adaptations, and early domestication of plants and animals.
- **Neolithic Age – 12,000 years ago to 4500–2000 BCE**
  - **Agriculture, animal domestication**, pottery, weaving, and settled communities emerged.
  - **Led to complex social structures** and civilization-building.

Conclusion: The discovery of early tool use challenges the notion that technology is uniquely human. It **highlights the gradual evolution** of intelligence and adaptation among ancient ancestors.

ASTRA MK-III RENAMED GANDIVA

Context: India's most advanced beyond visual range (BVR) air-to-air missile, Astra MK-III, has been renamed Gandiva.
Key Features:
- **Extended Range:** 340 km (at 20 km altitude) & 190 km (at 8 km altitude).
- **Advanced Propulsion:** Dual-fuel ducted ramjet engine for high-speed flight.
- **Target Engagement:** Can hit fighter jets, bombers, and transport aircraft.

TROPEX-2025

Context: The Indian Navy's largest maritime exercise, TROPEX-25, is being conducted from January to March 2025.
About TROPEX:
- **Biennial Exercise:** Involves the Army, Air Force, and Coast Guard.
- **Phases:** Conducted at sea and in harbor; includes cyber and electronic warfare.

Key Highlights: Live weapon firings and Amphibious Exercise (AMPHEX).

MODIFIED ETHANOL INTEREST SUBVENTION SCHEME

Context: The government launched a modified ethanol scheme to support cooperative sugar mills (CSMs).
Key Features:
- **Converts sugarcane-based** plants into multi-feedstock plants using maize and damaged food grains.
- **Interest subvention:** 6% per annum or 50% of the bank interest rate (whichever is lower) for five years.
- **Aligns with the Ethanol Blended** Petrol (EBP) Programme, targeting 20% ethanol blending by 2025.
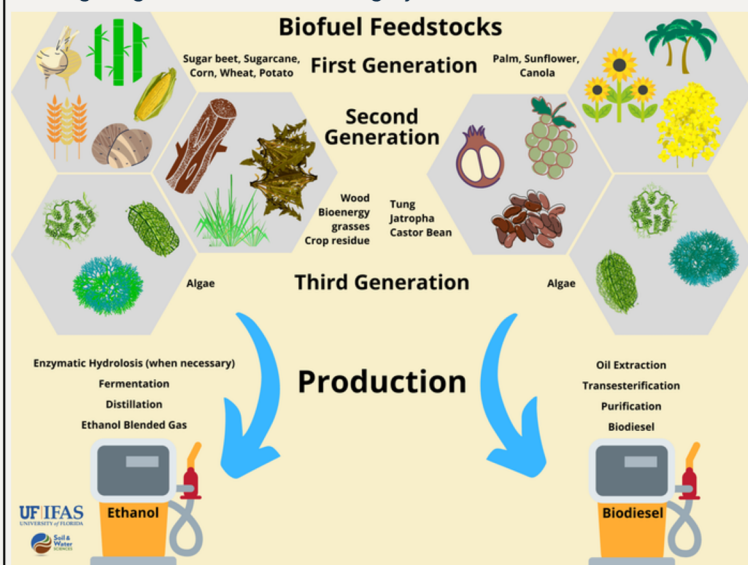
DECLINING BUTTERFLY POPULATION

Context: A study found a **22% decline in butterfly** populations in the U.S. since 2000 due to insecticides, climate change, and habitat loss.
Importance of Butterflies:
- Bio-indicators of environmental health.
- Pollinators, second only to bees and wasps.
- Vital in the food chain as prey for birds and bats.\

Threats: Deforestation, habitat loss, and climate change.
Notable Species:
- **Monarch Butterflies:** Migrate up to 2,800 miles to Mexico.
- **Marbled Map Butterfly:** Endemic to Eastern Ghats and Odisha.
- **Common Birdwing:** Listed under CITES, often found in wildlife trade.

