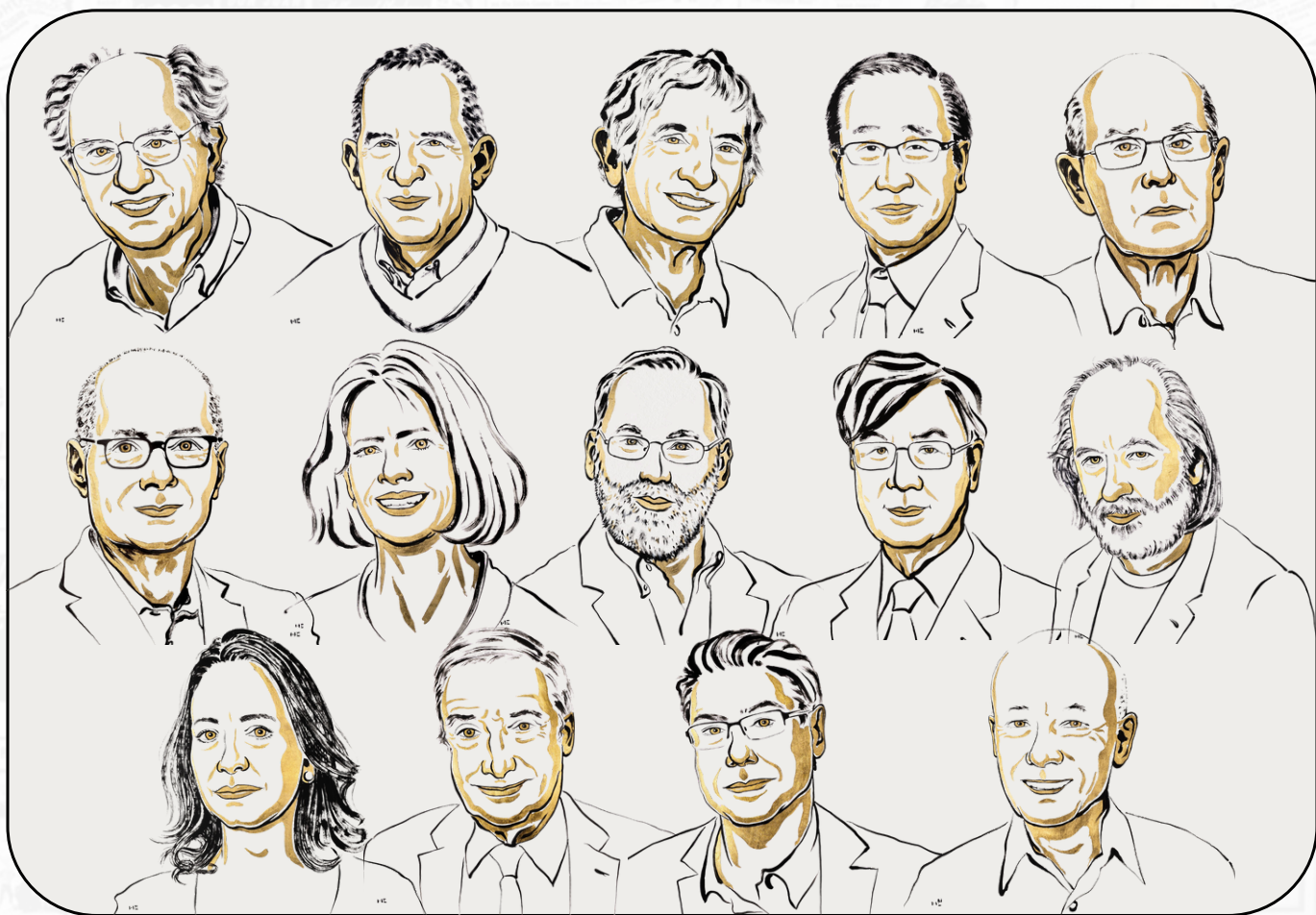
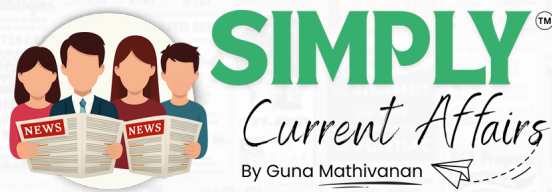


MONTHLY CURRENT AFFAIRS MAGAZINE



October 2025 (**PRELIMS**)

YOUR SIMPLIFIED GUIDE TO CURRENT AFFAIRS



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Welcome to **Simply Current Affairs Magazine** – your **trusted companion** in the ever-evolving journey of UPSC preparation. With UPSC preparation becoming more dynamic each year, the need for a **clear, exam-focused resource** is greater than ever. Our magazine has been designed with this very purpose – to **give you clarity from complexity**.

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What makes this magazine stand apart is the **integration of Previous Year Questions (PYQs)**. Statements highlighted in orange are those that have appeared directly in UPSC Prelims, and the related PYQs are compiled at the end of the magazine for you to attempt as a test.

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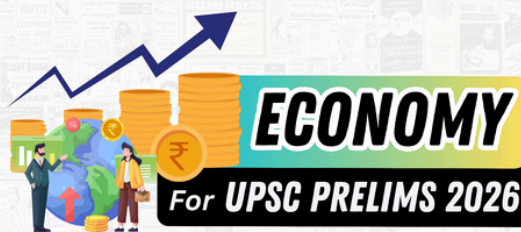


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SCHEMES






1) PM SVANidhi

About 	<ul style="list-style-type: none"> Prime Minister Street Vendor's Atma Nirbhar Nidhi (PM SVANidhi) Scheme is a central-sector micro-credit scheme launched to provide affordable loans to street vendors.  PM SVANidhi
Nodal Ministry 	<ul style="list-style-type: none"> Ministry of Housing and Urban Affairs (MoHUA)
Features 	<ul style="list-style-type: none"> Launched in 2020 in the wake of the COVID-19 pandemic, the scheme facilitates a working capital loan (collateral-free) of ₹10,000 with a 7% interest subsidy to street vendors engaged in vending in urban areas as on or before March 24, 2020. <ul style="list-style-type: none"> Upon timely repayment of the first loan, vendors become eligible for higher loans of Rs.20,000 and Rs.50,000 in the second and third tranches respectively. The scheme promotes digital transactions through cash back incentives up to an amount of Rs. 100 per month. The scheme operates through multiple lending institutions, including banks, non-banking financial companies, and small finance banks.
Implementation 	<ul style="list-style-type: none"> Joint responsibility of MoHUA and Department of Financial Services, Ministry of Finance.
Restructuring of PM SVANidhi	<ul style="list-style-type: none"> In August 2025, the Union Cabinet approved the restructuring of PM SVANidhi. The key features of the restructured scheme include enhanced loan amounts across the first and second tranches, provision of UPI-linked RuPay Credit Card for beneficiaries who have repaid the second loan and digital cashback incentives for retail and wholesale transactions. <ul style="list-style-type: none"> The first tranche loan has been increased up to ₹15,000 (from ₹10,000) and second tranche loan increased up to ₹25,000 (from ₹20,000), while the third tranche remains unchanged at ₹50,000. The lending period has now been extended until 31st March, 2030. The scheme's coverage is being expanded beyond statutory towns to census towns, peri-urban areas etc. in graded manner.









Why in News? 	<ul style="list-style-type: none"> Minister of Housing and Urban Affairs Manohar Lal chaired a review meeting on the implementation of the PM SVANidhi Scheme in New Delhi.
--	--

2) PM Dhan-Dhaanya Krishi Yojana

What's in the news? 	<ul style="list-style-type: none"> Prime Minister Narendra Modi has launched the "Prime Minister Dhan-Dhaanya Krishi Yojana" (PMDDKY) to promote agricultural advancement in 100 aspirational districts across the country.
About 	<ul style="list-style-type: none"> Announced during the Union Budget 2025-26, PMDDKY consolidates 36 existing agricultural schemes across 11 ministries to enhance agricultural productivity and increase adoption of sustainable agricultural practices.
Aim 	<ul style="list-style-type: none"> The program has five broad objectives: <ol style="list-style-type: none"> Enhancing agricultural productivity; Adopting crop diversification and sustainable agriculture practices; Augmenting post-harvest storage at the panchayat and block level; Improving irrigation facilities; Facilitating availability of long-term and short-term credit.
Coverage 	<ul style="list-style-type: none"> Drawing inspiration from NITI Aayog's Aspirational Districts Programme (ADP), which transformed 112 underdeveloped districts in health, education, and infrastructure, PMDDKY targets 100 underperforming districts based on three indicators of low crop yields, low cropping intensity, and limited access to credit. <ul style="list-style-type: none"> At least 1 district will be selected from each State.
Implementation 	<ul style="list-style-type: none"> The scheme operates under the Ministry of Agriculture and Farmers' Welfare, with oversight from a National Steering Committee, State-level Nodal Committees, and District Dhan Dhaanya Samitis. A District Agriculture and Allied Activities Plan will be finalized by the District Dhan Dhaanya Samiti, chaired by the District Collector, which will also have progressive farmers as members. Progress of the Scheme in each Dhan-Dhaanya district will be monitored on 117 key Performance Indicators through a dashboard on monthly basis. NITI Aayog will also provide overall guidance and capacity building support to PMDDKY.



3) Pradhan Mantri Matsya Sampada Yojana







About 	<ul style="list-style-type: none"> The Pradhan Mantri Matsya Sampada Yojana (PMMSY) is a flagship scheme to address critical gaps in India's fisheries sector. It was approved in 2020 to usher in the "Blue Revolution" in India's fisheries sector. 
Nodal Ministry 	<ul style="list-style-type: none"> Ministry of Fisheries, Animal Husbandry and Dairying
Objectives 	<ul style="list-style-type: none"> Harnessing of fisheries potential in a sustainable, responsible, inclusive and equitable manner; Enhancing of fish production and productivity; Modernizing and strengthening of value chain; Doubling fishers and fish farmers' incomes; Generating an additional 55 lakhs employment opportunities; Enhancing contribution to Agriculture GVA and exports; Social, physical and economic security for fishers and fish farmers; Adoption of 'Cluster or Area based approaches' and creation of Fisheries clusters through backward and forward linkages.
Components 	<ul style="list-style-type: none"> The PMMSY is an umbrella scheme with two separate components: <ul style="list-style-type: none"> Central Sector Scheme (CS): Fully funded and implemented by the Central Government. Centrally Sponsored Scheme (CSS): Partially supported by the Central Government and implemented by the states.
Pradhan Mantri Matsya Kisan Samridhi Sah Yojana	<ul style="list-style-type: none"> The Government approved the Pradhan Mantri Matsya Kisan Samridhi Sah Yojana (PM-MKSSY) in 2024 as a Central Sector sub-scheme of PMMSY. PM-MKSSY focuses on the formalisation of the fisheries sector, incentivisation of aquaculture insurance, improving value chain efficiency, and adoption of safety and quality systems for safe fish production.
Why in News? 	<ul style="list-style-type: none"> Pradhan Mantri Matsya Sampada Yojana has completed five years of successful implementation. <ul style="list-style-type: none"> Launched in 2020 for a period of five years, the scheme has now been extended up to 2025-26.



Did you know?





- **India** has emerged as the **second-largest fish producer in the world**, contributing nearly 8% of global fish production.
- PMMSY has contributed to creation of **58 lakh employment opportunities**, surpassing the target of 55 lakh.

4) UDAN Scheme

About 	<ul style="list-style-type: none"> • The Regional Connectivity Scheme (RCS) “UDAN” (Ude Desh Ka Aam Naagrik) was launched in 2016 to provide connectivity to un-served and under-served airports of the country.
Nodal Ministry 	<ul style="list-style-type: none"> • Ministry of Civil Aviation
Aim 	<ul style="list-style-type: none"> • Revival of existing air-strips and airports to make flying affordable to the common citizen, especially in Tier-2 and Tier-3 cities.
Features 	<ul style="list-style-type: none"> • UDAN operates on a market-driven model, where airlines assess demand on specific routes and submit proposals during bidding rounds. • The scheme incentivizes airlines to connect underserved regions by offering them support through Viability Gap Funding (VGF) and various concessions provided by airport operators, the Central Government, and State Governments. <ul style="list-style-type: none"> • <i>VGF is a financial grant provided by the government to support projects that are economically justified but commercially unviable.</i> • Following four successful rounds of the scheme, the Ministry of Civil Aviation launched UDAN 5.0 in 2023 to further enhance the connectivity to remote areas and achieve last mile connectivity through helicopters.
Implementation 	<ul style="list-style-type: none"> • The Airports Authority of India (AAI) is designated as the Implementing Agency under this Scheme. <ul style="list-style-type: none"> • <i>AAI is a statutory body, under the Directorate General of Civil Aviation, Ministry of Civil Aviation.</i>
Why in News? 	<ul style="list-style-type: none"> • The Ministry of Civil Aviation celebrated the 9th anniversary of the Regional Connectivity Scheme – UDAN. <ul style="list-style-type: none"> ○ Under the scheme, 649 routes have been operationalized connecting 93 unserved and underserved airports.



5) Production Linked Incentive Scheme

About 	<ul style="list-style-type: none"> The Production Linked Incentive (PLI) scheme is a Government of India initiative launched in 2020.
Aim 	<ul style="list-style-type: none"> The primary aim was strengthening India's manufacturing capabilities by offering financial incentives to companies based on their incremental sales from products manufactured in domestic units. Apart from inviting foreign companies to set up operations in India, the scheme also aims to encourage local companies to set up or expand existing manufacturing units.
Target sectors 	<ul style="list-style-type: none"> The scheme initially targeted three sectors and over time, it has expanded to include 14 sectors ranging from electronics and textiles to automobiles and food processing.
Why in News? 	<ul style="list-style-type: none"> China has filed a complaint with the World Trade Organization (WTO) against India alleging that certain provisions of the PLI scheme incentivise companies to use domestic goods rather than imported goods, discriminating against Chinese goods in the Indian market.

World Trade Organization:

- WTO is the **only global international organization** dealing with the **rules of trade between nations**.
- The **Agreement Establishing the World Trade Organization**, commonly known as the **"Marrakesh Agreement"**, was signed in Marrakesh, Morocco, in **1994**, at the conclusion of the **Uruguay Round of Multilateral Trade Negotiations**.
 - WTO is the **successor to the General Agreement on Tariffs and Trade (GATT)**, which was established in 1948.
- The goal of WTO is to ensure that **trade flows as smoothly, predictably and freely as possible**.
- All WTO members are parties to the Marrakesh Agreement**, including countries that have joined the WTO since it was signed.
 - At present, the WTO has over 160 members (including **India**).
- Note:** WTO is **not a United Nations specialized agency** and it is **not part of the United Nations system**, but has cooperative arrangements and practices with the United Nations.

WTO Structure:

1. Ministerial Conference:

- The **topmost decision-making body** of the WTO is the **Ministerial Conference**, which **usually meets every two years**. It brings together all members of the WTO.
- The Conference can take decisions on all matters under any of the multilateral trade agreements.

2. General Council:



- The General Council comprises the **representatives of all member countries** and acts as the **representative of the Ministerial Conference** when it comes to **daily operations**. Its job is to carry out the implementation and monitoring function of the WTO.




3. Dispute Settlement Body:

- The Dispute Settlement Body (DSB) is a **part of the General Council** and is responsible for **settling trade disputes between member states**.
- According to the procedure established by the WTO, the **first step** to resolve a trade dispute is engaging in the **consultation process**.
- If two trading partners having a dispute **could not resolve at that level**, one of them can **ask for a settlement of DSB** for hearing. The General Council of the WTO convenes as the DSB.
- The DSB's ruling can be challenged at the **appellate body**, the **highest court for global trade disputes**.


