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A DEVELOPMENT MONTHLY

INFRASTRUCTURE
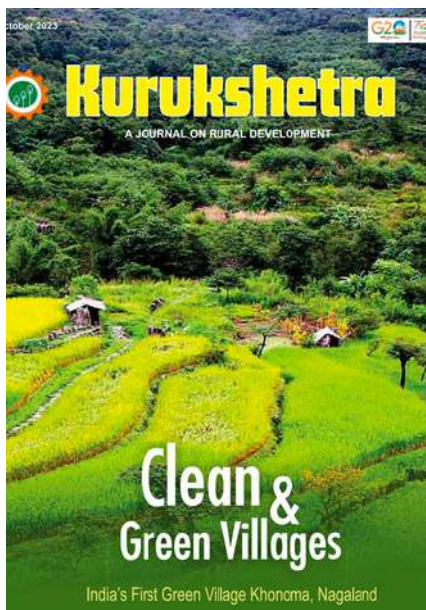
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Contents

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Schemes

1) PM-DAKSH

About	• PM-DAKSH Yojana stands for **Pradhan Mantri Dakshta Aur Kushalta Sampann Hitgrahi Yojana.**
Objective	• To **enhance the competency level of the target groups** to make them employable both in self- employment and wage-employment for their socio-economic development.
Nodal ministry	• **Central Sector Scheme** implemented by the **Ministry of Social Justice and Empowerment** from 2020-21.
Features	• Under this Yojana, eligible target groups are being provided **skill development training programmes** on 　　(i) Up-skilling/Re-skilling 　　(ii) Short Term Training Programme 　　(iii) Long Term Training Programme and 　　(iv) Entrepreneurship Development Program (EDP).
Eligible target groups	• **Marginalized persons of Scheduled Castes, Other Backward Classes, Economically Backward Classes, De-notified Tribes and Safai karamcharis including waste pickers.**
Implementation	• The scheme is implemented by the **three Corporations** 　o National Scheduled Castes Finance and Development Corporation (NSFDC), 　o National Backward Classes Finance & Development Corporation (NBCFDC) & 　o National Safai Karamcharis Finance and Development Corporation (NSKFDC).
Why in the news?	• During the last three years of implementation from 2020-21 to 2022-23, more than 1 Lakh beneficiaries have been trained under PM-DAKSH.

2) Payments Infrastructure Development Fund Scheme

About	• The Payments Infrastructure Development Fund (PIDF) Scheme, operationalised in **2021,** is a part of the Government of India's efforts to **promote digital payments and reduce cash transactions.**
Aim	• To provide **financial assistance** to eligible entities for setting up, extending and modernizing payment infrastructure across the country.
Features	• It aims at **incentivising the deployment of payment acceptance infrastructure** such as physical Point of Sale (PoS), Quick Response (QR) codes in **tier-3 to tier-6 centers, north-eastern states and Union Territories of Jammu & Kashmir and Ladakh.**
Implementation	• The **Reserve Bank of India (RBI)** is responsible for operationalizing the scheme.

Why in the news?	• The Reserve Bank of India has decided to **include PM Vishwakarma under the Payments Infrastructure Development Fund (PIDF) Scheme** as well as extend the tenure of the scheme by another two years.
	   o *PM Vishwakarma scheme was recently launched by the centre to provide end-to-end support to artisans and craftspeople.*
	   o *Refer Pulse September 2023 Digest edition for more details about Vishwakarma scheme.*
	• As per the original plan, the **tenure** of the PIDF scheme was fixed for **three years till December 2023.**
	• It is now proposed to extend the PIDF Scheme by a further period of two years that is up to **December 31, 2025.**
	• This decision to expand the targeted beneficiaries under the PIDF scheme will provide a fillip to the Reserve Bank's efforts towards **promoting digital transactions at the grassroots level.**

3) Aspirational Blocks Programme

About ABP

- The Aspirational Blocks Programme (ABP) was launched by the Government of India in January 2023.
- The Programme focuses on **improving governance to enhance the quality of life of citizens** in **the most difficult and underdeveloped blocks of India** by converging existing schemes, defining outcomes, and monitoring them on a constant basis.
- ABP is being implemented in **500 aspirational blocks across 329 districts** in the country. **Uttar Pradesh** has the maximum number of blocks (68) under this programme followed by **Bihar (61).**
- In each of them, the ABP will focus on **monitoring key socio-economic indicators** categorized under major sectors namely, Health and Nutrition, Education, Agriculture and Allied Services, Drinking Water and Sanitation, Financial Inclusion, Basic Infrastructure and overall Social Development.
- ABP identifies **Block Level Officials** as **Leaders of Change.** Equipped with right skills and competencies it is expected that Block level Officials will steer and drive the change in aspirational blocks under the guidance and support of district and state level officials.

Strategy

- Along the lines of aspirational districts strategy, the aspirational blocks strategy also hinges upon **three broad contours.**

  o **Convergence** (of Central & State Schemes),
  o **Collaboration** (of NITI Aayog, Central Ministries and Departments, State Governments and District and Block Administration) and,
  o **Competition** among blocks driven by a spirit of mass Movement.

Why in News?

- The government in this financial year has allocated Rs 100 crore for the Aspirational Blocks Programme.
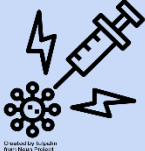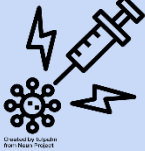
Related Information

Aspirational Districts Programme

- Launched in 2018, the Aspirational Districts Programme (ADP) is one of the largest experiments on **outcomes-focused governance** in the world.
- The ADP is **NITI Aayog's** flagship initiative to **uplift those backward 112 districts that are lagging behind in specific development parameters** of health and nutrition, education, agriculture and water resources, financial inclusion, skill development, and basic infrastructure.
- **NITI Aayog** anchors the programme with support from Central Ministries and the State Governments.
- Officers at the level of Joint Secretary / Additional Secretary have been nominated to become the **'Central Prabhari Officers'** of each district.

Initiatives

1) Intensified Mission Indradhanush 5.0

About UIP	• The Immunization Programme in India was introduced in **1978** as the **'Expanded Programme of Immunization' (EPI) and** in 1985, the programme was modified as **'Universal Immunization Programme' (UIP)** to be implemented in a phased manner to cover all districts in the country.

Features of UIP	• Under UIP, immunization is providing free of cost against **12 vaccine preventable diseases:**
	  o Nationally against 9 diseases - **Diphtheria, Pertussis, Tetanus, Polio, Measles, Rubella, severe form of Childhood Tuberculosis, Hepatitis B and Meningitis & Pneumonia caused by Haemophilus Influenzae type B**
	  o Sub-nationally against 3 diseases - **Rotavirus, Pneumococcal Pneumonia and Japanese Encephalitis;** of which Rotavirus vaccine and Pneumococcal Conjugate vaccine are in process of expansion while JE vaccine is provided only in endemic districts.
	• The two major milestones of UIP have been the **elimination of polio** in 2014 and **maternal and neonatal tetanus elimination** in 2015.

About Mission Indradhanush	• To strengthen and re-energize the Universal Immunization Programme and **achieve full immunization coverage** for all children and pregnant women at a rapid pace, the Government of India launched "Mission Indradhanush" in 2014.
About Intensified Mission Indradhanush	• To further **intensify the immunization programme**, the Government of India launched the Intensified Mission Indradhanush (IMI) in 2017. • Through this programme, Government of India aims to reach each and every child up to two years of age and all those pregnant women who have been **left uncovered under the routine immunization programme/UIP.** • Special attention was given to unserved/low coverage pockets in sub-centre and urban slums with migratory populations.
Nodal ministry	• **Ministry of Health and Family Welfare.**

Why in the news?	• **Intensified Mission Indradhanush (IMI 5.0),** the flagship routine immunization campaign of the Union Ministry of Health and Family Welfare, was concluded recently. • IMI 5.0 ensures that routine immunization services reach the **missed-out and dropped out children and pregnant women across the country.** • This year, for the first time the campaign is being conducted across all the districts in the country and includes **children up to 5 years of age** (Previous campaigns included children up to 2 years of age).