UNICEF'S KINSHIP AND COMMUNITY-BASED CARE PROGRAMME

Context: India is shifting from **institutional child care** to family-based solutions like kinship care, foster care, and community support.
Key Points:
- **Seasonal migration** disrupts children's education and increases child labor risks.
- **KCBCP** promotes keeping children with relatives instead of placing them in institutions.
- **Mission Vatsalya** has quadrupled non-institutional child care since 2021-22.

Focus on **preventing family separation**, strengthening care systems, and mental health support.

HANTAVIRUS (GS2 – HEALTH)

Context: The CDC issued a warning about the **potentially fatal Hantavirus**, which causes severe respiratory and renal diseases.
**What is Hantavirus?**
- A family of viruses responsible for **Hantavirus Pulmonary Syndrome** (HPS).
- **Symptoms:** Fever, chills, muscle aches, respiratory distress, and fluid accumulation in the lungs.
- **High fatality risk** in severe cases.

Transmission:
- **Carried by rodents** (deer mice, rice rats, cotton rats).
- **Humans contract** the virus by inhaling particles from rodent droppings, saliva, or contaminated materials.

Prevention: No specific cure; prevention focuses on minimizing rodent exposure.
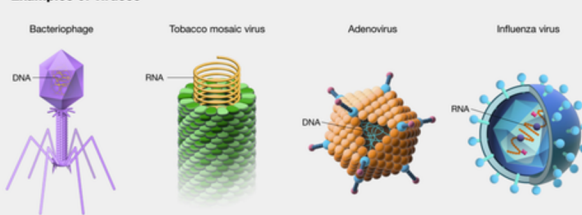
ISOLATIONISM

Context: Trump's **'America First'** policy reignited debates on U.S. isolationism and global disengagement.
What is Isolationism?
- A foreign policy approach that **avoids political**, **military**, and economic entanglements.

Historical Context:
- **George Washington:** Warned against "entangling alliances."
- **19th Century:** U.S. avoided European conflicts but expanded influence in the Western Hemisphere.
- 20th Century: Rejected the League of Nations and passed Neutrality Acts (1930s) to stay out of global conflicts.

Modern Debate:
A **"restraint" policy** has emerged as a middle ground between isolationism and military intervention.

GEO-MAPPING OF RUBBER PLANTATIONS

Context: The **Rubber Board will geo-map** plantations in Kerala under the Indian **Sustainable Natural Rubber (iSNR)** framework to comply with the EU Deforestation Regulation (EUDR).

Key Points:
- **Rubber Origin:** Derived from Hevea brasiliensis, introduced to Asia and Africa in the 19th century.
- **Geo-Mapping Initiative:**
  - **Records land ownership** and plantation boundaries in 10 rubber-growing districts.
  - **Partnered with Trayambu** Tech Solutions Pvt. Ltd (TRST01).
- **Importance:**
  - Ensures a **deforestation-free** rubber supply chain.
  - **Enhances market access** and compliance with EUDR.

EU Deforestation Regulation (EUDR): Mandates all EU-imported commodities to be deforestation-free after December 2020.

HYDROGEN-POWERED FUEL CELLS

Context: Hydrogen-powered fuel cells have been successfully tested as backup power for telecom towers.

What are Hydrogen Fuel Cells?
- **Generate electricity** by combining hydrogen and oxygen.
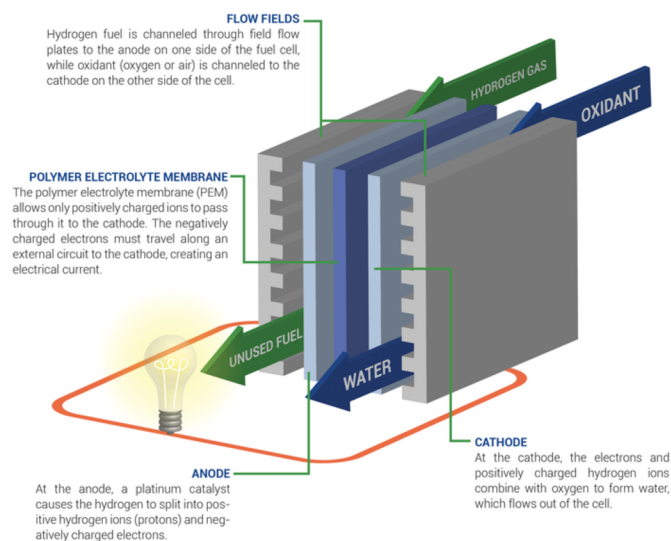- **Structure:** Anode (-), Cathode (+), and Electrolyte.