4. Appellate Body:

- The Appellate Body is a standing committee of **seven members** that presides over appeals against judgments passed in trade-related disputes brought by WTO members.
- Members** of the Appellate Body have **four-year terms**. In the selection process, WTO members follow the **consensus principle**, which means that the nomination of the Appellate Body members can only proceed smoothly with the agreement of all the members of WTO.
- The Appellate Body **must have at least three sitting members** to hear an appeal.
 - The Appellate Body has been **dysfunctional** since 2019, because the United States has blocked the appointment of appellate body members.

6) PM-SETU





What's in the news? 	<ul style="list-style-type: none"> The Government of India has launched PM-SETU (Pradhan Mantri Skilling and Employability Transformation through Upgraded ITIs), a centrally sponsored scheme to strengthen India's vocational training ecosystem. <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> Industrial Training Institutes: <ul style="list-style-type: none"> ITIs have been the backbone of vocational education and training in India since the 1950s, operating under State Governments. These institutes provide industrial and technical training post completion of a secondary level of education in science. </div>
Aim 	<ul style="list-style-type: none"> The scheme envisages the upgradation of 1,000 Government ITIs across the country in a hub-and-spoke model comprising 200 hub ITIs and 800 spoke ITIs. <ul style="list-style-type: none"> Each hub will be connected to four spokes on average. Hubs will host innovation centres, training for trainers, production units and placement services. Spoke ITIs will improve access in regions farther from hubs.
Features 	<ul style="list-style-type: none"> Collectively, PM-SETU will redefine India's ITI ecosystem, making it government-owned but industry-managed, with global co-financing support from the World Bank and Asian Development Bank. The scheme also envisages strengthening of five National Skill Training Institutes in Bhubaneswar (Odisha), Chennai (Tamil Nadu), Hyderabad



	(Telangana), Kanpur (Uttar Pradesh), Ludhiana (Punjab) as Centres of Excellence with global partnerships.
Implementation 	<ul style="list-style-type: none"> A National Steering Committee chaired by the Secretary, Ministry of Skill Development and Entrepreneurship would facilitate overall implementation of the scheme.

7) OTHER NOTABLE TOPICS

7.1. PM SHRI Schools

About 	<ul style="list-style-type: none"> PM SHRI School (PM ScHools for Rising India) is a centrally sponsored scheme launched by the Government of India in 2022. 
Aim 	<ul style="list-style-type: none"> The scheme aims to upgrade and develop more than 14500 Schools across the country by strengthening the selected existing schools from amongst schools managed by Central Government/ State/ UT Government/ local bodies.
Features 	<ul style="list-style-type: none"> The initiative will transform selected schools into model institutions showcasing all components of the National Education Policy 2020. These schools will focus on quality education, holistic development and 21st-century skills, while also serving as mentor institutions for neighboring schools.



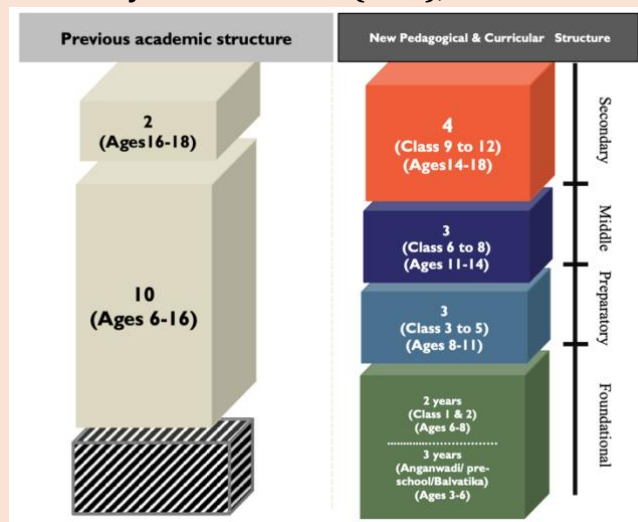
National Education Policy 2020:

- The National Education Policy (NEP) 2020 was announced to transform the education system in the country and to replace the 34-year-old **National Policy on Education (NPE), 1986**.
- NEP 2020 is founded on the **five guiding pillars** of **Access, Equity, Quality, Affordability and Accountability**.

Highlights of the Policy:

1. Early Childhood Care & Education:

- The policy places **early learning at the heart of school reform**, recognising that over 85% of brain development happens before age six.
- It replaces the current 10+2 structure in school education with a new **5+3+3+4 structure** corresponding to ages 3-8, 8-11, 11-14, and 14-18 years respectively.
- The new system will have **12 years of schooling** with **three years of Anganwadi/pre-schooling**.



2. School Education:

- The policy aims to achieve **100% Gross Enrolment Ratio in preschool to secondary level by 2030**.
- There will be **no rigid separations** between arts and sciences, between curricular and extra-curricular activities, between vocational and academic streams.
- Vocational education** will start in schools from the **6th grade**, and will include **internships**.
- A **National Mission on Foundational Literacy and Numeracy** will be set-up to focus on **early language and mathematical skills from Grades 1 to 3 by 2025**.
- The **medium of instruction** until at least class 5 (and preferably till class 8) should be **home language or mother tongue or local/regional language**.
- The policy gives the freedom to the state, region, and child to choose **three languages** to be learned.

3. Higher Education:

- The policy aims to **increase the Gross Enrolment Ratio in higher education** from 26.3% (2018) to **50% by 2035**.
- By **2040**, all higher education institutions (HEIs) shall aim to become **multidisciplinary institutions**, each of which will aim to have 3,000 or more students.
- There shall, **by 2030**, be **at least one large multidisciplinary institution in or near every district**.
- Affiliation of colleges is to be phased out in 15 years** and a stage-wise mechanism is to be established for granting **graded autonomy to colleges**.
- Higher Education Commission of India (HECI)** will be set up as a **single umbrella body for the entire higher education, excluding medical and legal education**.
- Internationalization of education** will be facilitated through both institutional collaborations, and student and faculty mobility and allowing entry of top world ranked Universities to open campuses in our country.



- A new entity - **National Research Foundation (NRF)** - will be set up to **catalyze and expand research and innovation** across the country.
- A **National Mission for Mentoring** will be established, with a large pool of outstanding senior/retired faculty, to provide mentoring/professional support to university/college teachers.

4. Others Focus Areas:

- An autonomous body, the **National Educational Technology Forum (NETF)**, will be created to provide a platform for the free exchange of ideas on the use of technology for school and higher education.
- NEP 2020 emphasizes setting up of **Gender Inclusion Fund, Special Education Zones** for disadvantaged regions and groups.
- A new **National Assessment Centre, PARAKH (Performance Assessment, Review, and Analysis of Knowledge for Holistic Development)**, will be set up as a **standard-setting body** for all recognized school boards of India.
- **National Institute for Pali, Persian and Prakrit** and **Indian Institute of Translation and Interpretation (IITI)** to be set up.
- By **2025, at least 50% of learners** through the school and higher education system shall have **exposure to vocational education**.
- The policy also aims to achieve **100% youth and adult literacy**.
- The **Centre and the States** will work together to **increase the public investment in the Education sector** to reach **6% of GDP** at the earliest.



INITIATIVES

1) Model Youth Gram Sabha

What's in the news?

- The **Ministry of Panchayati Raj**, in collaboration with the **Ministry of Education** and the **Ministry of Tribal Welfare**, has launched the **Model Youth Gram Sabha (MYGS)** initiative which aims to **engage rural youth in local governance**.
- MYGS will be **implemented across over 1,000 schools**, including Jawahar Navodaya Vidyalayas (JNVs), Eklaya Model Residential Schools (EMRSs), and State Government Schools.
- The initiative promotes **experiential and activity-based learning, simulating real Gram Sabha processes**, helping students understand democratic functioning and the importance of collective decision-making.

2) OTHER NOTABLE TOPICS

2.1. Pradhan Mantri Ayushman Bharat Health Infrastructure Mission

About the Mission

- Pradhan Mantri Ayushman Bharat Health Infrastructure Mission (PM-ABHIM), launched in **2012**, seeks to develop a **resilient, accessible, and self-reliant public health system** by **upgrading healthcare infrastructure across all levels**—from primary to tertiary care.
- It is a **Centrally Sponsored Scheme with some Central Sector Components**.
- **Nodal Ministry: Ministry of Health and Family Welfare**.
- The objective of the scheme is to **fill critical gaps in health infrastructure, surveillance and health research** – spanning both the urban and rural areas – to **prepare health systems in responding effectively to the current and future pandemics/disasters**.
- The mission also promotes the **One Health approach**, which recognises the **interdependence between human,**

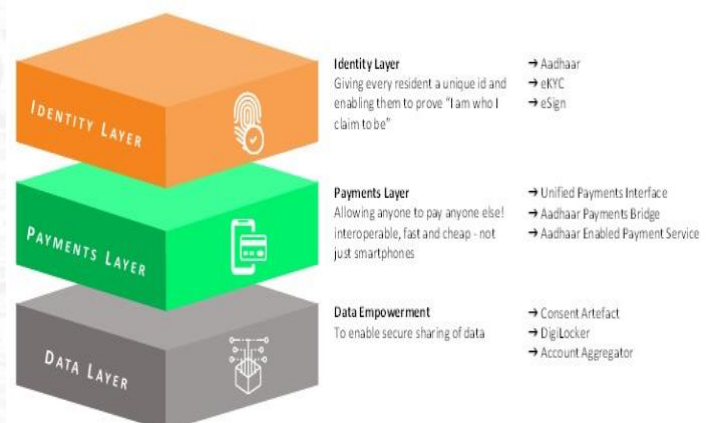
animal, and environmental health—an essential strategy for tackling infectious diseases.

2.2. Digital Public Infrastructure

About

- Digital Public Infrastructure (DPI) refers to **foundational digital systems** that are **accessible, secure, and interoperable, supporting essential public services**.
 - Examples: Aadhaar, the United Payments Interface (UPI), DigiLocker, Open Network for Digital Commerce (ONDC).
- **India's DPI**, also referred to as **India Stack**, has enabled online, paperless, and cashless digital access to various public and private services.
- The India Stack consists of **three interconnected layers** - The **Identity Layer** (Aadhaar), the **Payments Layer** (Unified Payments Interface, Aadhaar Payments Bridge, Aadhaar Enabled Payment Service) and the **Data Layer** (Account Aggregator).

Account Aggregator (AA) is an **RBI-regulated entity to access and share financial information digitally**, from the user's bank to any other regulated financial institution in the AA network. The **consent of the user** is required to share the data (like credit score, tax data, pensions data, and securities data (mutual funds and brokerage)).



- The Identity Layer has been pivotal in providing a **digital identity to every Indian**. The Payments Layer enabled an **enormous surge of cashless payments**, both in value and volume terms. The Data Layer **transformed the authentication ecosystem** in India and **facilitated the KYC process**.

2.3. VVPAT

About

- Voter Verifiable Paper Audit Trail (VVPAT) is a **vote verification system to ensure electoral transparency**.
- It is an **independent system attached with the Electronic Voting Machines (EVMs)** that allows the voters to **verify that their votes are cast as intended**.
 - When a vote is cast, a **slip is printed containing the serial number, name and symbol of the candidate** and remains exposed through a transparent window for **7 seconds**.
 - Thereafter, this printed slip automatically gets cut and falls in the sealed drop box of the VVPAT.



What is an Electronic Voting Machine?

- EVM is an **electronic device for recording votes**.
- It consists of **two Units** – a **Control Unit** and a **Balloting Unit** – joined by a five-meter cable.
- EVMs were first used in 70-Parur Assembly Constituency of **Kerala** in **1982**.

- **EVMs and VVPATs are separate entities** and not connected to any network.
- **Both operate independently without the need for any external power supply**. They run on their **own battery/ power-packs** supplied by Bharat Electronics Limited / Electronics Corporation of India Limited.

Where were VVPATs used for the first time in India?

- VVPAT with EVM was used for the first time in the **by-election to Noksen Assembly Constituency of Nagaland** in **2013**.
- After that, the Election Commission decided to introduce VVPATs in a phased manner with the **2019 Lok Sabha** being the first where **EVMs were 100% backed by the VVPAT machines**.

2.4. Tele-MANAS

About

- Tele Mental Health Assistance and Networking Across States (Tele-MANAS) is an initiative of the **Ministry of Health & Family Welfare** to provide **free tele-mental health services** all over the country.
- Launched in **2022**, Tele MANAS offers **24/7, free mental health support through phone-based services**, ensuring that individuals across India can easily access the help they need.
 - Public can access the Tele MANAS helpline by dialing toll-free helpline number 1800-89-14416 or short code 14416.



Did you know?

- Although the **Mental Healthcare Act of 2017** enshrines **access to mental health as a statutory right**, over **11 crore people** in India still **suffer from mental health disorders**, with **80% not seeking help**.
- Each year, more than 1 lakh people die by suicide, while countless others attempt to end their lives, underscoring the urgent need for intervention.

Health Programme who provide specialist care.

- **NIMHANS, Bengaluru**, serves as the **nodal centre** while the **International Institute of Information Technology (IIITB)** in Bengaluru offers technological support.

Structure

- Tele-MANAS comprises **two tiers: trained counsellors** at **State Tele-MANAS cells** who provide immediate care, and **mental health professionals** at **District Mental**



POLITY

1) Special Intensive Revision 2.0

What's in the news?

- **Election Commission of India (ECI)** has launched the Special Intensive Revision (SIR) of electoral rolls in nine States and three Union Territories, covering around 51 crore voters.
 - Andaman & Nicobar, Chhattisgarh, Goa, Gujarat, Lakshadweep, Madhya Pradesh, Puducherry, Rajasthan, Uttar Pradesh are covered in the current phase of SIR, along with West Bengal, Tamil Nadu, and Kerala which are going to polls in 2026.

Constitutional & Legal Provisions

- **Article 326** of the Constitution stipulates that **every citizen** who is **not less than 18 years of age** shall be entitled to be registered in the **electoral roll**.
- **The electoral rolls are prepared by the Election Commission of India** as per the provisions of the **Representation of the People Act, 1950 (RP Act)**.
- The rolls are prepared for **every assembly constituency separately** and the **Lok Sabha constituency roll** shall consist of the **rolls of assembly constituency segments in the parliamentary constituency**.
- There shall be for each State a **Chief Electoral Officer (CEO)**; for each district a **District Election Officer (DEO)**; for each assembly constituency an **Electoral Registration Officer (ERO)** and **Assistant EROs (AEROs)** to assist the ERO.
 - These officers are **designated or nominated by the ECI** in consultation with the state governments.
- In addition, **Booth Level Officers (BLO)** are designated for the purpose of preparation, updating and revision of electoral rolls.

What is SIR?

- **Section 21 of the RP Act** deals with preparation and revision of electoral rolls.
- A **summary revision** is carried out **before each general election to the Lok Sabha or**

legislative assembly of a State or bye-election to any constituency.

- It also **authorises the ECI to carry out special revision** of the electoral roll at **any time for reasons to be recorded**.

Why is it necessary?

- To ensure that **all eligible citizens are included** in the Electoral Roll.
- To ensure that **no ineligible voter is included** in the Electoral Roll.
- To **eliminate names of dead/shifted/absentee voters**.

How is it done?

- The SIR process begins with the **enumeration phase** during which the **Booth Level Officers** will visit every household and provide the **enumeration form**.
- The electorate would be required to fill in the details and will be asked to **establish a link with past SIR**, which was **conducted between 2002 and 2005**.
- If the voter had not attained the voting age during the last SIR period, or if their name is missing in the list for any other reason, they can **mention the details of their family members** such as parents.
- Enumeration Form will also be available on the **ECI website** which can be downloaded by an elector.

Can we add or remove names during the SIR process?

- During the enumeration stage, **Form 6** can be obtained from the BLOs to add names as a **new voter**.
- For any wrongful inclusion or exclusion of names, any electorate can raise objections through **Form 7**.
- If any voter wants to **shift their address or correct the existing entry or want to be marked as a person with disability**, they can fill up **Form 8**.

What happens after the enumeration stage?