2) Food labels to have QR code to help the visually disabled

About FSSAI

- The Food Safety and Standards Authority of India (FSSAI) is an **autonomous statutory body established under the Food Safety and Standards Act, 2006.**
- The **Ministry of Health & Family Welfare** is the administrative Ministry of FSSAI.
- FSSAI is responsible for protecting and promoting public health through the regulation and supervision of food safety.

Why in News?

- FSSAI has recommended the **inclusion of a QR (quick response) code on food products** for accessibility by visually impaired individuals stating that this will **ensure access to safe food for all.**
- The FSSAI under its **Food Safety and Standards (Labeling and Display) Regulations, 2020** has comprehensively outlined the information to be included on the labels of food products.
- This information includes product name, shelf life, nutrition facts, vegetarian/non-vegetarian logos, ingredient lists, allergen warnings, and other product specific labelling requirements.
- This information is aimed at empowering consumers to make informed choices when selecting food products.
- The **Rights of Persons with Disabilities Act, 2016** recognises the rights and needs of individuals with disabilities, which emphasises **accessibility and the promotion of health** for persons with disabilities.

About QR code

- A QR code is a **type of two dimensional (2D) bar code** that is used to provide easy access to online information through the digital camera on a smartphone or tablet.
- QR codes are considered an advancement from older, uni-dimensional barcodes.

3) Tele-MANAS

About

- The Government of India (GoI) in its **Union Budget 2022,** announced the National Tele Mental Health Programme of India, Tele Mental Health Assistance and Networking Across States (Tele MANAS) and entrusted the **Ministry of Health and Family Welfare (MoHFW)** to guide its overall implementation.
- The helpline was a response to a mental health crisis inflamed by the **COVID-19 pandemic.** Estimates show that **70-92% of Indians do not receive medication or**

treatment for different mental conditions.

- Tele-MANAS was thus envisioned as an **emergency mental health first-aid kit**, embarking on a journey of building a comprehensive digital mental health network across India and reaching the unreached.

Structure

- Tele-MANAS comprises **two tiers**: **trained counsellors** at **State Tele-MANAS cells** who provide immediate care, and **mental health professionals** (psychologists, clinicians, psychiatrists) at **District Mental Health Programme (DMHP)** who provide specialist care.
- **NIMHANS, Bengaluru,** serves as the **nodal centre** while the **International Institute of Information Technology (IIITB) in Bengaluru** is tasked with providing the **technical know-how** for the helpline.

Why in News?

- Tele-MANAS, launched last year on the occasion of World Mental Health Day (October 10), has counselled more than 3,50,000 people till date.

4) Mera Yuva Bharat

What's in the news?

- The Union Cabinet, chaired by the Prime Minister Narendra Modi, has approved establishment of **Mera Yuva Bharat (MY Bharat)** to **serve as an overarching enabling mechanism powered by technology for youth development and youth led development**.

About MY Bharat

- Mera Yuva Bharat (MY Bharat) is an **autonomous body** that is being set up by the **Ministry of Youth Affairs & Sports** to provide an

overarching institutional mechanism powered by technology for **youth development and youth-led development.**

- This mechanism would provide equitable access to opportunities for youth to actualise their aspirations and build an **Amrit Bharat by 2047.**
- The platform connects youth with programs and learning opportunities in Businesses, Government Departments and Non-Profit Organisations.
- Such engagement would deepen youth understanding of the issues of the local community and would allow them to help in generating constructive solutions.
- MY Bharat would offer such **experiential learning programs.** Given that modern youth have good exposure to digital networks and digital tools, such learning programs can also provide local communities with useful inputs and at the same time provide an opportunity to youth to help others.

5) Eklavya Model Residential Schools

About EMRS

- The scheme of Eklavya Model Residential Schools (EMRSs) was introduced in **1997-98** with an objective to **provide quality middle and high-level education to Scheduled Tribe (ST) students in remote areas.**
- The schools are aimed to enable ST students to access the best opportunities in education and to bring them at par with the general population. The schools focus not only on academic education but on the **all-round development of the students.**

- Each school has a capacity of 480 students, catering to students from **Class VI to XII. Non-ST students** can be admitted in EMRSs up to **10% of the total seats.**
- The **National Education Society for Tribal Students (NESTS),** an autonomous organization under the Ministry of Tribal Affairs, establishes, endows, maintains, controls and manages these schools.
- The government aims to establish EMRS in **every block with more than 50% ST population and at least 20,000 tribal persons**.
- EMRS are set up in States/UTs with grants under **Article 275(1)** of the Constitution of India.
  - Article 275(1) **guarantees grants-in-aid from the Consolidated Fund of India** each year for promoting the welfare of Scheduled Tribes. Infrastructure development schemes like protected drinking water, road connectivity, electricity and housing are provided under this scheme.
- The scheme is being implemented by the **Ministry of Tribal Affairs.**

Why in News?

- The Ministry of Tribal Affairs recently organised the 4th National Eklavya Model Residential School (EMRS) Cultural, Literary and Arts Fest-2023.

Environment

1) Biofuels & Ethanol Blending in Petrol

Biofuels

- Biofuels are liquid or gaseous fuels produced from **biomass that are generally high in sugar** (such as sugarcane, sugarbeet, sweet sorghum), **starch** (such as corn and cassava) or **oils** (such as soybeans, rapeseed, coconut, sunflowers, and palms).
- The two most commonly used biofuels are **ethanol and biodiesel.**
- **Categories of Biofuels:**
    1. **First generation Biofuels:** Mainly produced from **food crop feedstock**
    2. **Second generation Biofuels:** Comes from **non-food plants**
    3. **Third generation Biofuels: Micro-organisms** like algae
    4. **Fourth generation Biofuels: Genetically modified (GM) algae** to enhance biofuel production

National Biofuel Policy 2018

- The National Biofuel Policy 2018 envisages an indicative target of **20% blending of ethanol in petrol and 5% blending of biodiesel in diesel by 2030.**
- The Policy **categorises biofuels as "Basic Biofuels"** viz. **First Generation (1G) bioethanol & biodiesel** and **"Advanced Biofuels" - Second Generation (2G) ethanol, Municipal Solid Waste (MSW) to drop-in fuels, Third Generation (3G) biofuels, bio-CNG etc.** to enable extension of appropriate financial and fiscal incentives under each category.
- The Policy **expands the scope of raw material for ethanol production** by allowing use of Sugarcane Juice, Sugar containing materials like Sugar Beet, Sweet Sorghum, Starch containing materials like Corn, Cassava, Damaged food grains like wheat, broken rice, Rotten Potatoes, unfit for human consumption for ethanol production.
- The Policy allows **use of surplus food grains for production of ethanol for blending with petrol.**

Expected Benefits

- India is **highly dependent on imports** for meeting its energy requirements and imports **around 85% of its crude oil domestic consumption requirements.** Promotion of biofuels will lead to **reduction of this import dependency.**
- **Diversion of excess sugarcane & sugar to ethanol** is a correct way forward to deal with **surplus stocks.**
- **Agricultural residues/waste** which otherwise are burnt by the farmers can be converted to **ethanol** and can **fetch a price for these waste** if a market is developed for the same.
- By reducing crop burning & conversion of agricultural residues/wastes to biofuels there will be **further reduction in greenhouse gas emissions.**
- The policy is also expected to **ensure waste management benefits and raise infrastructure** in rural areas.