Working Mechanism:
- Hydrogen splits into protons and electrons.
- Electrons generate electricity, while protons combine with oxygen to produce water and heat.

Hydrogen Properties:
- Lightest and most abundant element (Symbol: H, Atomic No: 1).
- Colorless, odorless, and highly combustible.

HOW DO HYDROGEN FUEL CELLS WORK?

FLOW FIELDS
Hydrogen fuel is channeled through field flow plates to the anode on one side of the fuel cell, while oxidant (oxygen or air) is channeled to the cathode on the other side of the cell.

POLYMER ELECTROLYTE MEMBRANE
The polymer electrolyte membrane (PEM) allows only positively charged ions to pass through it to the cathode. The negatively charged electrons must travel along an external circuit to the cathode, creating an electrical current.

ANODE
At the anode, a platinum catalyst causes the hydrogen to split into positive hydrogen ions (protons) and negatively charged electrons.

CATHODE
At the cathode, the electrons and positively charged hydrogen ions combine with oxygen to form water, which flows out of the cell.

SMART PROTEINS

Context: The BioE3 initiative is funding **smart protein research** to develop sustainable alternative protein sources.

What are Smart Proteins?
- Also known as **alternative proteins.**
- Production Methods: Plant-based, fermentation, and cell-culture.

BioE3 Initiative (2024):
- Led by the Department of **Biotechnology, Ministry of Science & Technology.**
- Focuses on **biomanufacturing, bio-AI hubs, and biofoundries.**
- Supports **Net Zero goals**, circular bioeconomy, and green growth.

Smart protein offers a safe, nutritious, and sustainably-sourced solution to the world's most pressing problems:

Climate change and environmental degradation.

Global food insecurity and nutritional deficits.

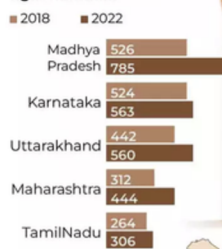Threats to public health and food safety.

MADHAV NATIONAL PARK – 58TH TIGER RESERVE

The Tiger Count

Tiger numbers in India:

2018	2022
2,967	3,682

States with highest tiger numbers
- 2018 ■ 2022

State	2018	2022
Madhya Pradesh	526	785
Karnataka	524	563
Uttarakhand	442	560
Maharashtra	312	444
TamilNadu	264	306

Reserves with highest tiger population
1. Jim Corbett, Uttarakhand
2. Bandipur, Karnataka
3. Nagarhole, Karnataka
4. Bandhavgarh, MP
5. Dudhwa, UP

Context: Madhav National Park in Madhya Pradesh has been declared India's 58th Tiger Reserve, **making MP the state with the highest number of tiger reserves** (9).

Key Facts:
- **Location:** Near Shivpuri, MP, part of the upper Vindhyan hills.
- **Water Bodies:** Sakhya Sagar (Ramsar site, 2022) and Madhav Sagar.
- **Rivers:** Manier and Sind.
- **Vegetation:** Tropical dry deciduous and dry thorn forests.
- **Flora:** Kardhai, Salai, Dhaora, Khair.
- **Fauna:** Nilgai, Chinkara, Chowsinga, Chital, Sambar, Barking Deer.

Historical Significance: Former **hunting ground** of Mughal emperors and the Maharaja of Gwalior, declared a National Park in 1958.

EXERCISE KHANJAR-XII

Context: The 12th edition of Exercise Khanjar-XII will be held in Kyrgyzstan.

Key Facts:
- Type: **Joint Special Forces exercise**.
- Frequency: Annual, alternately hosted by India and Kyrgyzstan.
- **Aim:**
  - Exchange **counter-terrorism** strategies.
  - **Train for high-altitude** and urban warfare.