- The ECI would publish the **draft electoral roll** after the enumeration process is over.
- **EROs/AEROs will issue notice** to all those Electors whose names could not be



matched/ linked with the last SIR and **hear such cases for eligibility.**

- After decision on claims & objections, the **Final Electoral Roll** will be published by the **ERO.**
- An **appeal** against the order of ERO can also be made to the **District Magistrate** and the second appeal to the **Chief Electoral Officer.**

2) OTHER NOTABLE TOPICS

2.1. National Food Security Act, 2013

About

- The **National Food Security Act, (NFSA) 2013** marks a paradigm shift in the approach to **food security** in India from **welfare to rights based approach.**
- The Act **legally entitled up to 75% of the rural population and 50% of the urban population** to receive subsidized foodgrains under the **Targeted Public Distribution System (TPDS).**
- The eligible persons (**Priority Households**) are **entitled to receive 5 Kgs of foodgrains per person per month** at subsidised prices of **Rs. 3/2/1 per Kg for rice/wheat/coarse grains.**
 - The **Antyodaya Anna Yojana (AAY) households**, which constitute the poorest of the poor, receive **35 Kgs of foodgrains per household per month.**

Did you know?

- NFSA covers approximately **81 crore beneficiaries** across India.
- One of the guiding principles of the Act is its **life-cycle approach** wherein **special provisions** have been made for **pregnant women and lactating mothers and children** in the age group of **6 months to 14 years**, by entitling them to receive **nutritious meal free of cost.**
- **Pregnant women and lactating mothers** are further entitled to receive **cash maternity benefit of not less than Rs. 6,000.**
- The **eldest women of the household** of age **18 years or above** will be the head of the

household for the purpose of issuing ration cards.

- In case of non-supply of entitled foodgrains or meals, the beneficiaries will receive **food security allowance.**

Implementation

- It is operated under the **joint responsibility of the Central and the State/Union Territory (UT) Governments.**
 - The **Central Government** is responsible for procurement, allocation and transportation of food grains up to the designated depots of the Food Corporation of India.
 - **States/UTs** hold the operational responsibilities for allocation and distribution of food grains.
- **Identification of beneficiaries** under NFSA is also done by the **respective State/UT Government**, which is required to frame its own criteria.

2.2. Zonal Councils

About

- Zonal Councils are **statutory bodies** set up under the **States Re-organization Act, 1956** to provide a common meeting ground to the States and UTs for **resolution of inter-state and regional issues** and **building harmonious Centre-State relations.**

Did you know?

- The idea of creation of Zonal Councils was mooted by the first Prime Minister of India, **Pandit Jawahar Lal Nehru** in **1956.**

Composition

- The **States Re-organisation Act** established **five Zonal Councils** namely:
 - **Northern Zonal Council**, comprising States/UTs of Himachal Pradesh, Haryana, Punjab, Rajasthan, Delhi, Chandigarh, Jammu and Kashmir and Ladakh;
 - **Central Zonal Council**, comprising Chhattisgarh, Uttarakhand, Uttar Pradesh and Madhya Pradesh;
 - **Eastern Zonal Council**, comprising Bihar, Jharkhand, Orissa, and West Bengal;



- **Western Zonal Council**, comprising Goa, Gujarat, Maharashtra and the UT of Dadra and Nagar Haveli and Daman and Diu;
- **Southern Zonal Council**, comprising Andhra Pradesh, Telangana, Karnataka, Kerala, Tamil Nadu and the UT of Puducherry.
- The **North Eastern States** i.e. (i) Assam (ii) Arunachal Pradesh (iii) Manipur (iv) Tripura (v) Mizoram (vi) Meghalaya and (vii) Nagaland are not included in the Zonal Councils and their special problems are looked after by the **North Eastern Council**, set up under the **North Eastern Council Act, 1972**.
 - The **State of Sikkim** has also been included in the **North Eastern Council** from 2002.



Structure

- **Chairman:** Union Home Minister.
- **Vice Chairman:** Chief Ministers of the States included in each zone by **rotation** (each holding office for a period of **one year** at a time).
- **Members:** Chief Minister and two other Ministers as **nominated by the Governor** from each of the States and **two members from Union Territories** included in the zone.
- **Union Ministers** are also invited to participate in the meetings of Zonal Councils depending upon necessity.

- Each Zonal Council has set up a **Standing Committee** consisting of **Chief Secretaries** of the member States of their respective Zonal Councils.
 - These Standing Committees meet from time to time to resolve the issues or to do necessary ground work for further meetings of the Zonal Councils.
- Each Council is an **advisory body** providing a structured forum for dialogue on inter-state and centre-state issues, acting as a key platform to foster mutual cooperation.

2.3. Anti-defection Law

Constitutional Provisions

- The **Tenth Schedule** of the Constitution, popularly known as the **anti-defection law**, was enacted in **1985** through the **52nd Amendment Act**.
- The anti-defection law aims to **arrest the practice of legislators from changing political affiliations** during their term in office. The law applies to **both Parliament and state assemblies**.
- It provides for the **Presiding Officer** of the legislature to disqualify any defector on a petition by another member.
- Disqualification is done when:
 - Member **voluntarily gives up party membership**;
 - If a legislator **votes** in the House **against the direction of party whip/abstain from voting**;
 - If an **independent candidate** joins any political party after their election to legislature;
 - If a **nominated member** joins a party after **6 months of his/her nomination**.
- The law **does not specify a strict timeline for the decision**, which has led to criticism due to potential delays.

Exceptions

- If there is a **merger between two political parties** and **two-thirds of the members of a legislature party agree** to the merger, **they will not be disqualified**.
 - When the law was enacted first, there was a provision under which if there occurs a **split** in the original political



party and as a result of which **one-third of the legislators of that party forms a separate group, they shall not be disqualified.** However, this provision was **deleted by the 91st Amendment in 2003.**

Judicial Review

- The law initially stated that the **decision of the Presiding Officer is not subject to judicial review.**
- However, in 1992 (**Kihoto Hollohan vs Zachillhu**), a Constitution Bench of the

Supreme Court, while **upholding the validity of the anti-defection law**, held that the **Speaker's decision is subject to judicial review.**



ECONOMY

1) Payments Regulatory Board

What's in the news?

- The **Reserve Bank of India (RBI)** has constituted the **Payments Regulatory Board (PRB)** and appointed **six-members** to this board led by **RBI Governor as Chairman**.
 - Alongside the Governor, the board comprises **two other RBI representatives** and **three Central Government nominees**.
 - The **Principal Legal Advisor of the RBI** is a **permanent invitee** to the meetings of the board.
- The Board is responsible for the **regulation and supervision of all payment systems including electronic and non-electronic, domestic and cross-border systems**.
- The PRB replaces the Board for Regulation and Supervision of Payment and Settlement Systems (BPSS), a committee of the RBI's Central Board.
- The PRB will be **supported by the RBI's Department of Payment and Settlement Systems (DPSS)**, which will report directly to it.
- The new board derives its authority from the **Payment and Settlement Systems Act, 2007**.

Voting

- **Decisions requiring approval** during board meetings will be taken by a **majority of members present and voting**. In the **event of a tie**, the **chairperson** will have a **second or casting vote**.
- The Board is **required to meet at least twice a year**.

2) China to forego Special and Differential Treatment

Special and Differential Treatment

- The **World Trade Organization (WTO) Agreements** contain **special provisions** which give **developing countries special rights** and which give developed countries the possibility to **treat developing countries more favourably** than other

WTO Members. These provisions are referred to as **"special and differential treatment" (SDT) provisions**.

- The special provisions include:
 - **longer time periods** for implementing Agreements and commitments,
 - **measures to increase trading opportunities** for developing countries, provisions requiring all WTO members to **safeguard the trade interests of developing countries**,
 - support to **help developing countries build the capacity** to carry out WTO work, handle disputes, and implement technical standards, and
 - provisions related to **least-developed country (LDC) Members**.
- In the **WTO Doha Declaration (2001)**, member governments agreed that **all special and differential treatment provisions are an integral part of the WTO agreements**.
- The **Bali Ministerial Conference (2013)** established a **mechanism to review and analyse the implementation** of special and differential treatment provisions.

Why in News?

- In a major shift in policy, **China** has announced that it will **no longer seek Special and Differential Treatment** in future WTO negotiations.
- However, China noted that its status as a **developing nation won't change**.
 - **Note:** There are **no WTO definitions of "developed" and "developing" countries**. **Members announce for themselves** whether they are "developed" or "developing" countries.
 - However, other members can challenge the decision of a member to make use of provisions available to developing countries.



- Chinese officials said the move was an attempt to boost the global trading system at a time when it is under threat from tariff wars and protectionist moves by individual countries to restrict imports.
- The U.S.** has demanded that China, India and other larger countries give up the benefits of being a developing country at the WTO.

3) India-Israel BIT

What's in the news?

- India and Israel** have signed a **Bilateral Investment Agreement (BIA)** in a move aimed towards strengthening economic ties and laying the groundwork for a possible Free Trade Agreement (FTA).
 - Israel** is the **first Organisation for Economic Co-operation and Development (OECD) member state** with which India has signed this strategic agreement, **in accordance with India's new model for investment treaties in 2015.**

Organisation for Economic Co-operation and Development:

- OECD is an **intergovernmental organization** of **38 member countries** that discuss and develop economic and social policy.
 - OECD members are typically **developed, high-income economies** with a high Human Development Index (HDI).
 - India is not a member of OECD.**
- The agreement is expected to boost investments, provide greater certainty and protection for investors, and facilitate the growth of trade and mutual investments.
 - India and Israel are **strategic partners**, with **annual bilateral trade** standing at nearly **\$4 billion**.
 - Between 2000 and 2025, Indian investments in Israel reached \$443 million, while Israel's foreign direct investment in India amounted to \$334.2 million.

Did you know?

- In June 2025, India's revised Bilateral Investment Treaty with **Kyrgyzstan** came into force.
 - It replaced the earlier agreement signed in 2000.

What are BITs?

- Bilateral Investment Treaties (BITs)**, also known as **International Investment Agreements (IIAs)**, are **reciprocal, legally enforceable treaties designed to protect foreign private investments** by establishing minimum guarantees, such as fair and equitable treatment, protection from expropriation (act of a government claiming privately owned property), etc.
- India signed its **first BIT** with **the UK** in 1994. By **2015**, India had signed **83 treaties** based on the **Indian Model BIT of 1993**.
 - A Model BIT is a **template or standardized text** that a country uses as a basis for negotiating and drafting its actual bilateral investment treaties with other countries.
- However, this older regime was **asymmetrical**; while granting extensive rights to investors, it was silent on the obligations of foreign investors.

Revised Model BIT 2015:

- To address these challenges, India adopted a **revised Model BIT** in **2015**. Consequently, the government terminated several existing treaties to renegotiate them under the new terms.

Key Features of the Revised Model:

- The new model aims to **balance investor protection with the government's sovereign right to regulate**.
- It introduced a **refined Investor State Dispute Settlement (ISDS) provision** requiring investors to exhaust **domestic legal remedies** for at least **five years** before resorting to **international arbitration**.
- The Model BIT encourages foreign investors to **voluntarily adopt**



internationally recognized standards of corporate social responsibility (CSR).

4. It adopts an '**enterprise-based definition of investment**' which means that an investor would have to be an incorporated legal entity in compliance with the domestic law to qualify as an investment.
5. One of the most important features of the amended model is that it **dropped the Most Favoured Nation (MFN) clause**, a provision frequently used by foreign investors to litigate against India.
 - a. The MFN clause is a **fundamental principle of non-discrimination** in international economic relations, ensuring that **any benefits granted to one country are automatically extended to others**.

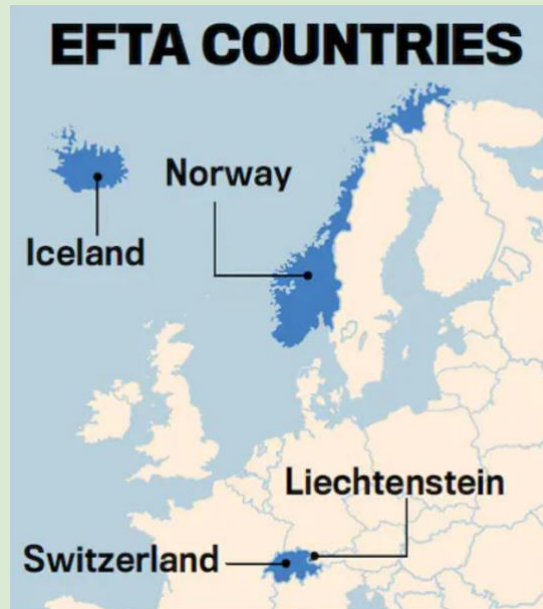
4) Trade and Economic Partnership Agreement

What's in the news?

- India-European Free Trade Association (EFTA) Trade and Economic Partnership Agreement (TEPA) came into effect recently.
- The agreement was signed in 2024.

European Free Trade Association:

- Established in 1960, EFTA is an **intergovernmental organization of four member countries that are not part of the European Union (EU): Iceland, Liechtenstein, Norway, and Switzerland**.



- EFTA aims to promote **free trade and economic integration** among its member states.

EFTA & India:

- India-EFTA two-way trade was \$18.65 billion in 2022-23, compared to \$27.23 billion in 2021-22, with a **trade deficit of \$14.8 billion**.
- Among EFTA countries, **Switzerland** is the largest trading partner of India followed by **Norway**.

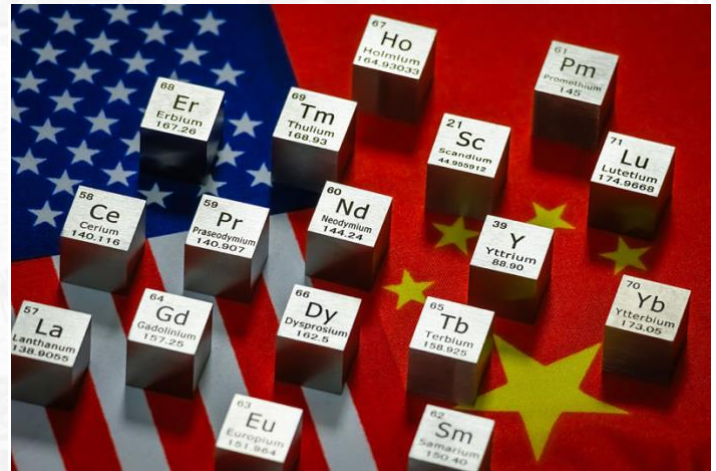
Highlights of TEPA

- TEPA is a modern and ambitious agreement that incorporates, for the **first time** in any Free Trade Agreement signed by India, a **legal commitment linked to investment and job creation**.
- Under the pact, EFTA has **committed an investment of \$100 billion in India** in the next 15 years which would facilitate the creation of **one million direct jobs in India**.
- Under TEPA, EFTA has offered 92.2% of tariff lines encompassing 99.6% of India's exports. The EFTA's market access offer covers **100% of non-agri products** and



tariff concession on Processed Agricultural Products (PAP).

- India is offering 82.7% of its tariff lines which covers 95.3% of EFTA exports of which **more than 80% import is Gold**.
 - Sectors such as dairy, soya, coal and sensitive agricultural products are kept in the **exclusion list**.
- Services offers from EFTA include better access through **digital delivery of Services (Mode 1)**, **commercial presence (Mode 3)** and improved commitments and certainty for entry and **temporary stay of key personnel (Mode 4)**.



What are they used for?

- **Rare earths or the magnets** which they are sometimes made into are found in a **wide variety of everyday and hi-tech devices**, from lightbulbs to guided missiles.
- Rare earths are also used in **future facing applications** such as **robotics, home automation and green technologies** such as **hybrid and electric vehicles and wind turbines**.

Are they rare?