Advancement of Target

- Last year, the government amended the Biofuels Policy to **advance the ethanol blending target of 20% blending of**

ethanol in petrol to 2025-26 from 2030.

- India achieved **10% ethanol blending in June 2022.**

Why in News?

- Union Minister of Petroleum and Natural Gas, Hardeep Singh Puri said that **20 percent ethanol blended petrol**, **E20,** will be available across India by 2025.
- Earlier this year, Prime Minister Narendra Modi rolled out 20% ethanol-blended petrol in select gas stations in 11 States and Union Territories as part of a programme to increase use of biofuels.

2) Marine sand extraction

Significance of Marine sand

- Marine sand – sand and gravel in the ocean and coastal environment – is an **important environmental asset**.
- It **links and protects marine and terrestrial ecosystems, enhances coastal resilience** against storms, **protects coastal aquifers** from salination and supports biodiversity, fisheries, and other blue economy activities.

What is marine sand extraction?

- Marine sand extraction, also known as **marine sand mining or dredging**, refers to the process of **removing sand and other sediments from the seabed or the ocean floor.**

Impacts of marine sand extraction

- Dredging can **disturb the natural habitats** on the seabed, affecting marine ecosystems. The removal of sand can **disrupt the balance of underwater ecosystems, impacting marine life and biodiversity.**
- The dredging process can result in the **suspension of sediments** in the water, **affecting water clarity and light penetration.** This can

have **consequences for marine organisms** that depend on light for their survival.

- Excessive sand extraction can contribute to **shoreline erosion**, as it removes sediments that may play a role in maintaining the stability of coastal areas.
- The disturbance caused by sand extraction can **affect fish habitats and impact local fisheries.**

Why in News?

- According to a study by the **United Nations Environment Programme (UNEP),** around **6 billion tons of marine sand** is being dug up each year in a growing practice that is **unsustainable and can wipe out local marine life irreversibly.**
- **Sand is the most exploited natural resource in the world after water** but its extraction for use in industries like construction is only **loosely governed**, prompting the U.N. to pass a resolution last year to promote more sustainable mining.
- While globally the 6 billion being extracted is less than the sand deposited annually by the world's rivers, in some areas the removal is **surpassing replenishment rates**.
- The **South China Sea, the North Sea and the east coast of the United States** are among the areas where the most dredging has occurred.

Marine sand-watch

- UNEP has also launched a new platform 'Marine Sand Watch' backed by funding from the Swiss government that **monitors dredging activities using marine tracking and artificial intelligence.**

About UNEP
- The UNEP is the leading environmental authority in the United Nations system.
- It was founded as a result of the **UN Conference on the Human Environment** (also known as the **Stockholm Conference**) in **1972.**
- One of UNEP's most widely recognized activities is **Earthwatch**, an international monitoring system designed to **facilitate the exchange of environmental information among governments.**

3) Planetary Boundaries
What are Planetary boundaries?
- Developed in 2009, planetary boundaries refers to a **set of nine environmental boundaries or limits** that **define the safe operating space for humanity within the Earth's ecosystems.**
- These boundaries are meant to represent the **biophysical thresholds** that, if crossed, could lead to **abrupt and irreversible environmental changes**, posing risks to human well-being and the stability of the planet.

Nine Planetary boundaries
- **Climate Change**: The concentration of carbon dioxide (CO2) in the atmosphere, which contributes to global warming.
- **Biosphere Integrity**: The overall health and functioning of ecosystems, including biodiversity and the extent of intact habitats.

- **Stratospheric Ozone Depletion**: The concentration of ozone-depleting substances in the atmosphere, which affects the protective ozone layer in the stratosphere.
- **Ocean Acidification**: The acidity of the oceans, primarily driven by increased carbon dioxide absorption, which can have detrimental effects on marine life, especially organisms with calcium carbonate shells.
- **Biogeochemical Flows (Nitrogen and Phosphorus)**: The human-driven flow of nitrogen and phosphorus into the environment, which can lead to nutrient imbalances and environmental degradation, such as eutrophication of water bodies.
- **Land System Change**: Changes in land use, including deforestation, urbanization, and other alterations to natural landscapes.
- **Freshwater Use:** Human consumption of freshwater resources, with a focus on sustainable water management to avoid depletion and ecosystem degradation.
- **Novel entities:** Levels of plastic, concrete, synthetic chemicals, gene-modified organisms, etc. that would not be found on Earth if we humans were not here.
- **Atmospheric Aerosol Loading**: The concentration of particulate matter in the atmosphere, which can affect air quality and have climate-related impacts.

Boundary transgressed

Safe operating space | Zone of increasing risk | High risk zone
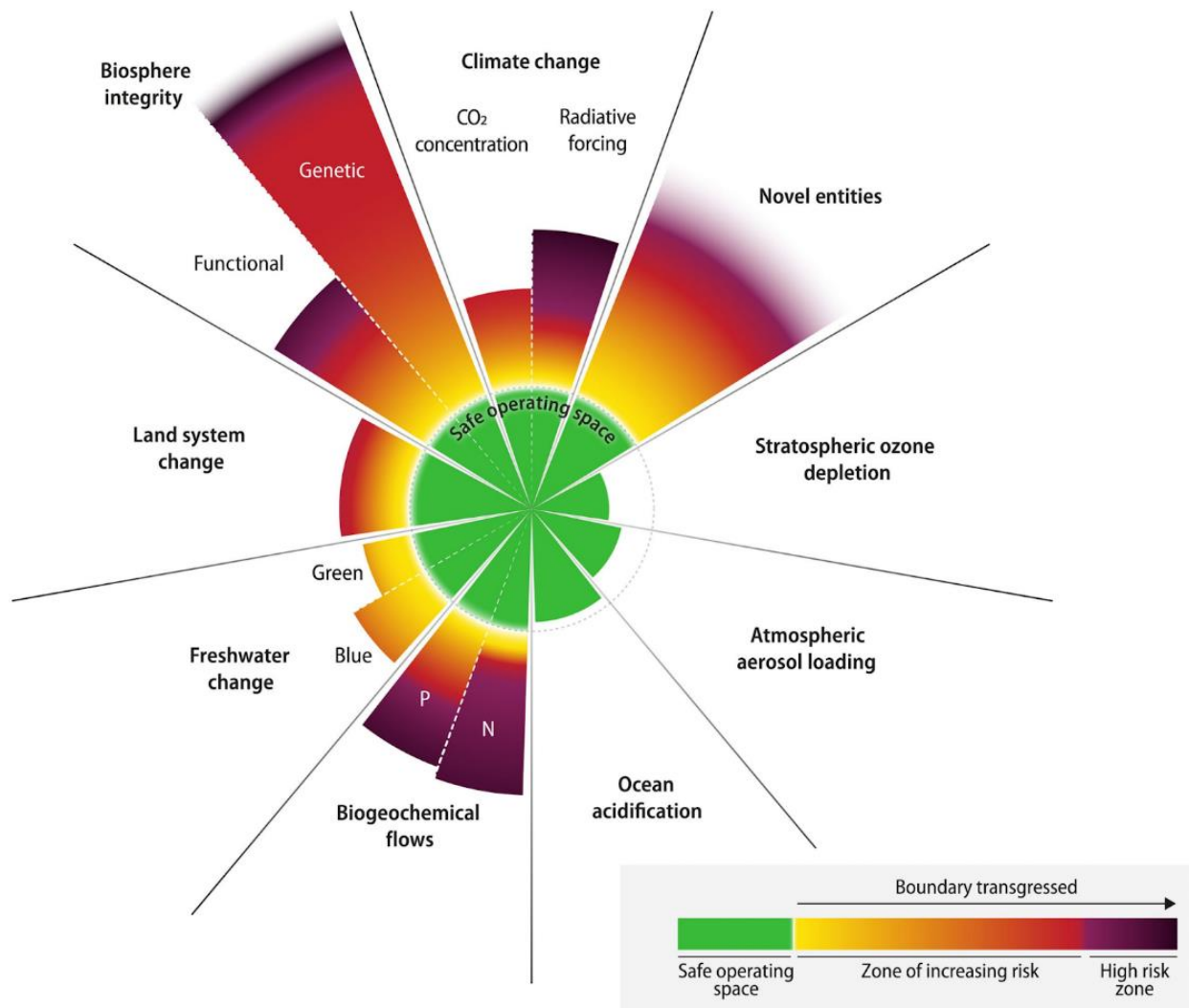
Why in News?