JADAYASWAMY FESTIVAL

Context: The Jadayaswamy Festival was recently **celebrated in Tamil Nadu.**
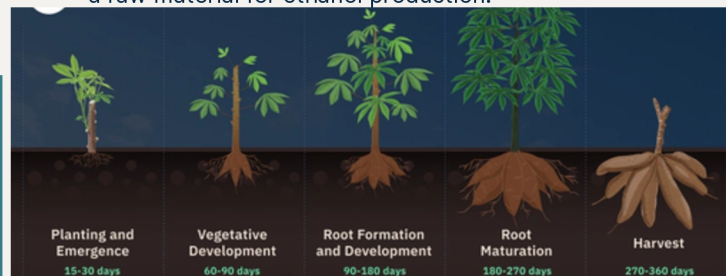
Key Facts:
- **Community:** Celebrated by the Badagas, an aboriginal tribe of the Nilgiris.
- **Location:** Jackanarai village near Kotagiri, Tamil Nadu.
- **Significance:** Dedicated to Jadayaswamy, **symbolizing faith, devotion**, and ancestral traditions.
- **Traditions:** Procession from eight villages to the Jadayaswamy temple.
- Language: The Badaga people speak **Badugu.**

CASSAVA

Context: Indigenous **farming traditions** have helped maintain cassava's genetic diversity.

Key Facts:
- Also known as **'Yuca' or 'Manioc,'** called the 'Bread of the Tropics.'
- **Origin:** Native to South America, introduced to Africa and Asia by Portuguese sailors.
- **Cultivation:** Grown through stem cuttings; Nigeria is the largest producer.
- **Significance in India:**
  - **Nutrient-rich**, high in energy and vitamins.
  - Recognized under the **National Policy on Biofuels** (2018) as a raw material for ethanol production.

Planting and Emergence	Vegetative Development	Root Formation and Development	Root Maturation	Harvest
15-30 days	60-90 days	90-180 days	180-270 days	270-360 days

INDIA'S RECORD WHEAT PRODUCTION

Context: Second Advance Estimates predict a record wheat production of **115.3 million metric tonnes** in 2024-25.
Key Facts:
- **Current Area & Production:**
  - **2023-24:** Wheat grown on **318.33 lakh hectares**, yielding 113.92 million tonnes.
  - **Second-largest crop** in India after paddy.
- **Top Wheat-Producing States:**
  - **Uttar Pradesh** (1st), followed by Madhya Pradesh, Punjab, Haryana, Rajasthan, Bihar, Gujarat, and Maharashtra.
- **Major Export Destinations** (2023-24): **Nepal, Iraq**, South Korea, UAE, Mongolia.
Favorable Conditions:
- **Temperature:** 10-15°C (sowing), 21-26°C (ripening).
- **Rainfall:** 50-100 cm; excess rain damages crops.
- **Soil:** Prefers loamy and clayey soils with pH 6-8.
Reasons for Increased Production:
- Adoption of **zero tillage in Punjab** and Haryana for better yields.
- **Soil Health Management** under the Soil Health Card Scheme.
- **Improved irrigation** through PMKSY (Pradhan Mantri Krishi Sinchayee Yojana).
- **Absence of extreme weather** events during critical growth stages.

SECURITY INK TO PREVENT COUNTERFEITING

Context: Scientists from the Institute of Nano Science & Technology and **Bhabha Atomic Research Centre** have developed a new security ink using Sr_2BiF_7 nanoparticles.
What is Counterfeiting?
- **Illegal duplication** of trademarks, harming the pharmaceutical and consumer goods sectors.
- **Fake medicines** can cause treatment delays or fatalities.
Security Printing Features:
- **Optically Variable Ink**: Changes color when viewed from different angles.
- **Watermarks:** Embedded designs for authenticity.
- **Holograms:** 3D images for enhanced security.
Unique Features of the New Ink:
- Existing **fluorescent inks** work under either UV or infrared light, but not both.
- The new ink fluoresces under both **ultraviolet (UV)** and near-infrared (IR), improving anti-counterfeiting security.