- No, rare earth elements are **relatively plentiful in the earth's crust**, some are even more abundant than lead. However, because of their **geochemical properties**, they are **typically dispersed**.
- This means they are **found in low concentrations** and **mixed with other minerals**, making extraction and separation expensive and complex. It was the scarcity of these minerals that led to them being called **rare earths**.

Categories

- REEs are divided into two main groups:
 - **Light rare earth elements** (cerium, europium, gadolinium, lanthanum, neodymium, praseodymium, promethium, samarium, and scandium) are **more abundant** and generally have a **lower atomic weight**. They are widely used in **magnets, glass polishing, and catalytic converters**.
 - **Heavy rare earth elements** (dysprosium, erbium, holmium, lutetium, terbium, thulium, ytterbium, and yttrium) are **less common** and have a **higher atomic weight**. They are **critical to high-performance**

Modes of supply of services:

- **International trade in services** typically occurs in any of these four modes of supply:
 - **Cross border trade (Mode 1)**: It is the supply of a service from the territory of one country into the territory of another country.
 - **Consumption abroad (Mode 2)**: It is the supply of a service in the territory of one country to the consumer of another country.
 - **Commercial presence (Mode 3)**: It is the supply of a service by a service supplier of one country, through commercial presence, in the territory of another country.
 - **Presence of natural persons (Mode 4)**: It is the supply of a service by a service supplier of one country, through the presence of natural persons of a country in the territory of another country.

5) Rare Earths

What are they?

- Rare earths are a **group of 17 naturally occurring metallic elements** including **15 silvery-white metals** called **lanthanides, or lanthanoids**, plus **scandium and yttrium**.



magnets, LED lighting, and defence technologies.

Biggest Producer

- 61% of mined rare earth production comes from **China**, and the country controls **92% of the global output in the processing stage**.
- Projects are under way across the US, Europe, and Australia to build an alternative supply chain but it will take years to produce meaningful quantities.

Environmental Impacts

- Processing rare earths often involves the **use of solvents**, which can produce **toxic waste** that pollutes the soil, water, and atmosphere.
- Certain types of rare earth ores also contain **radioactive thorium or uranium**, which is often removed using acid.
 - For this reason, development of the sector faces **health and environmental regulatory hurdles**.

Rare Earths vs Critical Minerals

- Rare earths and critical minerals are **two different nomenclatures** and should not be confused with each other.
- Critical minerals are **identified by individual countries** depending upon what they perceive to be imperative for their growth and how easily it can be obtained, be it through domestic production or imports.
- So the list of critical minerals will **vary across countries**.
 - **India has identified 30 critical minerals**, whereas the US has identified 50, Japan has identified 31, the UK has identified 18, and so on.
- **Rare earth elements are a subset of critical minerals.**

Why in News?

- US President Donald Trump and his Chinese counterpart Xi Jinping have signed a deal to keep the flow of rare earth minerals to the US unhindered.

6) OTHER NOTABLE TOPICS

6.1. Anti-dumping duties

What are Anti-dumping duties?

- An anti-dumping duty is a protectionist tariff that a **domestic government imposes on foreign imports that are believed to be priced below fair market value**, a practice known as **dumping** in international trade.

Dumping:

- Dumping is the practice of **selling a product in a foreign market at an unfairly low price** (lower than the product's normal value in its home market) in order to **gain a competitive advantage over other suppliers**.
- Dumping is done to **gain access to the foreign market and eliminate competition**. It creates a **monopoly** in the market.

- Anti-dumping duty is imposed to **protect local businesses and markets from unfair competition** by foreign imports.

WTO Regulations

- The imposition of anti-dumping duty is a **legitimate trade remedial measure under the World Trade Organization's Anti-Dumping Agreement**.
 - It allows the government of the affected country to take legal action against the dumping country as long as there is **evidence of genuine material injury to industries in the domestic market**.
- In other cases, the WTO intervenes to prevent anti-dumping measures.

How is the anti-dumping duty levied in India?

- Anti-dumping measures in India are administered by the **Directorate General of Trade Remedies (DGTR)**, an attached office of the **Department of Commerce, Ministry of Commerce & Industry**.
 - DGTR conducts the **investigation and makes recommendations** to the Government for imposition of anti-dumping measures.
- Such duty is finally levied by the **Ministry of Finance**.



6.2. Corporate Social Responsibility

About

- Corporate Social Responsibility (CSR) is a management concept whereby **companies integrate social and environmental concerns in their business operations.**
- In **2014, India** became the **first country** in the world to **legally mandate** CSR for certain companies under the **Companies Act 2013**, which compels them to engage in **activities that contribute to the social, environmental, and economic development** of the country.



Criteria

- The provisions of CSR applies to **every company fulfilling any of the following conditions in the preceding financial year:**
 - Net worth of more than Rs.500 crore**
 - Turnover of more than Rs.1000 crore**
 - Net profit of more than Rs.5 crore.**
- The **Board of Directors** of every company for which the CSR provisions apply must ensure that the company spends in every financial year **at least 2% of their average net profits made during the past three financial years on permitted CSR activities** such as health, sanitation, education, skill development, disaster management, restoration of environment, sustainable development goals etc.

Activities not eligible for CSR activity

- Activities are undertaken in pursuance of the **normal course of business** of the company;
- Expenditures that benefit the company directly or its employees;**
- Contribution of any amount directly or indirectly to any **political party**;
- Activities are undertaken outside India**, except for training of Indian sports personnel representing any State or Union Territory at national level or India at international level;
- Contribution of any amount, directly or indirectly, to any **political party**;
- Sponsorship activities for deriving **marketing benefits** for products/services;
- Activities for fulfilling **statutory obligations** under any law in force in India.

6.3. MERCOSUR

About

- MERCOSUR is a **trading bloc in the South America region** comprising five countries: four founding members—**Argentina, Brazil, Paraguay, and Uruguay**—and **Bolivia**, which became a full member in 2024.
 - Venezuela** joined MERCOSUR in 2012 but its membership was **suspended** in 2017.



- It was formed in **1991** with the objective of **free movement of goods, services, capital and people** and became a **Customs Union** in 1995.
- The MERCOSUR Secretariat is based in **Montevideo, Uruguay.**



India-MERCOSUR PTA

- **India and MERCOSUR** signed a **Preferential Trade Agreement (PTA)** in **2004** with the aim of strengthening relations and promoting the expansion of trade.
 - Under the agreement, both sides had given **tariff concessions** ranging from 10 per cent to 100 per cent.

Forms of Economic Integration:

1. Preferential Trade Agreement (PTA):

- In a PTA, two or more partners agree to **reduce tariffs on an agreed number of tariff lines**. The list of products on which the partners agree to reduce duty is called a **positive list**.
- Example: **India-MERCOSUR PTA**.

2. Free Trade Agreement (FTA):

- In FTAs, **tariffs on items covering substantial bilateral trade are eliminated** between the partner countries.
- Example: **India-Sri Lanka FTA**.
- The key difference between an FTA and a PTA is that while in a PTA there is a **positive list** of products on which duty is to be reduced; in an FTA there is a **negative list** on which duty is not reduced or eliminated.
- Thus, compared to a PTA, **FTAs are generally more ambitious in coverage of tariff lines** (products) on which duty is to be reduced.

3. Comprehensive Economic Cooperation Agreement (CECA) & Comprehensive Economic Partnership Agreement (CEPA):

- These terms describe agreements which consist of an **integrated package on goods, services and investment** along

with other areas including Intellectual Property Rights, competition etc.

- Example: **India-South Korea CEPA**.

4. Custom Union:

- In a Customs Union, partner countries may decide to **trade at zero duty among themselves**, however they maintain common tariffs against the rest of the world.
- Example: **Southern African Customs Union (SACU)** amongst South Africa, Lesotho, Namibia, Botswana and Swaziland.

5. Common Market:

- Integration provided by a Common Market is **one step deeper than that by a Customs Union**.
- A Common Market is a **Customs Union with provisions to facilitate free movements of labour and capital, harmonize technical standards across members etc.**
- Example: **European Common Market**.

6. Economic Union:

- Economic Union is a **Common Market extended through further harmonization of fiscal/monetary policies and shared executive, judicial & legislative institutions**.
- Example: **European Union**.



AGRICULTURE

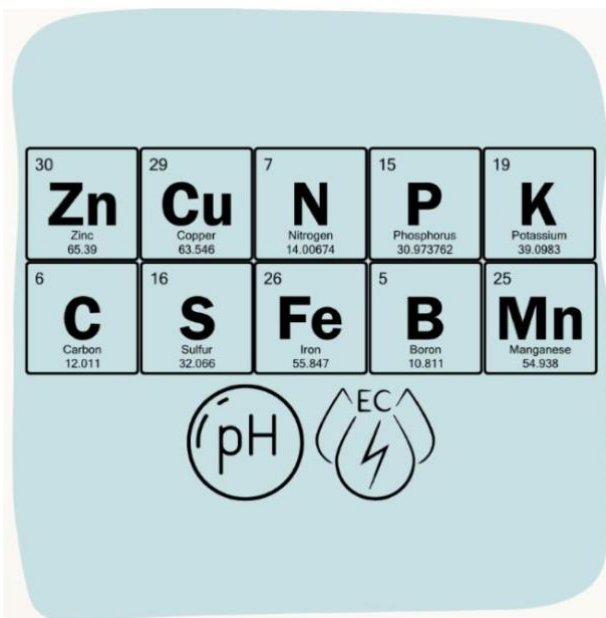
1) Soil Health Card Scheme

About

- The Soil Health Card (SHC) scheme was launched in **2015** to assist State Governments to **issue soil health cards to all farmers in the country**.
- SHC provides **information to farmers on nutrient status of their soil** along with **recommendations on appropriate dosage of nutrients** to be applied for improving soil health and its fertility.

Constituents

- Soil Health Card is a **printed report** that a farmer will be handed over for **each of his holdings**.
- It will contain the **status of his soil with respect to 12 parameters**, namely N (Nitrogen), P (Phosphorus), K (Potassium) [**Macro-nutrients**]; S (Sulphur) [**Secondary-nutrient**]; Zn (Zinc), Fe (Iron), Cu (Copper), Mn (Manganese), Bo (Boron) [**Micro-nutrients**]; and pH (Acidity or Basicity), EC (Electrical Conductivity), OC (Organic Carbon) (**Physical parameters**).



- Based on this, the SHC will also indicate **fertilizer recommendations** and **soil amendment** required for the farm.

Card Validity

- A Soil Health Card is issued **once every 3 years**.

Implementation

- It is a **Government of India's scheme** promoted by the **Ministry of Agriculture and Farmers' Welfare**.
- The scheme is **implemented through the Department of Agriculture of all the State and Union Territory Governments**.

Why in News?

- Over 25 crore Soil Health Cards have been distributed to farmers to promote the balanced use of fertilisers and support better soil management across the country.

2) e-NAM

About

- National Agriculture Market (e-NAM), launched in **2016**, is a **pan-India electronic trading portal** which **networks the existing Agricultural Produce Market Committee (APMC) mandis** to create a **unified national market for agricultural commodities**.
 - APMC Mandis are government-regulated markets established to ensure fair trade of agricultural produce between farmers and buyers.
- By integrating regional mandis across India, e-NAM provides the **farmers access to nationwide market**, with prices commensurate with the quality of their produce.
- The platform enables farmers to sell their produce through an **online competitive and transparent price discovery system** and **online payment facility**.
- e-NAM is **completely funded by the Central Government** and implemented by the **Small Farmers Agribusiness Consortium (SFAC)**.

Small Farmers' Agri-Business Consortium:

- SFAC is an **autonomous society** promoted by the **Ministry of Agriculture Cooperation and Farmers' Welfare**.
- Established in **1994**, SFAC focuses on **increasing incomes of small and marginal farmers** through aggregation and development of agribusiness.



Why in News?

- The Ministry of Agriculture and Farmers' Welfare has expanded e-NAM by adding nine new commodities such as green tea, mustard oil, broken rice, etc.
- With this inclusion, the **total number of tradable agricultural commodities** on the e-NAM platform has **increased to 247**.



ENVIRONMENT

1) National Clean Air Programme

About

- The National Clean Air Programme (NCAP) was launched in **2019** by the **Ministry of Environment Forest and Climate Change (MoEF&CC)**.
- It is a **time-bound, national level strategy to tackle the air pollution crisis** in the country in a comprehensive manner.
- **130 million plus/non-attainment cities** (cities exceeding **National Ambient Air Quality Standards (NAAQS)**, consecutively for five years) have been identified for implementing mitigation actions under NCAP.

National Ambient Air Quality Standards:

- NAAQS are the **standards for ambient air quality set by the Central Pollution Control Board (CPCB)** that are applicable nationwide.
- NAAQS was adopted in **1982** for the first time in India and it was revised in 1994 and 2009.
- The **current standards (2009)** comprise the following **12 pollutants**:
 - **Sulphur Dioxide (SO₂), Nitrogen Dioxide (NO₂), PM₁₀, PM_{2.5}, Ozone, Lead (Pb), Carbon Monoxide (CO), Ammonia (NH₃), Benzene (C₆H₆), Benzo(a)Pyrene (BaP), Arsenic (As) and Nickel (Ni).**

- NCAP initially targeted a **20-30% reduction in Particulate Matter (PM₁₀) concentrations by 2024-25** compared to the **baseline year 2017-18**. The target has been **revised** to achieve up to a **40% reduction in PM₁₀ levels** or to meet **national standards (60 microgram/cubic meter) by 2025-26**.
- NCAP emphasises on implementation of **City Action Plans (CAPs) by Urban Local Bodies**.
 - CAPs target city specific air polluting sources like Soil & Road Dust, Vehicles, Domestic Fuel, Construction Material and Industries, etc.

- The **“PRANA”** (Portal for Regulation of Air-pollution in Non-Attainment cities) **portal** was created for monitoring the implementation of NCAP.

2) Green Crackers

About

- Green firecrackers are **eco-friendly alternatives** to regular firecrackers, designed to **decrease air and noise pollution significantly**.
- They control emissions with usage of **multifunctional additives** like **zeolite and iron oxide** along with **reduced usage of chemicals** in the manufacturing of crackers.
- They guarantee either a **minimum 30% cut in particulate matter (PM)** or a **combination of 20% PM reduction along with a 10% decrease in gaseous emissions (SO₂ and NO₂)** when compared to traditional firecrackers.
 - **Noise Limit: Below 125 decibels at 4 metres.**

Why in News ?

- The Supreme Court has removed the blanket ban on fireworks in Delhi-NCR, permitting the sale and use of green crackers approved by **National Environmental Engineering Research Institute (NEERI)** and **Petroleum and Explosives Safety Organisation (PESO)** during Deepavali 2025.

National Environmental Engineering Research Institute:

- NEERI is a **research institute created and funded by the Government of India** and is a part of **Council of Scientific & Industrial Research (CSIR)**.
 - *CSIR is a premier national R&D organization under the Ministry of Science & Technology.*
- NEERI was established in **Nagpur in 1958** with a mandate to **conduct research and developmental studies in environmental science and engineering**



and collaborate with academic and research institutions.

- NEERI has **five zonal laboratories** in **Chennai, Delhi, Hyderabad, Kolkata, and Mumbai.**

Petroleum and Explosives Safety Organisation:

- It is a **statutory authority** under the **Ministry of Commerce and Industry.**
- PESO (formerly known as **Department of Explosives**), since its inception in **1898**, has been serving the nation as a **nodal agency for regulating safety of hazardous substances** such as explosives, compressed gas and petroleum.



SPECIES IN NEWS

1) Elephant Census

About Elephants

- Elephants are the **largest land mammals on earth** and have distinctly massive bodies, large ears, and long trunks.
- There are **three different species** of elephants: the **African savanna (or bush) elephant**, the **African forest elephant**, and the **Asian elephant**.
 - The **African savanna elephant** is the **largest** elephant species, while the Asian forest elephant and the African forest elephant are of a **comparable, smaller size**.
- Asian elephants **differ in several ways** from their African relatives.
 - For example, **only some male Asian elephants have tusks**, while **both male and female African elephants grow tusks**.