- According to a new study, the world has **breached six of the nine planetary boundaries** necessary to maintain Earth's stability and resilience.
- The six boundaries include **climate change**, **biosphere integrity, land system change, freshwater change, biogeochemical flows, and novel entities.**
- This is the third iteration of the framework carried out by 29 scientists from eight different countries.

Findings of the study

- The broken boundaries show Earth's life-support systems have been driven **far away from the safe operating space for humanity** that existed during the Holocene period.
- One of the most concerning evaluations is the **overflow of nitrogen and phosphorus** — the **biogeochemical flow boundary** — in the environment. Although nitrogen and phosphorus are **essential for life,** their widespread use as crop fertilisers is **wreaking havoc by**, for instance, **triggering algal blooms** (it can cause entire fish populations to leave an area or even die) and **ocean dead zones** (a reduced level of oxygen in the water).
- Another alarming finding is the **rising levels of novel entities** in the environment such as **pesticides and plastic,** which are

destabilizing and harming the Earth's system.

- For **climate change**, the analysis notes that both the **atmospheric CO2 concentration and radiative forcing** are steadily increasing. For instance, **CO2 concentration** currently stands at **417 parts per million (ppm),** whereas it was just 280 ppm before the Industrial Revolution. Its safe boundary limit is 350 ppm, which was breached in the 1980s.
- For **land system change**, the **global area of forested land as the percentage of the original forest cover boundary** has dropped to **60 per cent**, which is beyond safe limits.
- Currently, it is estimated around **one million of the 8 million plant and animal species are threatened with extinction,** and over **10 per cent** of the **genetic diversity** of plants and animals may have been **wiped out** over the last 150 years.

Other 3 Planetary boundaries

- While **atmospheric aerosol loading and ozone depletion** remain within the constraints, **ocean acidification** is close to being breached.
- Notably, the **one improving boundary**, the **stratospheric ozone depletion boundary,** is recovering owing to the combined international efforts initiated by the **Montreal Protocol** in 1987. Researchers say this level of coordinated change may help in dealing with other boundaries.

4) Green Credit Programme & Ecomark Scheme

What's in the news?

- The **Union Ministry of Environment, Forests and Climate Change** has launched the

'green credit' programme (GCP), a first-of-a-kind **market-based instrument designed to incentivise individuals, industries and local bodies for their voluntary environmental actions across diverse sectors.**

- The GCP's governance framework is supported by an **inter-ministerial Steering Committee** and **The Indian Council of Forestry Research and Education (ICFRE)** serves as the **GCP Administrator**, responsible for program implementation, management, monitoring, and operation.
  - *ICFRE is an autonomous body of the Ministry of Environment, Forest and Climate Change which deals with the solution based forestry research.*

About the Programme

- The programme is a **domestic voluntary market mechanism,** where a green credit serves as a **singular unit of a credit** provided for each specified activity.
- The green credits will be **tradable** and those earning them will be able to put these **credits up for sale on a proposed domestic market platform.**
- To obtain Green Credits, individuals and entities must register their activities through the central government's dedicated app/website **www.moefcc-gcp.in.** The Administrator will verify the activity through a designated agency, with self-verification for small projects.
- Once verification is complete, the Administrator will grant a **Green Credit certificate** which will be tradable on the green credit platform.

- In its initial phase, the GCP focuses on two key activities: **water conservation and afforestation.**

'Ecomark Scheme'

- The **Ministry of Environment, Forests and Climate Change** also notified the 'Ecomark Scheme', for the **labelling of environmentally friendly products.**
- Ecomarks will provide accreditation and labelling for **household and other consumer products** that meet certain environmental criteria along with the quality requirements of the Indian standards for that product.
- It will build consumer awareness of environmental issues and encourage **eco-conscious choices.** It will also motivate manufacturers to shift towards environmentally friendly production. The scheme seeks to **prevent misleading information** about products.
- The **Central Pollution Control Board** administers the Ecomark Scheme in partnership with **Bureau of Indian Standards (BIS)**, which is the national body for standards and certification.

5) 75% Villages are now ODF Plus

About SBM

- The Swachh Bharat Mission (SBM) was launched in 2014 to fulfil the vision of a **cleaner India by 2 October 2019**, as a tribute to Mahatma Gandhi on his 150th birth anniversary.
- The campaign is one of the biggest-ever drives to accelerate efforts towards achieving **universal sanitation coverage, improving cleanliness and eliminating open defecation** in India.
- The Mission comprises components such as the construction of individual household toilets, community and public toilets, and solid and liquid waste management, etc.
- It has 2 components - urban and rural.
  1. **SBM Urban** aims for the elimination of open defecation, conversion of unsanitary toilets to pour flush toilets, eradication of manual scavenging, municipal solid waste management and bringing about a behavioural change in people regarding healthy sanitation practices.
  2. **SBM Rural** aims to make India an open defecation free country. It seeks to improve the levels of cleanliness in rural areas through Solid and Liquid Waste Management activities and making Gram Panchayats Open Defecation Free (ODF), clean and sanitised.
- The urban component of the mission is implemented by the **Ministry of Housing and Urban Affairs,** and the rural component by the **Department of Drinking Water and Sanitation, Ministry of Jal Shakti.**

Phase II of SBM Rural

- In 2020, the Union Cabinet approved the **Phase II of the Swachh Bharat Mission (Grameen)** till 2024-25.
- It will focus on **Open Defecation Free Plus (ODF Plus),** which includes ODF sustainability and Solid and Liquid Waste Management (SLWM).
- The program will also work towards ensuring that no one is left behind and everyone uses a toilet.

Phase II of SBM Urban

- The government launched Urban Swachh Bharat Mission 2.0 in 2021. It will stress on further **strengthening of the 'swachhata' (cleanliness) campaign** of urban India.
- The government intends to focus on complete faecal sludge management and wastewater treatment, source segregation of garbage, reduction in single-use plastic, reduction in air pollution, especially waste from construction and demolition, and bio-remediation of dumpsites.

Why in News?

- **Three-fourth (75%) of the total villages** in the country **have achieved ODF Plus status under Phase II of the Swachh Bharat Mission (Grameen).**
  - An ODF Plus village is one which has **sustained its Open Defecation Free (ODF) status along with implementing either solid or liquid waste management systems.**
- As on date, more than 4.43 lakh villages have declared themselves ODF Plus, which is a significant step towards achieving the SBM-G phase II goals by 2024-25.