INDIA TO HOST PARA-ATHLETICS GRAND PRIX

Context: India will host the World Para-Athletics Grand Prix at **Jawaharlal Nehru Stadium**.
Key Facts:
- Annual elite event organized by World Para Athletics under the **International Paralympic Committee**.
- **Established:** 2013, providing a global competitive platform for para-athletes.
Significance:
- Serves as a **key classification platform** for para-athletes.
Helps athletes qualify for the World Championships and Paralympic Games.
Jawaharlal Nehru Stadium – Key Facts
- **Location:** New Delhi, India
- **Built:** 1982 for the Asian Games
- **Capacity:** ~60,000 spectators
- **Uses:** Athletics, football, concerts, and events
- **Managed** by: Sports Authority of India (SAI)

CHAGOS ARCHIPELAGO: INDIA SUPPORTS MAURITIUS' CLAIM

Context: India backs Mauritius' sovereignty over Chagos Archipelago.
Key Facts:
- **Location:** Indian Ocean, 500 km south of Maldives, comprises 58 islands.
Historical Background:
- Uninhabited until the 18th century, later **settled by laborers from Africa & India** under French rule.
- **1814: Ceded to Britain**; 1965: Became part of British Indian Ocean Territory (BIOT).
- **1968:** Mauritius gained independence, but Chagos remained under British control.
Significance: Diego Garcia, the largest atoll, hosts a major US military base.

PARVATMALA PARIYOJANA: BOOST TO ROPEWAY INFRASTRUCTURE

Context: Cabinet approves ropeway projects in **Uttarakhand under Parvatmala Pariyojana**.
Key Features:
- Announced in Budget 2022, implemented under **PPP mode** by NHLML (MoRTH).
- **Target:** 250+ ropeway projects (1,200 km) in 5 years.
Benefits:
- Enhances connectivity in remote hilly areas.
- Boosts tourism & economy.
Eco-friendly: Reduces deforestation & land degradation.

SOIL FERTILITY MAPPING IN MAHARASHTRA

Context: Soil fertility maps created for 351 villages across 34 districts.
Key Facts:
- Uses **geospatial & AI-based techniques** to analyze Soil Health Card (SHC) data.
Benefits:
- Reduces fertilizer misuse, optimizing farm productivity.
- Identifies soil degradation & nutrient deficiencies.
Soil Degradation in India – Key Facts
- **Extent:** Affects 30% of India's land (~96 million hectares).
- **Causes:** Deforestation, overgrazing, excessive chemical use, unsustainable farming, urbanization, and mining.
- **Types:** Soil erosion, salinization, nutrient depletion, and desertification.
- **Impact:** Reduced agricultural productivity, food insecurity, and environmental damage.
- **Government Efforts:** Soil Health Card, NMSA, Watershed Management Programs to restore soil health.

PRADHAN MANTRI FASAL BIMA YOJANA (PMFBY)

Context: Government extends PMFBY and Restructured Weather-Based Crop Insurance Scheme (RWBCIS).

Key Features:
- **Launched:** Kharif 2016, voluntary for States & farmers.
- **Affordable Premiums:**
  - Kharif crops: 2%
  - Rabi crops: 1.5%
  - Commercial/Horticultural crops: 5%
- Government subsidizes the remaining premium.
- **Coverage:**
  - Protects **against natural disasters**, pests, and diseases.
  - **Post-harvest losses** covered for up to 14 days.
- **Technology-Driven:**
  - **Uses satellite imaging**, drones & mobile apps for accurate loss assessment.
  - **Timely Compensation:** Aims for claim settlement within two months post-harvest.

Did You Know? RWBCIS is a weather index-based insurance scheme introduced alongside PMFBY.

GIANT GOLIATH BEETLE FACING EXTINCTION

Context: Research warns of **extinction risk for Goliathus regius** & Goliathus cacicus.

Key Facts:
- Among the **world's largest insects** (up to 110 mm long).
- Native to: **Rainforests of West & Central Africa**.
- Male beetles have Y-shaped horns; females lack horns.

Ecological Role: Larvae (grubs) aid nutrient recycling by consuming plant debris & animal matter.