Characteristics

- **Led by a matriarch (female)**, elephants are organized into **complex social structures of females and calves**, while male elephants tend to live in isolation or in small bachelor groups.
- A single calf is born to a female once every four to five years and after a **gestation period of 22 months**—the **longest of any mammal**.
 - Calves are cared for by the entire herd of related females.

Why do elephants matter?

- Elephants are important **ecosystem engineers** and play a **pivotal role in shaping their habitat** and **directly influence forest composition and density, disperse seeds, and alter the broader landscape**.
- In tropical forests, elephants create clearings and gaps in the canopy that **encourage tree regeneration**.
- They make **pathways in dense forested habitat** that allow passage for other animals.
- An **elephant footprint** can also enable a **micro-ecosystem** that, when filled with water, can provide a home for tadpoles and other organisms.
- As **keystone species**, they help maintain biodiversity of the ecosystems they inhabit.
 - *Keystone species hold together the complex web of relationships in an ecosystem.*

Why in News?

- The **Wildlife Institute of India (WII)** has released the **'Status of Elephants in India: DNA-based Synchronous All-India**

Did you know?

- Due to poaching pressure, some elephant populations are evolving to lose their tusks.
- A high proportion of female African elephants in **Mozambique's Gorongosa National Park** have been born without tusks, as this improves their chances of survival.
- According to IUCN, the **Asian elephant** is classified as **endangered** with less than 60,000 remaining worldwide. The IUCN has declared **African Forest** and **Savanna (or bush) elephants** as **'critically endangered'** and **'endangered'** respectively.
 - **India is home to more than 60% of the world's remaining Asian elephants**, but their habitats continue to shrink due to encroachment, infrastructure projects and human-elephant conflict.



Population Estimation of Elephants' (SAIEE 2021-25), India's first nationwide DNA-based elephant census.

- Established in 1982, WII is a nodal national agency for research and training in the field of wildlife conservation.

About the Exercise

- Elephants have been counted **every five years** since the launch of **Project Elephant** in **1992**, a **centrally sponsored scheme** to protect the animals and their corridors.
- The latest exercise, **led by the Wildlife Institute of India**, marks a move away from earlier visual or dung-based counts to a **scientifically advanced DNA mark-recapture technique**.
- The new approach, **similar to the one used in tiger estimation**, identifies individual elephants through unique **genetic signatures**, providing a far more accurate count.
 - The study was the **world's first such comprehensive DNA-based enumeration of elephants**.

Highlights of the Latest Census

- The report estimated **22,446 elephants** as compared to 29,964 in 2017, a **25% decline in the country's elephant population over the past eight years**.
 - However, wildlife experts advised against any comparison because the new programme sought to eliminate the drawbacks of the previous methods.
- The **largest elephant stronghold** remains the **Western Ghats**, with about 11,934 elephants (**53% of all-India estimate**).
- The **second major region** is the **North Eastern Hills and Brahmaputra floodplains**, with 6,559 elephants.
- The **highest populations** are in **Karnataka** (6,013), followed by **Assam** (4,159), **Tamil Nadu** (3,136), **Kerala** (2,785), and **Uttarakhand** (1,792).
- The SAIEE report noted that elephants face some **steep challenges** in the form of **habitat loss and degradation**, and **threats due to mining and the growing network of linear infrastructure** such as railways, roadways, canals and power lines.

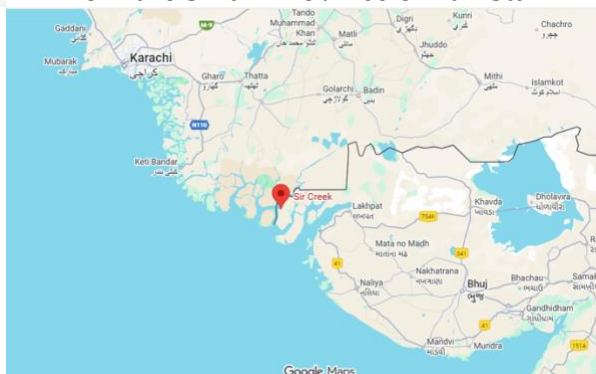


INTERNATIONAL RELATIONS

1) Sir Creek Dispute

What is Sir Creek?

- Sir Creek, originally **Ban Ganga**, is a fluctuating **96-km tidal estuary** disputed between **India and Pakistan** in the **Rann of Kutch marshlands**.
- The Creek opens up in the **Arabian Sea** and roughly divides the Kutch region of Gujarat from the Sindh Province of Pakistan.



Boundary Dispute

- Pakistan claims the entirety of Sir Creek, while India sets the boundary along the middle of the navigable channel.
- This disagreement stems from a larger disagreement on whether the creek falls under the '**Thalweg**' principle of **boundary demarcation**, which provides for making the mid-channel of a given watercourse a boundary.
- The dispute actually traces its origins to the **early 20th century** between the ruler of Kutch and the British authorities in Sindh.
- Post-Independence, it came to the fore after the India-Pakistan War of 1965, following which **Pakistan claimed jurisdiction of over half of the Rann of Kutch**.
- While this dispute was **settled by a tribunal in 1968** — India was granted 90% of the Rann and Pakistani claims were largely rejected — **Sir Creek was not included in this resolution**. The dispute has persisted since then.

Significance

- Apart from its **strategic location**, the marshlands in Sir Creek is the **largest fishing grounds in Asia** and is home to **untapped petroleum, minerals, oil and gas reserves**.

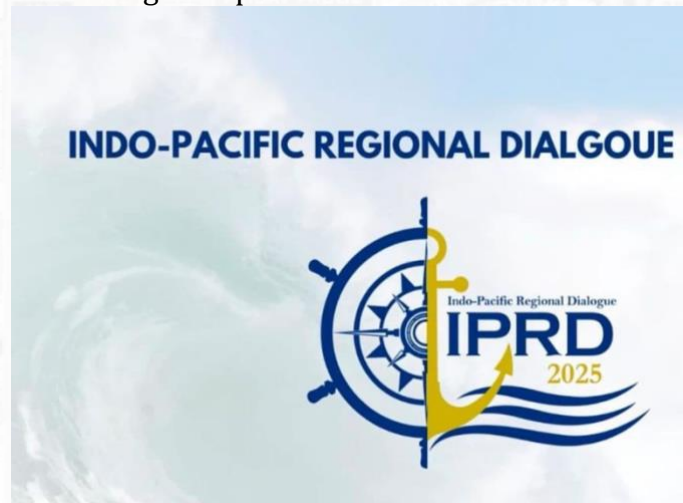
Why in News?

- Defence Minister Rajnath Singh warned Pakistan that "any misadventure in the Sir Creek sector will invite a decisive response".

2) Indo-Pacific Regional Dialogue

About

- The "Indo-Pacific Regional Dialogue" (IPRD) is the **apex-level international conference** convened **annually** by the **Indian Navy**.
- IPRD reviews the current geopolitics in the Indo-Pacific region and identifies opportunities, dangers, and problems that might be present.



- The **National Maritime Foundation (NMF)** is the **chief organizer** of each edition of the IPRD.

National Maritime Foundation:

- NMF is **India's first maritime think tank** established in 2005.
- Its intellectual and organizational development is **supported by the Ministry of Defence** and the **Indian Navy**.



Why in News?

- The Indo-Pacific Regional Dialogue 2025 (IPRD 2025) was recently held in New Delhi.
 - The Dialogue focused on the theme of '**Promoting Holistic Maritime Security and Growth: Regional Capacity-Building and Capability-Enhancement**'.
- IPRD 2025 is being held under the overarching maritime vision of **MAHASAGAR (Mutual and Holistic Advancement for Security and Growth Across Regions)**, reflecting India's commitment to a free, open, inclusive, and rules-based Indo-Pacific.

3) India-Middle East-Europe Economic Corridor

About

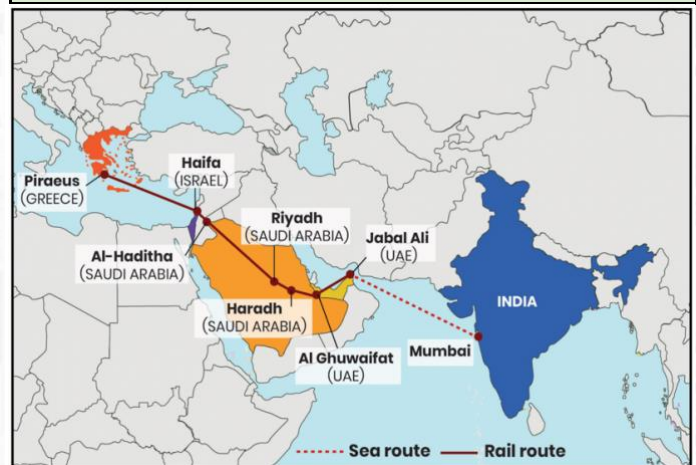
- The India-Middle East-Europe Economic Corridor (IMEC) is a **multinational infrastructure project** that aims to revolutionize global trade and connectivity.
- Launched at the **2023 G20 Summit in New Delhi**, IMEC links **India, the Middle East, and Europe** through an integrated rail and shipping corridor.

Objectives

- IMEC is a **transcontinental economic corridor** designed to:
 - Facilitate seamless **trade and logistics between Asia, the Gulf, and Europe**;
 - Improve **transportation infrastructure** across key strategic regions;
 - Foster **economic cooperation and green development** through sustainable infrastructure projects.
- This strategic corridor spans **India, UAE, Saudi Arabia, Jordan, Israel, and Europe**, creating a multi-modal network of railways, ports, and highways.
- IMEC is often viewed as a potential counterweight to **China's Belt and Road Initiative (BRI)**.

Belt and Road Initiative:

- The Belt and Road Initiative is a massive **China-led infrastructure project** that aims to stretch around the globe.
- Launched in **2013**, the plan was two-pronged: the overland **Silk Road Economic Belt** and the **Maritime Silk Road**.
- The project initially aimed to strengthen connectivity with **Southeast Asia** but later expanded to **South and Central Asia, Africa, Europe, and Latin America**.



Participating Nations

- India, European Union, France, Germany, Italy, Saudi Arabia, UAE and the US** have signed the Memorandum of Understanding (MoU) for IMEC.

Why in News?

- Cyprus has expressed its willingness to participate in the IMEC project.



Cyprus:

- The country is an **island in the eastern Mediterranean basin.**



- Capital: **Nicosia.**

4) Chabahar Port

About

- Chabahar is a seaport in **south-eastern Iran** with **direct access to the Indian Ocean.**



- India** has been associated with **development of the Chabahar port** as a way to **transport goods to Iran, Afghanistan and central Asian countries, bypassing the port of Karachi and Gwadar in Pakistan.**

Significance

- The Chabahar port's unique location, **just about 550 nautical miles from Kandla port in Gujarat**, gives India **easy access**

to **Afghanistan, Central Asian countries and Europe.**

- The port, roughly 200 km from **Pakistan's Gwadar**, where China is developing a port as **part of its Belt and Road Initiative**, would also help India **expand its geopolitical influence in Central Asia.**
- Plans are also underway to **link Chabahar with the International North-South Transport Corridor (INSTC)**, signed between **India, Iran, and Russia** in 2000, that would establish **transport connectivity between Europe, Central Asia, and India.**

Developments

- India and Iran** signed a **Memorandum of Understanding (MoU)** for the development of the port in **2015.**
- The **first phase** of the Chabahar port was inaugurated in **2017.**
- In **2024**, **Indian Ports Global Limited (IPGL)** signed a 10-year agreement with Iran to operate the **Shahid Beheshti Terminal of Chabahar Port.**

India Ports Global Limited:

- IPGL, under the **Ministry of Ports, Shipping and Waterways**, is the **Government of India's arm to operate International Ports.**
- IPGL was incorporated under the **Companies Act 2013** as a **Special Purpose Vehicle (SPV)** jointly promoted by **Jawaharlal Nehru Port Trust** and **Deendayal Port Trust** (earlier **Kandla Port Trust**).
- At present, IPGL operates **Shahid Beheshti Port** in Chabahar, Iran, and **Sittwe Port** in Myanmar.

Why in News?

- India has been granted a 6-month exemption from US sanctions on operations at the Chabahar Port project in Iran.



5) International Convention for the Suppression of the Financing of Terrorism

About

- The International Convention for the Suppression of the Financing of Terrorism is an **United Nations treaty** designed to **criminalise acts of financing acts of terrorism**.
- The convention also seeks to **promote police and judicial co-operation** to prevent, investigate and punish the financing of such acts.
- The Convention was adopted in **1999**.

- More than 190 countries (including **India**) have ratified the treaty.

Why in News?

- **Iran** has ratified the International Convention for the Suppression of the Financing of Terrorism, hoping it will ease trade restrictions, and relieve pressure on its sanctions-hit economy.



ORGANISATIONS

1) Financial Action Task Force

About

- The Financial Action Task Force (FATF) is an **inter-governmental body** tasked with **setting global standards against money laundering, terrorist and proliferation financing**.
- Established in **1989** during the **G7 Summit in Paris**, FATF sets **international standards** that enable national authorities to effectively track and act against illicit funds linked to drug trafficking, the illicit arms trade, cyber fraud, and other serious crimes.

G7 Grouping:

- The G7 is an **informal bloc of industrialized democracies**—the **United States, Canada, France, Germany, Italy, Japan, and the United Kingdom (UK)**—that meets annually to discuss and coordinate on global economic, political, and security issues.
- This **40-member body** has led to more than 200 countries and jurisdictions committing to implement FATF's Standards, forming a co-ordinated global response to prevent organised crime, corruption, and terrorism.
 - **India** became a member of FATF in 2010.
- The **decision-making body** of the FATF, known as its **plenary**, meets **thrice a year**. Its decisions are taken by **consensus**.
- FATF is headquartered in **Paris, France**.



Grey & Black Lists

- The FATF identifies **jurisdictions with weak measures** for anti-money laundering and counter-terrorist financing (AML/CFT) in **two FATF public documents**.
 - **Grey List:** This list includes countries that are **actively working** with the FATF to **address strategic deficiencies** in their regimes to counter money laundering, terrorist financing, and proliferation financing.
 - Currently, more than **20 countries** such as Algeria, Bulgaria, Cameroon, Democratic Republic of the Congo, Nepal, Syria, Vietnam, etc. are on the grey list.
 - **Black List:** This identifies countries or jurisdictions with **serious strategic deficiencies** to counter money laundering, terrorist financing, and financing of proliferation and calls for application of **enhanced due diligence and counter measures**.
 - It includes **North Korea, Iran & Myanmar**.
- Being listed under the FATF's lists makes it **hard for countries to get aid from organisations** like the International Monetary Fund (IMF), Asian Development Bank (ADB), and the European Union. It may also **affect capital inflows, foreign direct investments, and portfolio flows**.

Why in News?

- The Financial Action Task Force Plenary meeting was recently held in Paris.

2) International Solar Alliance

About

- The International Solar Alliance (ISA) is an **intergovernmental organization** launched by **India and France** in **2015**



dedicated to **advancing solar power adoption**.

- It was conceptualized on the sidelines of the **21st Conference of Parties (COP21)** to the **United Nations Framework Convention on Climate Change (UNFCCC)** held in Paris in 2015.
- ISA is the **first intergovernmental organisation headquartered in India (Gurugram, Haryana)**.



Membership

- ISA was conceived as a **coalition of solar-resource-rich countries** (which lie either completely or partly between the Tropic of Cancer and the Tropic of Capricorn) to address their special energy needs.
- Later, the **scope of membership was expanded to all member states of the United Nations**.
- Currently, 120 countries are signatories, with 100+ fully ratified member countries.