Impacts of SBM

- The programme led to the construction of over 10 crore individual household toilets, taking **sanitation coverage** from 39% in 2014 to **100% in 2019** when around **6 lakh villages declared themselves Open Defecation Free (ODF).**
- This progressed the country towards **SDG 6.2,** which aims for **adequate and equitable sanitation access for all, especially for women and girls.**
- Households in open defecation free villages **saved up to INR 50,000 every year** (UNICEF, 2018). Improved sanitation facilities lead to a **reduction in healthcare costs and increased productivity.**
- **Soil and groundwater sources** in ODF villages were **less contaminated overall** compared to the villages that did not have 100 per cent toilet coverage.
- The Mission's model is now being mimicked by other national campaigns and has influenced equivalent policies in countries such as **Nigeria, Indonesia and Ethiopia.**

Flora & Fauna

1) Pygmy Hog

About Pygmy Hog

- The pygmy hog is the **smallest** and **rarest wild pig species** in the world.
- Pygmy hogs have a distinctive appearance with a dark, coarse coat and a slight crest of hair along their back. They have a short tail and small, rounded ears.
- It is one of the very few **mammals** that build its **own home,** complete with a '**roof**'.
- It is an **indicator species** as its presence reflects the health of its habitat.
- They are **primarily diurnal** (active during the day) and are known for their **social behavior.** Pygmy hogs live in small groups, foraging for **roots, tubers, and insects.**

Distribution

- They live in the **wet high grasslands** at the foothills of the **Himalayas.**
- Currently, the viable population of this pig in the wild is in the **Manas Tiger Reserve** in Assam.

Threats

- The main threats to their survival include **habitat loss due to agriculture, grazing pressure from domestic livestock**, and **occasional flooding** of their grassland habitats.

Protection Status

- IUCN Red List: **Endangered**; Wildlife Protection Act (2022): **Schedule I.**

Why in News?

- Eighteen captive-bred pygmy hogs were released in western Assam's Manas National Park and Tiger Reserve.
- It was the fourth such exercise undertaken under the **Pygmy Hog Conservation Programme (PHCP)** annually since 2020, helping up the total number of this critically endangered species released at the park to 54.
- The PHCP target is to reintroduce 60 pygmy hogs in Manas, its historical habitat, by 2025.

Manas National Park

- Manas National Park in Assam is a **UNESCO World Heritage Site**, a **Tiger Reserve**, an **Elephant Reserve** as well as a **Biosphere Reserve**.
- It is situated on the bank of the **River Manas** at the foothills of the Himalayas.
- A unique distinction, Manas National Park is home to a varied species of Fauna of the likes of the Indian One Horned Rhinoceros, Asiatic Elephants, Indian Tigers, Clouded Leopards, Hoolock Gibbons, Barking Deer, etc.
- Manas is the only landscape in the world where pristine **Terai Grasslands** are seen merging with the **Bhabar grasslands** interspersed with diverse habitats ascending to Semi-Evergreen forests and then to Bhutan Himalayas.

Agriculture

1) National Turmeric Board

What's in the news?

- The Government of India has notified the constitution of the National Turmeric Board.

About the Board

- The National Turmeric Board will focus on the **development and growth of turmeric and turmeric products in the country.**
- It will especially focus on **capacity building and skill development** of turmeric growers for harnessing greater benefits out of value addition.
- The Board will also promote **quality and food safety standards and adherence** to such standards.
- The Board shall have a **Chairperson** to be appointed by the Central Government, **members** from various Departments of the Union Government and State Government representatives.

About Turmeric

- Turmeric (*Curcuma longa*) is **native to Southeast Asia** and is grown commercially in the region, primarily in India.
- Turmeric can be grown in **diverse tropical conditions from sea level to 1500 m above sea level**, at a **temperature range of 20-35° C** with an **annual rainfall of 1500 mm or more,** under rainfed or irrigated conditions.
- Though it can be grown on different types of soils, it **thrives best in well-drained sandy or clay loam soils with a pH range of 4.5-7.5 with good organic status.**

Turmeric in India

- **India is the largest producer, consumer and exporter of turmeric in the world**. More than 30 varieties of Turmeric are grown in India and it is grown in over 20 states in the country.
- The **largest producing states** of Turmeric are **Maharashtra, Telangana, Karnataka and Tamil Nadu.**
- **India has more than 62% share of world trade** in turmeric. During 2022-23, 1.5 lakh tonnes of turmeric and turmeric products valued at 207.45 million USD was exported.
- The **leading export markets** for Indian **Turmeric are Bangladesh, UAE, USA and Malaysia.** With the focused activities of the Board, it is expected that turmeric exports will reach **USD 1 Billion by 2030.**

Economy

1) Small Finance Banks

About SFBs

- Small Finance Banks (SFBs) primarily undertake **basic banking activities** of acceptance of deposits and lending to **unserved and underserved sections** including small business units, small and marginal farmers, micro and small industries and unorganised sector entities.
- These banks basically work as **savings vehicles** as well, as they are engaged in offering **credit facilities** through their advanced technology & low-cost operations.
- They are eligible to provide **credit** card and **debit** card facilities and associational services.

Regulations

- SFBs are **subject to all prudential norms and regulations of RBI** as applicable to existing commercial banks including requirement of maintenance of Cash Reserve Ratio (CRR) and Statutory Liquidity Ratio (SLR).
- SFBs are required to open **at least 25% of its branches in unbanked rural centres.**
- SFBs will be required to extend **75 per cent of its Adjusted Net Bank Credit (ANBC)** to the sectors eligible for classification as **priority sector lending (PSL)** by the Reserve Bank.
- **At least 50 per cent of its loan portfolio should constitute loans and advances of upto Rs. 25 lakh.**

Why in News?

- The Board of Directors of AU Small Finance Bank (AU SFB) Ltd and Fincare Small Finance Bank (Fincare SFB) Ltd has approved the merger of AU SFB and Fincare SFB.

2) Wholesale Price Index

About WPI

- Wholesale Price Index (WPI) measures and tracks the changes in the **price of goods in the stages before the retail level**. It provides estimates of inflation at the wholesale transaction level for the economy as a whole.
- WPI basket **does not cover services.**
- It is released by the **Office of Economic Adviser, Department for Promotion of Industry and Internal Trade, Ministry of Commerce and Industry.**
- The base year is **2011-2012.**
- The index basket consists of commodities under 3 main categories in decreasing order of weightage: **Manufactured products (64.2%), Primary Articles (22.6%) and Fuel and Power (13.2).**

Why in News?

- India's wholesale prices remained in **deflationary mode** for the sixth month in a row in September, with the Wholesale Price Index reflecting an inflation of -0.26%, against -0.52% recorded in August, 2023.

3) Consumer Price Index for Industrial Workers

About CPI

- Consumer Price Index is an index which **measures the weighted average of prices of a basket of consumer goods and services such as transportation, food and medical care.**
- It is calculated by measuring price changes for each item in the **predetermined basket of goods and services** and averaging them.

How does the Consumer Price Index help?

- The Reserve Bank of India and other statistical agencies study CPI so as to **understand the price change of various commodities and keep a tab on inflation.**
- CPI is also a helpful pointer in understanding the real value of wages, salaries and pensions, the purchasing power of a country's currency, and regulating prices.

Who maintains the Consumer Price Index in India?

- In India, different types of consumer price index numbers are released by the government which includes:
  - **CPI for Industrial Workers (IW)**
  - **CPI for Agricultural Labourers (AL)**
  - **CPI for Rural Labourers (RL)**
- The **Ministry of Labour & Employment** collects the data for CPI (IW), CPI (AL) and CPI (RL) and compiles it.
- In addition to these, the **National Statistical Office (NSO), Ministry of Statistics and Programme Implementation** is releasing
  - **CPI for Rural**
  - **CPI for Urban and**
  - **CPI Combined (computed by combining CPI Rural and CPI Urban).**

What is the base year of an Index?

- The CPI is calculated with **reference to a base year**, which is used as a benchmark. The price change pertains to that year.
- In India, the base year of the current series of CPI (IW) is **2016**. The base year of CPI (AL) and CPI (RL) is **1986-87.**
- For CPI Rural, Urban and Combined, the base year is **2011-12.**

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Why in News?