PM-YUVA 3.0: MENTORING YOUNG AUTHORS

Context: Ministry of Education launched the **third edition of PM-YUVA**.

About:
- **Trains young authors** (<30 years) to promote reading, writing & book culture.
- **Provides mentorship** & publishing opportunities to enhance Indian literature globally.

Focus Areas:
1. Indian Diaspora's **Contribution to Nation-Building**.
2. Indian Knowledge System.
3. Makers of Modern India (1950-2025).

Implementation:
- Aligned with **NEP 2020** to build a knowledge-driven ecosystem.
- **Implemented by:** National Book Trust, India.

ASTRA MISSILE – DEFENCE

Context: Tejas Light Combat Aircraft successfully test-fired Astra **air-to-air missile** off Odisha's coast.

About:
- **Developed by DRDO**, it is a beyond-visual-range air-to-air missile (BVRAAM) with a range >100 km.
- Features **advanced guidance & navigation** for precision targeting.
- **Speed:** Exceeds Mach 4 | Max Altitude: 20 km.
- Enhances IAF's **air combat capability.**

MISSION AMRIT SAROVAR – ENVIRONMENT

Context: Indian Railways joins the initiative to **dig ponds for addressing water scarcity**.

About:
- **Launched:** April 24, 2022 | Target: 75 ponds per district (total 50,000).
- **Multi-Ministerial Effort:** Involves Rural Development, Jal Shakti, Panchayati Raj, Environment & Climate Change ministries.
- **Funding Sources:**
  - MGNREGS, **15th Finance Commission Grants**, Pradhan Mantri Krishi Sichayi Yojana.
  - CSR & public contributions allowed.
- **Impact:**
  - **Improves water availability**, irrigation, fisheries, and water tourism.
  - **Serves as social gathering** points and flag-hoisting sites on Independence Day.
- **Progress:** >68,000 ponds completed (as of Jan 2025).

LIE-DETECTOR TEST (POLYGRAPH TEST)

Context: Mumbai Police conducted a polygraph test in the New India Cooperative Bank fraud case.

What is it?
- Measures **physiological responses** (heartbeat, breathing, sweating) to detect deception.
- Uses **cardio-cuffs & electrodes** to record blood pressure, pulse, and blood flow during questioning.
- **Limitations:** Not always reliable, as stress & anxiety may affect results.

Legal Status:
- **Supreme Court ruling** (Selvi v. State of Karnataka, 2010):
  - Not admissible as "**confession**" in court.
  - However, evidence found using the polygraph **test is admissible.**

PRELIMS QUESTIONS

1. Consider the following statements regarding the Organization of Islamic Cooperation (OIC):
   1. It is the second-largest intergovernmental organization after the United Nations.
   2. India is a founding member of the OIC.
   3. The OIC primarily focuses on economic cooperation among its member states.

   Which of the statements given above is/are correct?
   - (a) 1 only
   - (b) 1 and 3 only
   - (c) 2 and 3 only
   - (d) 1, 2, and 3

2. With reference to POSHAN Abhiyaan, consider the following statements:
   1. It was launched with the objective of reducing malnutrition among children, adolescent girls, pregnant women, and lactating mothers.
   2. The scheme is implemented by the Ministry of Health and Family Welfare.
   3. The Abhiyaan uses technology-based solutions such as ICDS-CAS for real-time monitoring.

   Which of the statements given above is/are correct?
   - (a) 1 only
   - (b) 1 and 3 only
   - (c) 2 and 3 only
   - (d) 1, 2, and 3

3. Which of the following hominin species is credited with the earliest evidence of tool use?
   - (a) Homo sapiens
   - (b) Homo erectus
   - (c) Homo habilis
   - (d) Neanderthals

4. The Rashtriya Karmayogi Jan Seva Programme aims to:
- (a) Provide digital skill training to government employees.
- (b) Promote voluntary service among youth in rural India.
- (c) Strengthen citizen engagement in public service delivery.
- (d) Enhance entrepreneurship opportunities for MSMEs.

5. ASTRA MK-III, recently in the news, is:
- (a) An advanced air-to-air missile developed by DRDO.
- (b) A next-generation naval torpedo system.
- (c) A hypersonic cruise missile under development.
- (d) A surface-to-air missile system for integrated air defense.