Objectives

- The ISA is guided by its **'Towards 1000' strategy** which aims to **mobilise USD 1,000 billion of investments** in solar energy solutions by 2030, while **delivering energy access to 1,000 million people** using clean energy solutions and resulting in **installation of 1,000 GW** of solar energy capacity.
- This would help **mitigate global solar emissions** to the tune of **1,000 million tonnes of CO2 every year**.

ISA Assembly

- The ISA Assembly is the **apex decision-making body**, representing each Member Country.

- The Assembly **meets annually** at the ministerial level.

Why in News?

- The 8th Session of the International Solar Alliance Assembly was recently held in **New Delhi**.

3) UNHRC

About

- The United Nations Human Rights Council (UNHRC) is an **inter-governmental body within the United Nations system** responsible for strengthening the promotion and protection of human rights around the globe.
- It was established in **2006** by the **UN General Assembly** by **replacing the former United Nations Commission on Human Rights**.
- The headquarters of UNHRC is in **Geneva, Switzerland**.



Membership

- The Council is made of **47 Member States**, which are elected by the majority of members of the General Assembly of the United Nations through **direct and secret ballot**.
- The Council's Membership is based on **equitable geographical distribution**.
- Members of the Council serve for a period of **three years** and are **not eligible for immediate re-election after serving two consecutive terms**.

Why in News?

- **India** has been elected unopposed to the Human Rights Council for the seventh



time for a three-year term (2026-28) starting next year.

4) Anusandhan National Research Foundation

About

- The Anusandhan National Research Foundation (ANRF) is a **statutory body** established under the **ANRF Act, 2023** to **seed, grow and promote research and development (R&D)** and **foster a culture of research and innovation** throughout India's universities, colleges, research institutions, and R&D laboratories.
- ANRF aims to **boost R&D funding from various sources** including industry, encouraging private sector involvement.

Did you know?

- **India's expenditure on R&D** hovers around **0.6% of GDP**, well below the **global average of 1.8%**.
- ANRF will act as an **apex body to provide high-level strategic direction of scientific research** in the country as per recommendations of the **National Education Policy (NEP) 2022**.
- ANRF **forges collaborations** among the industry, academia, and government departments and research institutions.
- **ANRF replaced the Science and Engineering Research Board (SERB)**, established in 2008.

Governance Structure:

- The **Department of Science and Technology (DST)** is the administrative Department of ANRF which is governed by a **Governing Board** consisting of eminent researchers and professionals across disciplines.
 - The **Prime Minister** is the **ex-officio President** of the Board and the **Union Minister of Science & Technology & Union Minister of Education** are its **ex-officio Vice-Presidents**.
- NRF's functioning is governed by an **Executive Council** chaired by the **Principal Scientific Adviser to the Government of India**.

Why in News?

- As part of its outreach to make scientific research more accessible, the Anusandhan National Research Foundation has developed a tool called **SARAL (Simplified and Automated Research Amplification and Learning)**.
- This tool would help **generate lay person summaries of complex scientific research using Artificial Intelligence (AI)**.

5) OTHER NOTABLE TOPICS

5.1. NCPOR

About

- The National Centre for Polar and Ocean Research (NCPOR) was established as an **autonomous Research and Development Institution** of the **Ministry of Earth Sciences** in 1998.
- Located in **Goa**, it is India's premier R&D institution responsible for the **country's research activities in the polar and Southern Ocean realms**.
- NCPOR has been at the forefront of leading India's scientific expeditions and research programmes in the Polar regions and the Southern Ocean.
- The institute has **established and operationalised permanent Indian research stations -- DakshinGangotri, Maitri, and Bharati** in Antarctica, and **Himadri** in the Arctic, along with the Himalayan station **Himansh**.

5.2. Enforcement Directorate

About

- The Enforcement Directorate (ED) is a **multi-disciplinary organization** mandated with **investigation of the offence of money laundering and violations of foreign exchange laws**. It was constituted in 1956.
- Headquartered at **New Delhi**, the **administrative control** of the Directorate is with the **Department of Revenue, Ministry of Finance**.



- The **ED director** is appointed as per provisions of the **Central Vigilance Commission Act, 2003**.
 - The Centre appoints the director on **recommendation of a committee**, with the **Central Vigilance Commissioner as chairperson**.



Functions

- The statutory functions of the Directorate include **enforcement of following Acts**:
- 1. The Prevention of Money Laundering Act, 2002 (PMLA):**
 - It is a criminal law enacted to **prevent money laundering** and to provide for **confiscation of property** derived from, or involved in, money-laundering.
 - ED has been given the **responsibility to enforce the provisions of the PMLA**.
 - 2. The Foreign Exchange Management Act, 1999 (FEMA):**
 - It was enacted to **facilitate external trade and payments** and to promote the **orderly development and maintenance of foreign exchange market in India**.
 - ED has been given the responsibility to conduct **investigation into suspected contraventions** of foreign exchange laws and regulations, to **adjudicate and impose penalties** on those adjudged to have contravened the law.

3. The Fugitive Economic Offenders Act, 2018 (FEOA):

- This law was enacted to **deter economic offenders** from evading the process of Indian law by **remaining outside the jurisdiction of Indian courts**.
- It is a law whereby ED is mandated to **attach the properties of the fugitive economic offenders** who have escaped from India warranting arrest and provide for the **confiscation of their properties** to the Central Government.

4. Sponsoring agency under COFEPOSA:

- The Conservation of Foreign Exchange and Prevention of Smuggling Activities Act, 1974 (COFEPOSA) was enacted to provide for **preventive detention** in certain cases for the purposes of **conservation and augmentation of foreign exchange and prevention of smuggling activities**.
- Under COFEPOSA, ED is empowered to **sponsor cases of preventive detention** with regard to contraventions of FEMA.

5.3. EAC-PM

About

- Economic Advisory Council to the Prime Minister (EAC-PM) is an **independent body constituted to give advice on economic and related issues to the Government of India, specifically to the Prime Minister**.
- The Terms of Reference of EAC-PM include **analyzing any issue, economic or otherwise, referred to it by the Prime Minister and advising him thereon, addressing issues of macroeconomic importance and presenting views thereon to the Prime Minister**.



EAC-PM
Economic Advisory Council
to the Prime Minister



- These could be either **suo-motu or on reference** from the Prime Minister or anyone else.
- EAC-PM is a **non-permanent body** and the **chairman is appointed from time to time when the body is constituted**.

5.4. International Atomic Energy Agency

About

- The International Atomic Energy Agency (IAEA) is an **intergovernmental organization** that is the **global centre for cooperation in nuclear applications, energy, science and technology**.
- It was established in **1957** as an **autonomous international organization within the United Nations system**.
- Widely known as the **world's "Atoms for Peace and Development"** organization, IAEA works with its member states and partners to **promote safe, secure and peaceful nuclear technologies**.
- IAEA has its headquarters in **Vienna, Austria**.
- Total Membership: 180 (including **India**).



Did you know?

- IAEA won the **Nobel Peace Prize** in 2005.

5.5. FIU-IND

About

- Financial Intelligence Unit - India (FIU-IND) is the **central national agency** responsible for receiving, processing, analyzing and disseminating information relating to **suspect financial transactions** and **coordinating efforts against money laundering and financing of terrorism**.
- It was set up in **2004** by the Government of India in the **Department of Revenue, Ministry of Finance**.



- Headed by a **Director**, FIU-IND reports **directly to the Economic Intelligence Council (EIC)** headed by the **Finance Minister**.

Economic Intelligence Council:

- EIC is an apex body set up for **mitigation of Economic Offences by Multi-Agency coordination**.
- It is **chaired by the Finance Minister**.
- EIC is tasked with developing strategies for the collection, collation, and dissemination of intelligence related to economic security while ensuring its effective utilization by relevant agencies.



SCIENCE & TECHNOLOGY

1) Biofilms

About

- Biofilms are **organized communities of microorganisms** (bacteria, fungi, protists) that adhere to surfaces and encase themselves in a self-produced slimy matrix called the **Extracellular Polymeric Substance (EPS)**.
- Biofilms form on many **moist surfaces** — teeth (dental plaque), pond scum, **medical devices** (catheters, pacemakers, **implants**), plant and animal tissues, rocks, metals, **food and food processing surfaces** and deep-sea vents.

Why Microbes Form Biofilms?

- Microbes form biofilms to **survive and thrive in challenging environments**. Key reasons include:
 - **Protection from threats:** EPS shields against antibiotics, disinfectants, UV light, dehydration, and the host immune system.
 - **Enhanced nutrient access:** Water channels within biofilms help microbes access nutrients and remove waste efficiently.
 - **Resistance to antibiotics:** Biofilms can be 1,500 times **more resistant to antibiotics** than free-floating bacteria due to dormancy and EPS barrier.

Impact on Human Life

Positives:

- Biofilms **aid bioremediation** by degrading pollutants such as heavy metals, and uranium, and are used in wastewater treatment.
- Biofilms **contribute to microbial fuel cells**, where they help generate electricity from organic waste by coating electrodes.
- Biofilms **support agriculture by improving soil health** and serving as **components of biofertilizers**.

Negatives:

- Biofilms cause **infections on medical devices** such as catheters and

pacemakers, and are **involved in diseases** like **cystic fibrosis and dental plaque**.

- Biofilms lead to **industrial problems** by fouling pipes, ships, and machinery.
- Biofilms can **contaminate food processing surfaces** and compromise food safety.

Why in News?

- A new study has found that oral bacteria form hidden biofilms inside coronary artery plaques, potentially triggering sudden and fatal heart attacks.

2) OTHER NOTABLE TOPICS

2.1. Thalassemia

About

- Thalassemia is a **hereditary blood disorder** in which the **body produces inadequate amounts of hemoglobin**, a protein vital for **healthy red blood cells**.
- As a result, red blood cells are defective and break down more quickly than normal, **reducing the number of healthy cells circulating in the blood**.
- Since **red blood cells are responsible for carrying oxygen** to all the cells of the body, their deficiency leads to reduced oxygen supply. This can cause symptoms such as **fatigue, weakness and shortness of breath**, a condition known as **anemia**.
- People with thalassemia may have **mild or severe anemia**. Severe anemia can **damage organs and lead to death**.

Treatment

- **Mild forms** of thalassemia trait **don't need treatment**.
- For **moderate to severe thalassemia**, treatments might include:
 - **Frequent blood transfusions.**
 - **Chelation therapy:** This is a treatment to remove excess iron from the blood.
 - **Stem cell transplant:** Also called a bone marrow transplant, a stem cell transplant might be an option in



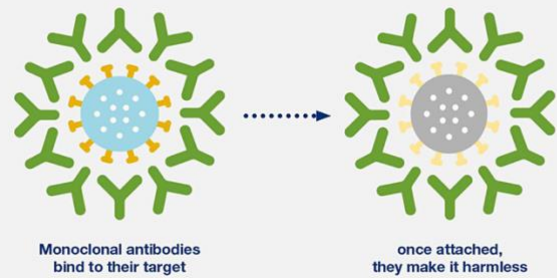
some cases. It involves taking healthy stem cells from the blood or bone marrow of one person and transferring them to another person.

2.2. Monoclonal Antibodies

About

- Antibodies are **proteins produced by the immune system to identify and neutralise foreign substances (antigens)** like bacteria and viruses.
- Monoclonal antibodies are **laboratory-made proteins** that mimic the behaviour of antibodies produced by the immune system to protect against diseases and foreign substances.
- They are created by **cloning a single B-cell**, producing **identical antibodies** that **bind to one specific antigen**.
 - B cells are a type of white blood cell called lymphocytes that produce antibodies.*

How monoclonal antibodies work



- Examples include monoclonal antibodies engineered to bind to the spike protein of the **SARS-CoV-2 virus** during the Covid pandemic. The binding prevented the protein from exercising its regular functions, including its ability to infect other cells.

Applications of Monoclonal Antibodies

- Diagnostic Uses:** Their specificity allows wide use in Enzyme Linked Immuno Sorbent Assay (ELISA), rapid test kits (e.g., COVID-19, pregnancy tests) for accurate detection of pathogens and biomarkers.
- Therapeutic Uses:** They play a major role in treating autoimmune diseases, cancers, asthma, and viral infections like COVID-19 and **Nipah virus**.



ART & CULTURE

1) Rashtriya Vigyan Puraskar

About

- Rashtriya Vigyan Puraskar is **India's highest recognition for outstanding and inspiring contributions by scientists, technologists, and innovators** in diverse fields of science, technology, and technology-led innovation.



- The Rashtriya Vigyan Puraskar is conferred under **four categories**:
 - Vigyan Ratna (VR) award:** Recognize **lifetime achievements & contributions** made in any field of science and technology.
 - Vigyan Shri (VS) award:** Recognize **distinguished contributions** in any field of science and technology.
 - Vigyan Yuva-Shanti Swarup Bhatnagar (VY-SSB) award:** Recognize & encourage **young scientists up to the age of 45 years** who have made an exceptional contribution in any field of science and technology.
 - Vigyan Team (VT) award:** Given to a **team comprising three or more scientists/researchers/innovators** who have made an exceptional contribution working in a team in any field of science and technology.
- Awards are conferred across **13 domains**: Physics, Chemistry, Biological Sciences, Mathematics & Computer Science, Earth Science, Medicine, Engineering Sciences, Agricultural Science, Environmental Science, Technology & Innovation, Atomic Energy, Space Science and Technology, and other allied fields.

- Government of India initiated the award in **2024**.
- The **total number of awards** across all categories is capped at **56**, and the award **does not carry any cash component**.

Why in News?

- The government has announced a list of 24 individual scientists and a team as recipients of the second edition of the Rashtriya Vigyan Puraskar awards.

2) OTHER NOTABLE TOPICS

2.1. Prime Ministers' Museum and Library

About

- Founded as an **autonomous institution**, the **Prime Ministers' Museum and Library (PMML)** is dedicated to the objective of **promoting advanced research on Modern and Contemporary India**.
- PMML (formerly known as **Nehru Memorial Museum and Library**) is housed in the historic **Teen Murti campus** located **south of Rashtrapati Bhavan in New Delhi**.

Did you know?

- Designed by **Robert Tor Russel** and built in **1929-30** as **part of Edwin Lutyens' imperial capital**, Teen Murti House was the **official residence of the Commander-in-Chief in India**.
- In 1948, after the departure of the last British Commander-in-Chief, **Teen Murti House** became the **official residence of independent India's first Prime Minister, Jawaharlal Nehru**, who lived here for sixteen years until his death in 1964.
- The Government has set up the **Prime Ministers Museum and Library Society** to manage the institution.
- The **General Council** and the **President and the Vice-President** of the PMML



Society are **nominated by the Central Government**.

2.2. National Maritime Heritage Complex

About

- The National Maritime Heritage Complex (NMHC) at **Lothal, Gujarat** is a landmark project being developed by the **Ministry of Ports, Shipping, and Waterways**, with the support of the **Government of Gujarat** and the **contribution of the Indian Navy**.



- Approved by the Union Cabinet in 2024, NMHC is envisioned to be one of the largest maritime complexes in the world to **showcase India's 4,500-year-old diverse maritime heritage**.
 - It will curate and display a rich array of artifacts, from ancient

relics to modern treasures, serving as an educational platform that inspires visitors to explore the depths of our maritime history.

Lothal:

- Lothal (a name that combines the Gujarati words "Loth" and "thal," meaning "**the mound of the dead**") is one of the most prominent cities of the **Indus valley civilization**, located in the **Bhal region of the modern state of Gujarat** and dating from 3700 BC.
- Among the most significant discoveries is the **world's oldest known artificial dock**, connected to an ancient course of the **Sabarmati River**.
- The city was divided into **upper town or citadel and lower town** reflecting hierarchical town planning systems.
- The site also revealed a **bead factory, warehouses, and a well-designed drainage system**, all of which underscore that **trade may have occurred with distant lands**, including Mesopotamia, Egypt, and Persia.
- Lothal holds the **third highest number of seals** out of all IVC sites.