- The **Labour Bureau**, an attached office of the **Ministry of Labour & Employment,** has been compiling the **Consumer Price Index for Industrial Workers every month.**
- According to the latest data, the All-India CPI-IW for September 2023 decreased by 1.7 points and stood at 137.5. On a 1-month percentage change, it decreased by 1.22 per cent with respect to the previous month.

4) Minimum Export Price on onion

About MEP

- Minimum Export Price (MEP) is the **price below which an exporter is not allowed to export** the commodity from India. MEP is a kind of **quantitative restriction** to trade.
- Government fixes MEP for the selected commodities to **restrict exports** and **augment domestic supply** which will consequently reduce its price levels in the domestic market.
- Thus, it aims to **protect the interests of domestic consumers.**
- This is intended to be imposed for short durations and is removed when situations change.
- Generally, MEP imposition is **restricted to essential commodities** like potatoes, Onions, rice, edible oils etc.

Why in News?

- The Centre has notified a Minimum Export Price of 800 US dollars per Metric Ton on onion export to maintain its domestic availability.
- The measure has been taken to maintain sufficient availability of onion to domestic consumers at affordable prices, by curbing the quantity of onion exports.

5) Angel Tax

What is angel tax for start-ups?

- Angel tax is levied **when an unlisted company issues shares to an investor at a price higher than its fair market value.**
- It is levied at the rate of **30.6 per cent.**
- The provision was first introduced in 2012 to **deter the generation and use of unaccounted money** through the subscription of shares of a closely held company at a value that is higher than the fair market value of the firm's shares.

New Changes

- Earlier, Angel tax was imposed only on **investments made by a resident investor.**
- However the **Finance Act 2023** proposed to **extend angel tax even to non-resident investors from April 1.** It means that when a start-up raises funding from a foreign investor, that too will now be counted as income and be taxable.
- The Act made a specific provision to **exempt startups recognized by the Department for Promotion of Industry and Internal Trade (DPIIT)** from the expanded scope of Angel Tax.
  - *Refer Pulse August 2023 Digest edition: "Startup India initiative" topic - for details about DPIIT recognised startups.*

Why in News?

- The government has eased some of the provisions of the angel tax introduced in this year's Budget on investments into startups by non-resident investors.
- It has offered a 10% tolerance for deviations from the accepted share valuations.

Organisations

1) International Solar Alliance

About ISA

- The International Solar Alliance (ISA) was conceived as a **joint effort by India and France** to mobilize efforts against climate change through deployment of **solar energy solutions.**
- 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**.
- The **Paris Declaration** that established the ISA states that the alliance is an action-oriented, member-driven, collaborative platform for **increased deployment of solar energy technologies** as a means for bringing energy access, ensuring energy security, and driving energy transition in its member countries.
- The ISA is headquartered in **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.
- The first general assembly of the ISA, held in 2018, adopted the amendment to its framework agreement to **expand the scope of membership to all member states of the United Nations.**
- At present, 116 countries are signatories to the ISA Framework Agreement, of which 94 countries have submitted the necessary instruments of ratification to become full members of the ISA.

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 CO_2 every year.**

Why in News?

- The Sixth Assembly of the International Solar Alliance (ISA) was recently held in New Delhi.
- Ministers from 20 countries and delegates from across 116 Member and Signatory countries participated in the Assembly.

Related Information
GGI-OSOWOG

- The One Sun One World One Grid (OSOWOG) was first proposed by **Prime Minister Narendra Modi**, during the assembly of the International Solar Alliance 2018.
- The OSOWOG initiative aims to **connect different regional grids through a common grid** that will be used to **transfer renewable energy power** and, thus, realize the potential of renewable energy sources, especially solar energy.
- The **Green Grids initiative (GGI)** was launched by the **United Kingdom (UK)** to create a framework for international collaboration on the optimal use of renewable resources.
- At the **Conference of Parties (COP-26) climate summit** held in Glasgow in 2021, **both the initiatives were merged** and

launched together by India and UK as **GGI-OSOWOG.**

2) Unique Identification Authority of India

About UIDAI

- The Unique Identification Authority of India (UIDAI) is a **statutory authority** established under the provisions of the Aadhaar (Targeted Delivery of Financial and Other Subsidies, Benefits and Services) Act, 2016 (**"Aadhaar Act 2016"**) under the **Ministry of Electronics and Information Technology (MeitY).**
- UIDAI was created to issue **Unique Identification numbers (UID),** named as **"Aadhaar", to all residents of India.**
  - *As per the Aadhaar Act, every individual who qualifies as a resident Indian under the Aadhar Act is eligible to get an Aadhaar card.*
  - *Resident is a person, **including Non-resident Indian (NRI) or Foreign nationals**, who has been living in India for a period of 182 days or more in the preceding 12 months.*
- UIDAI is responsible for **Aadhaar enrolment and authentication**, including operation and management of all stages of Aadhaar life cycle.
- As of September 2023, the Authority has generated 138.08 crore Aadhaar numbers to the residents of India.

Why in News?

- The **Appointments Committee of the Cabinet** has approved a one-year extension for the current UIDAI Chief Executive Officer Amit Agrawal.

About Appointments Committee of the Cabinet

- It is chaired by the **Prime Minister.**
- It decides all higher-level appointments in the Central Secretariat and Public Enterprises.

3) Indian Ocean Rim Association

About IORA

- IORA is an **inter-governmental organisation** which was established in **1997** to **strengthen regional cooperation and sustainable development within the Indian Ocean region.**

Origin

- While the IORA was formed in **1997** (then called the **Indian Ocean Region-Association for Regional Cooperation**) in Mauritius, its genesis came from a speech **Nelson Mandela** gave in Delhi in 1995.
- He said at a ceremony that India and South Africa should explore "the concept of an Indian Ocean Rim of socioeconomic cooperation and other peaceful endeavours" that could help developing countries within multilateral institutions "such as the United Nations, the Commonwealth and the Non-Aligned Movement".

Members

- IORA includes **23 countries** (including **India**) **from Africa, West Asia, South Asia, South East Asia, Australia and littoral states situated in and around the Indian Ocean.**

Structure

- IORA's apex body is the **Council of Foreign Ministers (COM)** which meets annually.
- Decisions made within IORA are reached by **consensus** and commitments are undertaken on a **voluntary basis.**
- The IORA Secretariat is based in **Mauritius**. It is headed by a fixed term **Secretary-General.**
- IORA became an **observer to the UN General Assembly** in 2015.

Priority Areas

- The **six Priority and two Focus Areas** of IORA are as follows:

Maritime Safety & Security

Trade & Investment Facilitation

Fisheries Management

Disaster Risk Management

Tourism & Cultural Exchanges

Academic, Science & Technology Cooperation

Blue Economy

Women's Economic Empowerment
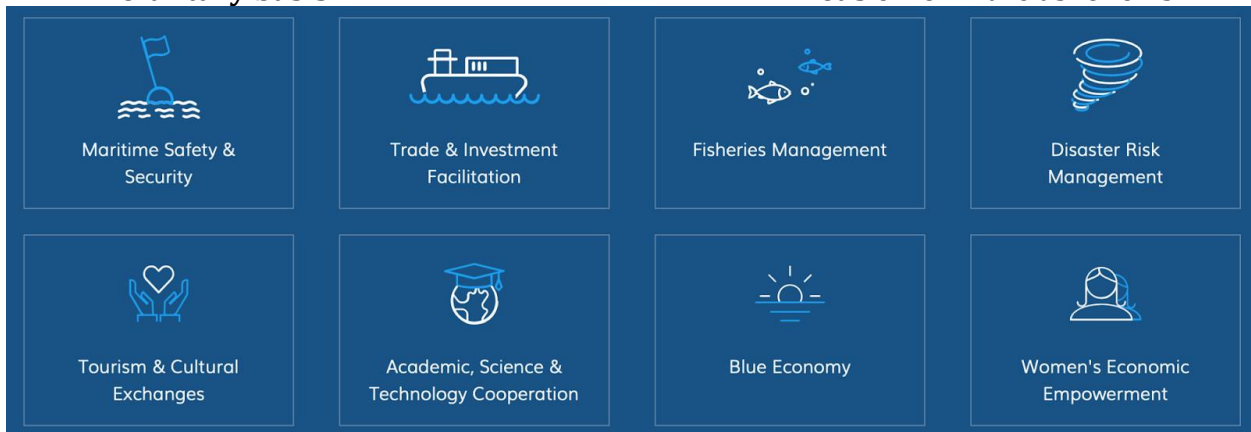
Why in News?