6. Which of the following factors is a major cause of butterfly population decline?
- (a) Overfishing in freshwater bodies
- (b) Increased use of artificial fertilizers
- (c) Habitat destruction and climate change
- (d) Overgrazing by herbivores

7. TROPEX-2025, recently conducted by the Indian Navy, is:
- (a) An annual exercise focused on cyber warfare strategies.
- (b) A joint naval exercise involving QUAD countries.
- (c) A maritime operational readiness exercise.
- (d) A counterterrorism training program for naval personnel.

8. Hantavirus, sometimes seen in the news, primarily spreads through:
- (a) Mosquito bites
- (b) Contaminated water sources
- (c) Airborne transmission from infected rodents
- (d) Direct contact with infected birds

9. Madhav National Park, recently in the news, is located in which Indian state?
- (a) Rajasthan
- (b) Madhya Pradesh
- (c) Gujarat
- (d) Maharashtra

10. In the context of hydrogen-powered fuel cells, consider the following statements:
1. They generate electricity through a chemical reaction between hydrogen and oxygen.
2. The only byproduct of this reaction is water.
3. They require high temperatures for operation, similar to conventional thermal power plants.

Which of the statements given above is/are correct?
- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2, and 3

11. Exercise Khanjar-XII, recently conducted, is a joint military exercise between India and:
- (a) Kazakhstan
- (b) Uzbekistan
- (c) Kyrgyzstan
- (d) Tajikistan

12. Smart proteins, often discussed in the context of sustainable food sources, refer to:
- (a) Proteins derived from lab-grown meat and plant-based alternatives.
- (b) Genetically modified proteins for higher nutritional value.
- (c) Proteins obtained from deep-sea marine species.
- (d) Artificially synthesized proteins used in pharmaceuticals.

13. Cassava, a major food crop, is primarily grown in:
- (a) Temperate regions of Europe
- (b) Tropical and subtropical regions of Africa, Asia, and Latin America
- (c) The Arctic region
- (d) The Mediterranean region

14. The Chagos Archipelago, recently in the news, is located in:
- (a) The Atlantic Ocean
- (b) The Pacific Ocean
- (c) The Indian Ocean
- (d) The Mediterranean Sea

15. The Parvatmala Pariyojana, recently launched by the Government of India, aims to:
- (a) Promote mountaineering and adventure tourism in Himalayan states.
- (b) Develop ropeway infrastructure to improve connectivity in hilly areas.
- (c) Establish renewable energy projects in mountainous regions.
- (d) Support sustainable mining practices in high-altitude zones.

16. The Para-Athletics Grand Prix, to be hosted by India, is organized by:
- (a) International Paralympic Committee (IPC)
- (b) Asian Athletics Federation
- (c) Commonwealth Games Federation
- (d) International Olympic Committee (IOC)

17. Soil fertility mapping, recently undertaken in Maharashtra, primarily aims to:
- (a) Promote monoculture farming practices.
- (b) Identify nutrient deficiencies and optimize fertilizer use.
- (c) Replace traditional farming methods with hydroponics.
- (d) Increase groundwater extraction for irrigation.

18. Which of the following risks are covered under the Pradhan Mantri Fasal Bima Yojana (PMFBY)?
1. Crop damage due to natural calamities
2. Post-harvest losses due to unseasonal rains
3. Price fluctuations in the market
4. Select the correct answer using the codes given below:
- (a) 1 only
- (b) 1 and 2 only
- (c) 2 and 3 only
- (d) 1, 2, and 3

19. Mission Amrit Sarovar aims to:
- (a) Restore traditional stepwells and water reservoirs in Rajasthan.
- (b) Develop and rejuvenate at least 75 water bodies per district in India.
- (c) Provide piped drinking water to all households in urban areas.
- (d) Promote desalination projects along India's coastal regions.

20. The Giant Goliath Beetle, recently in the news, is native to which continent?
- (a) South America
- (b) Africa
- (c) Asia
- (d) Australia