DEFENCE & SECURITY

1) ADMM-Plus Meeting

About

- The **ASEAN Defence Ministers' Meeting (ADMM)** is the **highest defence consultative and cooperative mechanism in ASEAN (Association of Southeast Asian Nations)**.
 - Refer *SCA Prelims Magazine August Edition* for details about ASEAN.
- ADMM-Plus** is a **platform for ASEAN member states** (Brunei, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand, Timor Leste & Vietnam) and its **eight Dialogue Partners** (India, US, China, Russia, Japan, South Korea, Australia & New Zealand) to strengthen security and defence cooperation.



- The **inaugural ADMM-Plus** was convened in Hanoi, Vietnam in **2010**.
- Since 2017, ADMM-Plus is **held annually** to bolster the defence cooperation among ASEAN and plus countries.

Why in News?

- Defence Minister Rajnath Singh attended the 12th ASEAN Defence Ministers' Meeting - Plus (ADMM-Plus) held in Kuala Lumpur, Malaysia.

2) Defence Acquisition Council

About

- The Defence Acquisition Council (DAC) is **constituted under the Ministry of Defence** for **overall guidance of the defence procurement planning process**.
- Established in **2001**, DAC is chaired by the **Defence Minister**.
 - Its **members** include the **Chief of Defence Staff (CDS)** and **Chiefs of triservices**.
- The DAC is the **highest decision-making body** in the defence ministry for deciding on new policies and capital acquisitions for the **three services and the Indian Coast Guard**.
- The objective of the DAC is to **ensure expeditious procurement** of the approved requirements of the Armed Forces.

Why in News?

- The Defence Acquisition Council has approved a series of capital acquisition proposals worth around ₹79,000 crore.



PLACES IN NEWS

1) East Timor Joins ASEAN

What's in the news?

- Asia's youngest nation **East Timor** has joined the **Association of Southeast Asian Nations (ASEAN)** at its recently held summit in **Kuala Lumpur, Malaysia**, becoming the **11th member** of the bloc.
- The summit was held under the theme '**Inclusivity and Sustainability**'.
- The **last member** to join ASEAN was **Cambodia** in 1999.

About East Timor

- Also known as **Timor-Leste**, East Timor is an **island country** in the **eastern Lesser Sunda Islands**, at the southern extreme of the **Malay Archipelago**.
- **Dili** is the capital and largest city.
- East Timor is bounded by the **Timor Sea** to the southeast, the **Wetar Strait** to the north, the **Ombai Strait** to the northwest, and **western Timor** (part of the Indonesian province of East Nusa Tenggara) to the southwest.



- East Timor was ruled for three centuries by **Portugal**, which abruptly pulled out of its colony in 1975, paving the way for annexation and an at-times bloody

occupation by neighbour **Indonesia** before it won **full independence in 2002**.

2) Somalia

About

- Situated in the **Horn of Africa**, Somalia is the **easternmost nation on the African mainland**.
 - *Horn of Africa is the easternmost extension of African land, home to the countries of Djibouti, Eritrea, Ethiopia and Somalia.*
- Somalia shares land borders with **Djibouti** to the northwest, **Ethiopia** to the west, and **Kenya** to the southwest with **coastlines on both the Gulf of Aden and the Indian Ocean**.
- **Decades of civil strife**, coupled with **severe droughts and floods**, have left Somalia facing widespread **hunger and malnutrition**, pushing the nation toward **severe famine**.



NOBEL PRIZE 2025

1) What is Nobel Prize?

About

- The Nobel Prize is a prestigious international award for **outstanding achievements that have conferred the "greatest benefit to humankind"**.
- Originally, the prize was awarded in the fields of **Physics, Chemistry, Physiology or Medicine, Literature, and Peace**.
 - Later in 1968, a **sixth prize** was added in the **field of economic sciences**.
 - The Prize is **officially not a Nobel Prize** but it is called "**The Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel**". It was established by **Sveriges Riksbank** (Sweden's central bank).
- The Nobel Prize was created by Swedish inventor, scientist and businessman **Alfred Nobel**.

Did you know?

- Alfred was born in 1833, and is most well known for being the inventor of dynamite.
- The **first Nobel Prizes** were awarded in **1901** and they have been **awarded annually** since then - the **two World wars** being the only years of discontinuities.
 - The **Nobel Day** – which takes place on **10 December every year** – marks the anniversary of Alfred Nobel's death and is the day that the **Nobel Prizes are presented to Nobel Prize laureates**.
- Each recipient receives a **gold medal, a diploma, and a monetary award of \$1.2 million**.



- A Nobel Prize can be **shared by up to three individuals**, or in the case of the **peace prize**, it can also be awarded to an **organisation**.
- A Nobel Prize **cannot be awarded posthumously**.
 - However, since 1974, if the recipient dies after the prize has been announced they can still be awarded it.

Who selects the Nobel Prize laureates?

- The prizes are **awarded by Swedish institutions** – **apart from the peace prize**, whose award is decided by a **committee of five persons** elected by the **Norwegian Parliament**.
 - The **peace prize** even has its **own ceremony** in the **Norwegian capital of Oslo** on December 10 while the **other prizes** are presented in **Stockholm, Sweden**.

2) Nobel Prize for Physiology/Medicine

News:

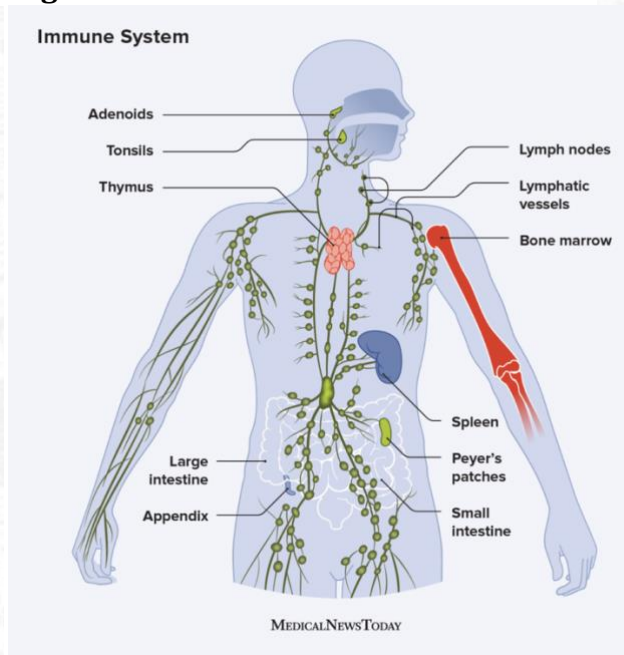
- US scientists **Mary E. Brunkow** and **Fred Ramsdell**, along with Japan's **Shimon Sakaguchi**, have been awarded the 2025 Nobel Prize in Physiology or Medicine for their groundbreaking discoveries that **transformed our understanding of the human immune system**, particularly **immune tolerance**.
- Their work explains how the immune system avoids attacking the body's own healthy cells, thereby preventing autoimmune diseases.



- The laureates uncovered the **mechanisms behind peripheral immune tolerance**, a process mediated by a **special class of immune cells** known as **regulatory T cells (Tregs)**.

Basics of Immune system

- The immune system is a **complex network of organs, cells and proteins that defends the body against infection**, whilst protecting the body's own cells.
- Immunity is the **ability of the body to defend itself against disease-causing organisms**.



- The main cells of the immune system are **leukocytes (white blood cells)**, which include **lymphocytes (like T cells, B cells, and Natural Killer cells)** and **phagocytes (like neutrophils, macrophages, and dendritic cells)**.
- They are responsible for defending the body by identifying and eliminating pathogens, infected cells, and other foreign material.
- The **organs** responsible for immunity are divided into:
 - Primary lymphoid organs**, namely the **bone marrow** where all blood cells originate and B cells mature, and the **thymus** where T cells undergo maturation.
 - Secondary lymphoid organs** such as **lymph nodes and spleen**,

where immune responses are initiated upon encountering foreign antigens.

- T cells** play a central role in cell-mediated immunity and are of several types:
 - Helper T cells** which coordinate immune activity
 - Cytotoxic T cells** which kill infected and cancerous cells.

Immune Tolerance

- The **immune system defends the body** from harmful microbes while **ensuring it does not attack its own cells**.
- To maintain this balance, it **relies on two levels of tolerance — central and peripheral**.
- In **central tolerance**, which occurs in the **thymus**, **self-reactive T cells that could harm the body are eliminated** during their development. However, this process is **imperfect**, and **some harmful T cells escape** into the body's tissues.
- Peripheral tolerance** provides the **second layer of protection**. Here, **regulatory T cells (Tregs)** act as immune "**security guards**," identifying and restraining these escaped self-reactive T cells.
- By preventing them from attacking the body's own tissues, **Tregs ensure immune balance and protect against autoimmune diseases**.

Significance of the Discovery

- These discoveries laid the **foundation for modern research into autoimmune diseases, cancer immunotherapy, and organ transplantation**, with several related therapies currently in clinical trials.

3) Nobel Prize for Physics

News:

- The 2025 Nobel Prize in Physics has been awarded to **John Clarke, Michel Devoret, and John Martinis** for their pioneering work **demonstrating macroscopic quantum tunnelling**.
- The trio showed that **large electrical circuits made of superconductors can**



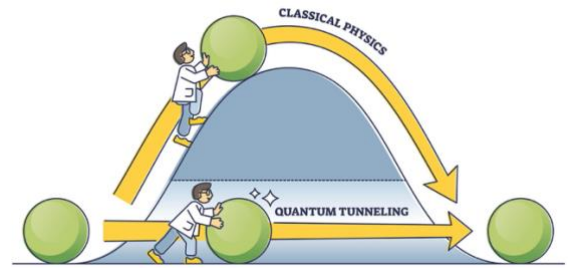
behave like a single quantum particle and can even **display quantum tunnelling**, a behaviour previously observed only in extremely small particles like electrons.

Quantum Physics

- Quantum Physics is a fundamental theory in physics that **explains phenomena found in nature at the scale of atoms and subatomic particles**.
- It **describes behaviour that is radically different from the "classical" physics** governing everyday objects.
- Key principles** include:
 - Superposition** (a particle can exist in multiple states at once)
 - Quantum entanglement** (particles become linked regardless of distance)
 - Wave-particle duality** (matter exhibits properties of both particles and waves)
 - Quantisation of energy** (energies of matter exist at only "quantized" or discrete values).

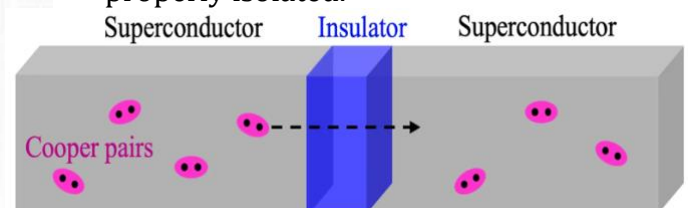
Quantum Tunnelling

- Quantum tunnelling is the **ability of a particle to cross an energy barrier even when it does not have the energy to overcome it**.
- This happens because **particles at the quantum scale behave like waves** whose probability spreads into the barrier and beyond. As a result, the particle can appear on the far side of the barrier.
- For instance, in **classical physics**, a ball can cross a hill only if it has enough energy to climb over it. In **quantum tunnelling**, a particle can instead pass *through* the barrier—even without enough energy—by "tunnelling" to the other side.
- This phenomenon is **central to radioactive decay, semiconductor technology, and modern quantum computers**.



About the Discovery

- The scientists proved that **quantum tunnelling is not limited to subatomic/microscopic particles** like electrons.
- Using a **Josephson junction** (two superconductors separated by an ultra-thin insulator), they showed that **trillions of electrons inside superconductors can behave collectively as a single quantum object**.
- This "**giant quantum object**" could tunnel through energy barriers, **demonstrating quantum behavior at a macroscopic scale** when the system is properly isolated.



**Cooper pairs in the image refers to pairs of electrons in a superconductor that behave as a single quantum entity and move together in a correlated way without resistance.*

Significance of the Discovery

- The discoveries **deepened understanding of quantum physics and collective quantum behavior**.
- The work has advanced practical quantum technologies such as **quantum computing, quantum cryptography and quantum sensors**.



4) Nobel Prize for Chemistry

News:

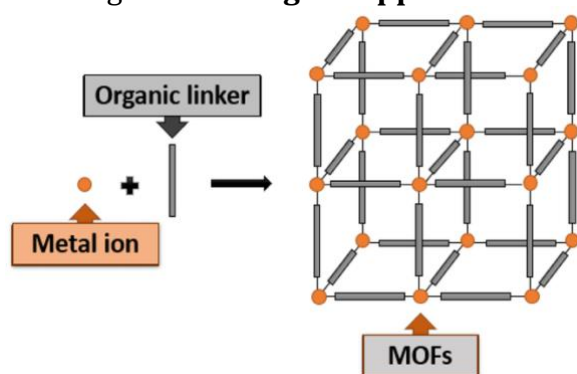
- The 2025 Nobel Prize in Chemistry has been awarded to **Susumu Kitagawa**, **Richard Robson**, and **Omar Yaghi** for creating **Metal-Organic Frameworks (MOFs)**.

Metal- Organic Frameworks

- MOFs are **materials in which metal ions are linked together by organic molecules** in a regular repeating pattern to **create a 3D network**.
- Importantly, in the space between the metal nodes and the molecules that link them, there are **large cavities that make the materials highly porous**.
- These pores are **precisely arranged and can be designed to store, trap, or release molecules** in a controlled manner.

Did you know?

- Just one gram of a MOF could have an internal surface area roughly equal to two American football fields.
- By **changing the metal and organic linker**, scientists can tune **pore size, shape, and chemical properties**, enabling a **wide range of applications**.



Why do MOFs matter?

- They are **highly efficient for gas storage and separation**, capturing hydrogen, methane, and CO₂, and selectively removing gases from industrial mixtures.
- Their **porous structure also supports hydrogen energy**, enabling both storage and photocatalytic/electrocatalytic production from water splitting.

- Water-stable MOFs play a major role in **wastewater treatment**, removing pollutants like Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) and antibiotics and even helping **recover rare-earth elements**.
- MOFs are also **used in sensors**, detecting biomolecules, toxins, metals, explosives, and humidity.
- In biomedicine, they function as **biodegradable drug-delivery systems** with controlled release.

5) Nobel Prize in Literature

News:

- Hungarian novelist and screenwriter László Krasznahorkai** has won the 2025 Nobel Prize for Literature.
- Krasznahorkai's work is marked by a dark, intense vision of the world, often exploring human fragility and societal collapse.
- He has written five novels and won numerous other literary prizes, including the 2015 Man Booker International Prize, and the 2013 best translated book award in Fiction for his **first novel Satantango**, a postmodern work about the end of the world.

6) Nobel Peace Prize

News:

- Venezuela's Maria Corina Machado** has been awarded the 2025 Nobel Peace Prize for her work in **promoting democracy and fighting dictatorship** in her country.
- Machado is a key figure in Venezuela's pro-democracy movement. In recent years, she has emerged as a powerful symbol of civilian courage in Latin America.

7) Sveriges Riksbank Prize in Economic Sciences

News:

- The 2025 Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel has been awarded to **Joel Mokyr**, **Philippe Aghion** and **Peter Howitt** "for



having **explained innovation-driven economic growth**".

- One half of the prize will go to Mokyr, and the other half jointly to Aghion and Howitt.
 - Mokyr, an economic historian, has received the Nobel for his work that was **grounded in using historical sources** to uncover the **causes of sustained economic growth in the world**.
 - Aghion & Howitt have been recognised for their **mathematical**

model, which instead of looking into the past, analysed **how individual decisions and conflicting interests at the level of firms can lead to steady economic growth at the national level**.