- The Indian Ocean Rim Association (IORA) Council of Ministers meeting was recently held in Colombo, Sri Lanka.

Science and Technology

1) CAR T-cell Therapy

Advances in Cancer Treatment

- The three major forms of treatment for any cancer are **surgery** (removing the cancer), **radiotherapy** (delivering ionising radiation to the tumour), and **systemic therapy** (administering medicines that act on the tumour).
- Surgery and radiotherapy have been refined significantly over time – whereas advances in systemic therapy have been unparalleled.
- **Systemic therapy's earliest form** was **chemotherapy.** When administered, chemotherapy preferentially acts on cancer cells as they have rapid unregulated growth and poor healing mechanisms. Chemotherapeutic drugs have **modest response rates** and **significant side-effects** as they affect numerous cell types in the body.
- The next stage in its evolution was **targeted agents**, a.k.a. **immunotherapy:** the drugs bind to specific targets on the cancer or in the immune cells that help the tumour grow or spread. This method often has **fewer side-effects** as the impact on non-tumour cells is limited. However, it is **effective only against tumours that express these targets.**

What are CAR T-cells?

- **Chimeric antigen receptor (CAR) T-cell therapies** represent a quantum leap in the sophistication of cancer treatment. Unlike chemotherapy or immunotherapy, which **require mass-produced injectable or oral medication**, CAR T-cell therapies **use a patient's own cells.**
- They are **modified in the laboratory to activate T-cells**, a **component of immune cells,** to attack tumours. These modified cells are then **infused back into the patient's bloodstream** after conditioning them to multiply more effectively.
- The cells are **even more specific** than targeted agents and directly activate the patient's immune system against cancer, making the treatment **more clinically effective.** This is why they're called **'living drugs'.**

Where is it used?

- As of today, CAR T-cell therapy has been approved for **leukaemias** (cancers arising from the cells that produce white blood cells) and **lymphomas** (arising from the lymphatic system).
- These cancers occur through **unregulated reproduction of a single clone of cells:** following the cancerous transformation of a single type of cell, it produces millions of identical copies. As a result, the **target for CAR T-cells is consistent and reliable.**
- CAR T-cell therapy is also presently used among patients with cancers that have returned after an initial successful treatment or which haven't responded to previous combinations of chemotherapy or immunotherapy.
- Its **response rate is variable.** In certain kinds of leukaemias and lymphomas, the efficacy is as high as 90%, whereas in other types of cancers it is significantly lower.
- The **potential side-effects are also significant**, associated with

cytokine release syndrome (a widespread activation of the immune system and collateral damage to the body's normal cells) and **neurological symptoms** (severe confusion, seizures, and speech impairment).

How widespread is its use?

- The **complexity of preparing CAR T-cells** has been a major barrier to their use.
- The **technical and human resources** required to administer this therapy are also considerable.

Why in News?

- **ImmunoACT**, an IIT Bombay incubated company, has received approval from Indian drug regulator the **Central Drugs Standard Control Organization (CDSCO)** for its CAR-T cell therapy **NexCAR19** for the treatment of certain types of blood cancers.
- It is **India's first indigenously-developed CAR-T cell therapy** to be approved by CDSCO, paving the way for its commercial launch of NexCAR19 in the country.
- NexCar19 is designed to target cancer cells that carry the **CD19 protein.** This protein acts like a flag on cancer cells, which allows CAR-T cells to recognise and attach themselves to the cancer cells and start the process of elimination.
- Abroad, the CAR-T cell therapy costs around ₹3-4 crore per patient. The NexCAR19 will be ₹30-40 lakh per patient.

Related Information
About CDSCO

- The Central Drugs Standard Control Organization is the **Central Drug Authority** for discharging functions assigned to the Central Government under the **Drugs and Cosmetics Act, 2008.**

- Main function of CDSCO are **approval of New Drugs, Clinical Trials** in the country, **laying down the standards for Drugs**, **control over the quality of imported Drugs**, **coordination** of the activities of State Drug Control Organisations and providing **expert advice** with a view of bring about the uniformity in the enforcement of the Drugs and Cosmetics Act.

2) White phosphorus
What is white phosphorus?

- White phosphorus is a **pyrophoric substance** that **ignites when exposed to oxygen**, producing **thick, light smoke** as well as **intense 815-degree Celsius heat.**
  - Pyrophoric substances are those which **ignite spontaneously (under five minutes) when in contact with air.**

What are the military uses of white phosphorus?

- White phosphorus is dispersed in **artillery shells, bombs, and rockets.**
- Its primary military use is as a **smokescreen** — used to hide troop movement on the ground. The smoke acts as a visual obscurant.
- Upon exposure, white phosphorus can cause **severe burns**, often down to the bone. White phosphorus burns on even 10 per cent of the body can be fatal.
- Inhaling white phosphorus particles or smoke can cause **respiratory damage and harm to internal organs.**

Why in News?

- Global human rights organisations Amnesty International and Human Rights Watch have accused the Israel Defense Forces (IDF) of using

white phosphorus munitions in Gaza and Lebanon, in **violation of International Humanitarian Law (IHL)**, which lays down the responsibilities of states and non-state groups in an armed conflict.

What is the legal status of white phosphorus munitions?

- White phosphorus munitions **are not under a blanket ban,** though their **use is regulated under the International Humanitarian Law.**
- The **Convention on Certain Conventional Weapons (CCW)** imposes restrictions on the use of incendiary weapons, including white phosphorus, with the aim of safeguarding civilians.

Related Information
About International Humanitarian Law

- IHL is a set of rules that **seek to limit the effects of armed conflict.**
- It lays out the **responsibilities of states and non-state armed groups** during an armed conflict.
- It requires, among other things:
  - the rapid and unimpeded passage for humanitarian aid during armed conflicts;
  - the freedom of movement for humanitarian workers in conflict areas;
  - the protection of civilians (including medical and humanitarian workers);
  - the protection of refugees, prisoners, and the wounded and sick.

Why is this important?
- The rules are designed to **protect civilians and humanitarian and medical workers** during armed conflicts in any part of the world.
- IHL is based on the **1949 Fourth Geneva Convention on protecting civilians in conflict** and the **1977 and 2005 Additional Protocols.**

About Convention on Certain Conventional Weapons

- The UN Convention on Certain Conventional Weapons entered into force in 1983.
- Its purpose is to **prohibit or restrict the use of certain conventional weapons,** which may be deemed to be excessively injurious or to have indiscriminate effects in declared wars and other armed conflicts.
- The Convention is composed of a **framework instrument** and **five individual protocols** that regulate specific categories of weapons.
- The Convention has a total of 126 States Parties (including **India**).

3) Multimodal artificial intelligence
What is multimodal AI?

- Multimodal AI is artificial intelligence that **combines multiple types, or modes, of data to create more accurate determinations, draw insightful conclusions or make more precise predictions about real-world problems.**
- Multimodal AI systems train with and use **video, audio, speech, images, text and a range of traditional numerical data sets** to help AI establish content and better interpret context, something missing in earlier AI.