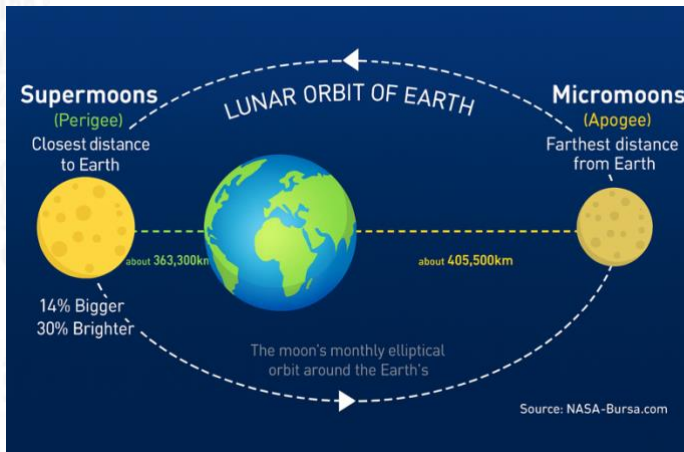


MISCELLANEOUS

1) Supermoon

About

- A “supermoon” occurs when a **full moon coincides** with the **Moon's closest approach to Earth in its elliptical orbit**, a point known as **perigee**.
- When that happens, it appears **slightly brighter and larger** than a regular full moon.
- Supermoons are **relatively infrequent**, taking place **only three to four times each year**, and they always occur in **consecutive full-moon phases**.
- Supermoons generate **perigean spring tides**, causing slightly higher high tides and slightly lower low tides than normal.
 - This occurs because the Moon's stronger gravitational pull (due to being at perigee) aligns with the Sun's gravitational influence.
- While these tidal changes are **generally small**, they can **significantly worsen coastal flooding when they coincide with storm surges or extreme weather events**.



Why in News?

- A supermoon was observed recently.

2) State Disaster Response Fund

About

- State Disaster Response Fund (SDRF), constituted under the **Disaster Management Act 2005**, is the primary fund available with the **State**

Government to provide a specialized response to natural and man-made disasters.

- The **Central Government contributes 75%** of SDRF allocation for **general category States/UTs** and **90% in North-East and Himalayan States**.
- The annual Central contribution is allotted as per the **recommendation of the Finance Commission**.
 - Allocation of SDRF funds to the States is based on **multiple factors** like past expenditure, area, population, and disaster risk index.
- SDRF shall be used **only for meeting** the expenditure for providing **immediate relief to the victims**.
- The accounts of the SDRF shall be audited annually by **Comptroller & Auditor General of India (CAG)**.
- **Disasters covered under SDRF:** Cyclone, Drought, Earthquake, Floods, Tsunami, Hailstorm, Landslide, Avalanche, Cloud burst, Pest attack, Frost and Cold wave.
- **Local Disaster:** State Government may use up to **10% of the funds** available under SDRF for providing immediate relief to the victims of the natural disaster considered to be “**Disaster**” **within the local context** in the State and which is not included in the notified list of disaster of the Ministry of Home Affairs.

Why in News?

- The Centre has approved release of over 1,950 crore rupees of Central share of State Disaster Response Fund to Karnataka and Maharashtra for the year 2025-26.

National Disaster Response Fund:

- The National Disaster Response Fund (NDRF), constituted under the **Disaster Management Act, 2005**, is used to **meet the expenses of rescue and relief**



operations during man-made and natural calamities.

- NDRF also **supplements SDRF** of a State, in case of a disaster of severe nature, provided adequate funds are not available in SDRF.

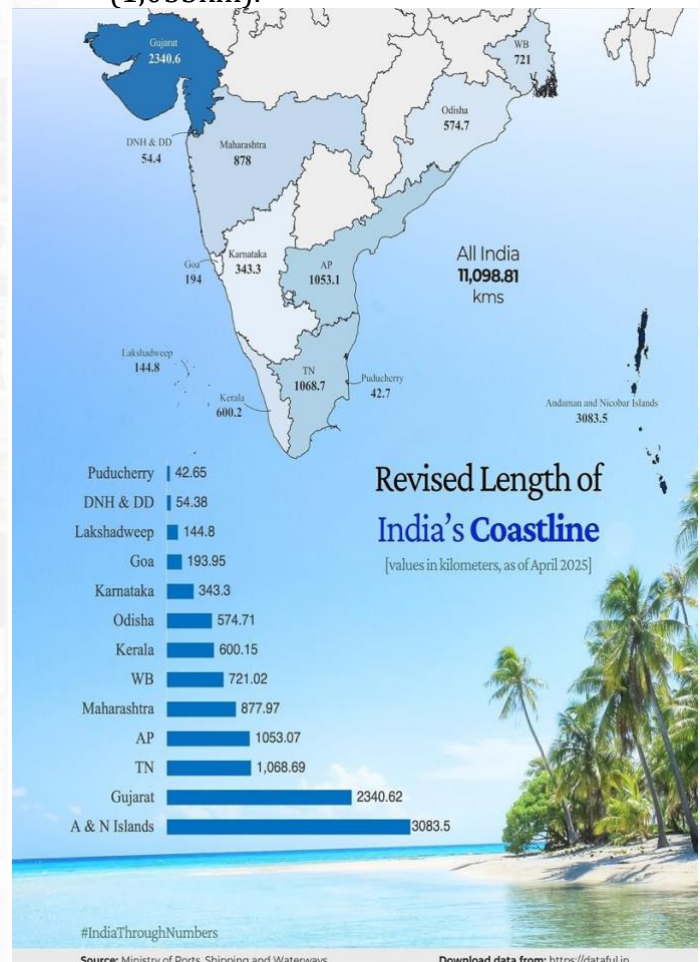
3) India's revised coastline length

What's in the news?

- **India's coastline** has been officially **recalculated to a length of 11,098 kilometres**, a significant increase from the previously accepted 7,516 kilometres that had been in use since the 1970s (an **increase of nearly 48%**).
- This revision is not due to a physical change in India's landmass but rather a result of **modern measurement methodologies and technologies**.
- The earlier measurement was based on data that were of the **scale of 1:4,500,000**, or smaller. However, with time, **much better resolution data** has become available, making the measurements more accurate.
 - The recent exercise calculated the length of the coastline using data that had a **scale of 1:250,000**. Higher resolution data can capture the coastline, its bends and curves, in more intricate details.
- Another reason for the increase has been the **inclusion of coastlines of many off-**

shore islands that had been left out of previous calculations.

- While **Gujarat** retains its position as the **state with the longest coastline**, **Tamil Nadu**, with a revised length of 1,068km, has **overtaken Andhra Pradesh** (1,053km).



HIGHLIGHTS FROM OTHER ARTICLES

1) Exercise KONKAN

News:

- The **bilateral Exercise KONKAN-2025** between the **Indian Navy and the U.K. Royal Navy** was recently held in the western coast of India.

2) Presumptive Taxation

About

- Presumptive taxation is a **method of computing taxable income**. It lets **eligible taxpayers declare income at a predetermined rate** without maintaining detailed records of financial transactions.
- It eliminates the requirement for businesses and professionals to maintain extensive bookkeeping or undergo audits, provided their income falls within specific limits.

3) Exercise Samudra Shakti

News:

- Indian Navy recently hosted the fifth edition of the **Indo-Indonesian Joint Bilateral Maritime Exercise, 'Samudra Shakti – 2025'**, at Visakhapatnam, Andhra Pradesh.

4) JAIMEX-25

News:

- Indian Navy recently participated in **JIMEX-25, the Japan-India Maritime Exercise**, held in Japan.

5) Xenobiology

About

- Xenobiology is an emerging field of synthetic biology that **explores the possibility of life forms based on biological systems different from those found on Earth**.
- Unlike traditional biology, which relies on DNA/RNA and proteins built from 20 amino acids, xenobiology investigates whether organisms can be built with alternative genetic codes, unusual chemical

bonds, and/or in environments where water is replaced by another solvent such as methane or ammonia.

6) Regulatory Evolution

About

- Regulatory evolution refers to **evolutionary changes that occur not by creating new genes, but by changing when, where, and how existing genes are switched on or off**.
- These shifts in gene regulation can create major differences in anatomy or function, even when species share the same genes.

Examples:

- Bats and mice** share nearly **identical limb genes**, but in bats, specific genes are activated between the finger bones, leading to **wing membrane formation**—a result of regulatory changes in gene expression.
- Likewise, **humans and chimpanzees share about 98% of their DNA**, yet humans have **larger brains** due to prolonged expression of key brain-development genes.

7) Good Manufacturing Practices

About

- Good Manufacturing Practices (GMP) is the aspect of **quality assurance** that ensures that **medicinal products** are consistently produced and controlled to the **quality standards appropriate to their intended use and as required by the product specification**.
- Schedule M of the Drugs and Cosmetics Act, 1940**, deals with GMP for pharmaceutical manufacturing units, including specific requirements pertaining to premises, plant and equipment.
- GMP was **first incorporated in Schedule M** in 1988. The norms were last amended in 2018.
- India is a major exporter of medicines to low- and middle-income countries which



require GMP certification from the **World Health Organisation (WHO)**.



PRACTICE WITH PYQS

1. Recently, there has been a concern over the short supply of a group of elements called 'rare earth metals'. Why? (2012)

1. China, which is the largest producer of these elements, has imposed some restrictions on their export.
2. Other than China, Australia, Canada and Chile, these elements are not found in any country.
3. Rare earth metals are essential for the manufacture of various kinds of electronic items and there is a growing demand for these elements.

Which of the statements given above is/are correct?

- A. 1 only
- B. 2 and 3 only
- C. 1 and 3 only
- D. 1, 2 and 3

2. 'Belt and Road Initiative' is sometimes mentioned in the news in the context of the affairs of (2016)

- A. African Union
- B. Brazil
- C. European Union
- D. China

3. What is the importance of developing Chabahar Port by India? (2017)

- A. India's trade with African countries will enormously increase.
- B. India's relations with oil-producing Arab countries will be strengthened.
- C. India will not depend on Pakistan for access to Afghanistan and Central Asia.
- D. Pakistan will facilitate and protect the installation of a gas pipeline between Iraq and India.

4. With reference to Corporate Social Responsibility (CSR) rules in India, consider the following statements (2024)

1. CSR rules specify that expenditures that benefit the company directly or its employees will not be considered as CSR activities.
2. CSR rules do not specify minimum spending on CSR activities.

Which of the statements given above is/are correct?

- A. 1 only
- B. 2 only
- C. Both 1 and 2
- D. Neither 1 nor 2

5. Consider the following statements: (2016)

1. The International Solar Alliance was launched at the United Nations Climate Change Conference in 2015.
2. The Alliance includes all the member countries of the United Nations.

Which of the statements given above is/are correct?

- A. 1 only
- B. 2 only
- C. Both 1 and 2
- D. Neither 1 nor 2



6. Consider the following tasks: (2004)

1. Superintendence, direction and conduct of free and fair elections
2. Preparation of electoral rolls for all elections to the Parliament, state Legislatures and the Office of the President and the Vice-President
3. Giving recognition to political parties and allotting election symbols to political parties and individuals contesting the election.
4. Proclamation of final verdict in case of election disputes

Which of the above are the functions of the Election Commission of India?

- A. 1, 2 and 3 only
- B. 2, 3 and 4 only
- C. 1 and 3 only
- D. 1, 2 and 4 only

7. Which of the following bodies does not/do not find mention in the Constitution? (2013)

1. National Development Council
2. Planning Commission
3. Zonal Councils

Select the correct answer using the codes given below:

- A. 1 and 2 only
- B. 2 only
- C. 1 and 3 only
- D. 1, 2 and 3

8. With reference to India, consider the following: (2025)

- I. The Inter -State Council
- II. The National Security Council
- III. Zonal Councils

How many of the above were established as per the provisions of the Constitution of India?

- A. Only one
- B. Only two
- C. All the three
- D. None

9. Which one of the following Schedules of the Constitution of India contains provisions regarding anti-defection? (2014)

- A. Second Schedule
- B. Fifth Schedule
- C. Eighth Schedule
- D. Tenth Schedule

10. Regarding anti-defection law in India, consider the following statements (2022)

1. The law specifies that a nominated legislator cannot join any political party within six months of being appointed to the House.
2. The law does not provide any time frame within which the presiding officer has to decide a defection case.

Which of the statements given above is/are correct?



- A. 1 only
- B. 2 only
- C. Both 1 and 2
- D. Neither 1 nor 2

11. With reference to the provisions made under the National Food Security Act, 2013 consider the following statements: (2018)

1. The families coming under the category of 'below poverty line (BPL)' only are eligible to receive subsidized food grains.
2. The eldest woman in a household, of age 18 years or above, shall be the head of the household for the purpose of issuance of a ration card.
3. Pregnant women and lactating mothers are entitled to a 'take-home ration' of 1600 calories per day during pregnancy and or six months thereafter.

Which of the statements given above is/are correct?

- A. 1 and 2 only
- B. 2 only
- C. 1 and 3
- D. 3 only

12. Which one of the following ancient towns is well known for its elaborate system of water harvesting and management by building a series of dams and channelizing water into connected reservoirs? (2021)

- A. Dholavira
- B. Kalibangan
- C. Rakhigarhi
- D. Ropar

13. Consider the following statements: (2023)

Statement-I: India accounts for 3.2% of global export of goods.

Statement-II: Many local companies and some foreign companies operating in India have taken advantage of India's 'Production-linked Incentive' scheme.

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

- A. Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- B. Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- C. Statement-I is correct but Statement-II is incorrect
- D. Statement-I is incorrect but Statement-II is correct

14. Consider the following statements:

1. The Nobel Prize Awarding Ceremony takes place on December 10 of every year.
2. The Nobel Prize for Literature was added later on to the other five areas: Physics, Chemistry, Physiology or Medicine, Peace and Economics.

Which of the statements given above is/are correct?

- A. 1 only
- B. 2 only
- C. Both 1 and 2
- D. Neither 1 nor 2



15. Consider the following statements: (2017)

The nation-wide 'Soil Health Card Scheme' aims at

1. expanding the cultivable area under irrigation.
2. enabling the banks to assess the quantum of loans to be granted to farmers on the basis of soil quality.
3. checking the overuse of fertilizers in farmlands.

Which of the above statements is/are correct?

- A. 1 and 2 only
- B. 3 only
- C. 2 and 3 only
- D. 1, 2 and 3

16. With reference to monoclonal antibodies, often mentioned in news, consider the following statements: (2025)

- I. They are man-made proteins.
- II. They stimulate immunological function due to their ability to bind to specific antigens.
- III. They are used in treating viral infections like that of Nipah virus.

Which of the statements given above are correct?

- A. I and II only
- B. II and III only
- C. I and III only
- D. I, II and III

17. Which one of the following countries has been suffering from decades of civil strife and food shortages and was in news in the recent past for its very severe famine? (2023)

- A. Angola
- B. Costa Rica
- C. Ecuador
- D. Somalia

18. Consider the following statements: (2022)

1. Biofilms can form on medical implants within human tissues.
2. Biofilms can form on food and food processing surfaces.
3. Biofilms can exhibit antibiotic resistance.

Which of the statements given above are correct?

- A. 1 and 2 only
- B. 2 and 3 only
- C. 1 and 3 only
- D. 1, 2 and 3

19. With reference to Indian elephants, consider the following statements: (2020)

1. The leader of an elephant group is a female.
2. The maximum gestation period can be 22 months.
3. An elephant can normally go on calving till the age of 40 years only.
4. Among the States in India, the highest elephant population is in Kerala.



Which of the statements given above is/are correct?

- A. 1 and 2 only
- B. 2 and 4 only
- C. 3 only
- D. 1, 3 and 4 only

Answers:

- 1. C
- 2. D
- 3. C
- 4. A
- 5. A
- 6. A
- 7. D
- 8. A
- 9. D
- 10. B
- 11. B
- 12. A
- 13. D
- 14. A
- 15. B
- 16. D
- 17. D
- 18. D
- 19. A