How does multimodal AI differ from other AI?

- The fundamental difference between multimodal AI and traditional single modal AI is the **data**.
- A single modal AI is generally designed to work with a **single source or type of data.** For example, a financial AI uses business financial data, along with broader economic and industrial

sector data, to perform analyses, make financial projections or spot potential financial problems for the business. That is, the **single modal AI is tailored to a specific task.**

- On the other hand, **multimodal AI ingests and processes data from multiple sources**, including video, images, speech, sound and text, allowing more detailed and nuanced perceptions of the particular environment or situation.
- In doing this, **multimodal AI more closely simulates human perception.**

Applications of multimodal AI

- **Manufacturing**: It can be leveraged to improve quality control, predictive maintenance, and supply chain optimization. By incorporating audio visual data, **manufacturers can identify defects in products and optimize manufacturing processes,** leading to improved efficiency and reduced waste.
- **Language processing**: For example, a system identifies signs of stress in a user's voice and combines that with signs of anger in the user's facial expression to tailor or temper responses to the user's needs. Similarly, combining text with the sound of speech can help an AI improve pronunciation and speech in other languages.
- **Computer vision**: Combining multiple data types helps the AI **identify the context of an image and make more accurate determinations**. For example, the image of a dog combined with the sounds of a dog are more likely to result in the accurate identification of the object as a dog.
- **Agriculture**: It can help **monitor crop health, predict yields, and optimize farming practices**. By

integrating satellite imagery, weather data, and soil sensor data, farmers can gain a richer understanding of crop health and optimize irrigation and fertilizer application, resulting in improved crop yields and reduced costs.

Why in News?

- Multimodal AI is often mentioned in the news.

4) Psyche Mission

What's in the news?

- NASA has launched its highly anticipated **Psyche spacecraft** atop a SpaceX Falcon Heavy rocket, known as the most potent operational rocket globally.
- The Psyche mission is part of **NASA's Discovery Program,** which focuses on competitively selected, cost-effective missions aimed at exploring our solar system.

About the Mission

- The Psyche spacecraft is traveling to a **unique metal-rich asteroid with the same name**, **orbiting the Sun between Mars and Jupiter.**
- The **asteroid Psyche** is a distinctive, **metal-rich celestial body**, measuring approximately 173 miles (279 kilometers) in width.
- Scientists believe it may be the **exposed core of an early planet** that never reached full formation.
- By 2029 the spacecraft will begin exploring this asteroid and unraveling the mysteries surrounding its **origin, structure, composition, and magnetic field.**

5) Egypt is racing to eliminate hepatitis C

About Hepatitis

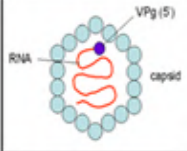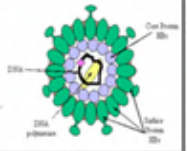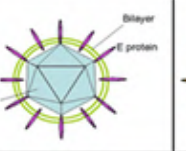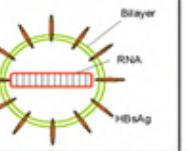- Hepatitis refers to an inflammatory condition of the liver. Usually

caused by a **viral infection**, but there exists **other possible causes** of hepatitis which are autoimmune responses, medications, drugs, toxins, and alcohol.

- There are **5 main hepatitis viruses**, referred to as types **A, B, C, D, and E.**
    - In particular, **types B and C lead to chronic disease** in hundreds of millions of people and, together, are the most common cause of liver cirrhosis and cancer.
    - **Hepatitis A and E** are typically caused by **ingestion of contaminated food or water**.
    - **Hepatitis B, C and D** usually occur as a result of **parenteral contact with infected body fluids.** Common modes of transmission for these viruses include receipt of contaminated blood or blood products, invasive medical procedures using contaminated equipment and for **hepatitis B** transmission from mother to baby at birth, from family member to child, and also by sexual contact.
- Acute infection may occur with limited or no symptoms, or may include symptoms such as jaundice (yellowing of the skin and eyes), dark urine, extreme fatigue, nausea, vomiting and abdominal pain.

	Hepatitis A Virus (HAV)	Hepatitis B Virus (HBV)	Hepatitis C Virus (HCV)	Hepatitis D Virus (HDV)	Hepatitis E Virus (HEV)
Name of Virus	Hepatitis A Virus (HAV)	Hepatitis B Virus (HBV)	Hepatitis C Virus (HCV)	Hepatitis D Virus (HDV)	Hepatitis E Virus (HEV)
Classification	Picornavirus	Hepadnavirus	Flavivirus	Deltavirus	Hepevirus
Viral genome	ssRNA	dsDNA	ssRNA	-ssRNA (-ve)	ssRNA
Transmission	Enteric	Parental	Parental	Parental	Enteric
Incubation period	15-45 days	45-160 days	15-150 days	30-60 days	15-60 days
Chronic Hepatitis	No.	Yes. 10% chance	Yes. >50% chance	Yes. <5% of coinfectious >80% of superinfectious	No.
Cure?	No cure. Treatments usually tackle the symptoms.	No cure. Treatments usually tackle the symptoms.	No cure. Treatments usually tackle the symptoms.	No cure. Treatment: Alpha interferon for 12 months.	No cure. Treatments usually tackle the symptoms

Vaccines

- There are vaccines to prevent **Hepatitis A** and **Hepatitis B**; however, there is **no vaccine for hepatitis C.**
- In India, **Hepatitis B vaccine** is provided under the Universal Immunization Programme (UIP). Hepatitis B vaccine also provides protection from **Hepatitis D virus (HDV) infection.**
- A vaccine to prevent **Hepatitis E virus infection** has been

developed and is licensed in China, but is not yet available elsewhere.

Why in News?

- WHO has announced that Egypt had made "unprecedented progress" towards eliminating hepatitis C.
- Egypt had undertaken the **"100 Million Healthy Lives" initiative** through which the country significantly reduced the prevalence of hepatitis C from 10% in 2016 to 5% in 2018 and an estimated less than 1% in 2019.
- Hepatitis C infection is **unevenly distributed globally**, with these regions accounting for the most — European (22%), South-East Asia (20%) and the Eastern Mediterranean (17%).
- Though **unscreened blood and blood products and inadequate sterilisation** of medical equipment in health-care settings are two important routes of virus transmission, the most common route of virus spread is through **unsafe injection practices** such as sharing needles, syringes, or any other equipment to inject drugs. The use of safe injections has however reduced new hepatitis C infections.

6) Kala Azar

What is it?

- **Kala-azar or visceral leishmaniasis (VL)** is a **tropical parasitic disease** characterised by irregular fever, weight loss, anaemia and swelling of the spleen and liver.
- A chronic and potentially fatal disease, VL is caused by a **protozoan Leishmania parasite** and is transmitted to humans by the bite of infected **female sandflies**.

- According to WHO, globally, about 7 to 10 lakh new cases occur annually. **India accounts for about two-thirds** of the total global cases, and the disease is **endemic to Bihar, Jharkhand, Uttar Pradesh and West Bengal**.
- The disease affects some of the poorest people and is linked to malnutrition, population displacement, poor housing, a weak immune system and a lack of financial resources.
- Leishmaniasis is also **linked to environmental changes** such as deforestation, and urbanisation, according to WHO.
- Kala azar, also known as **black fever**, is one of the most dangerous **neglected tropical diseases (NTDs).**
  - *Refer Pulse August 2023 Digest edition: "Lymphatic filariasis" topic - for details about NTDs.*

What does the treatment include?

- Leishmaniasis is a **treatable and curable disease**, which requires an immunocompetent system and thus **those having a weak immune system are prone to get severely affected.**
- **Anti-leishmanial medicines** are available for treatment. **Vector control** is also recommended by the WHO, which means reducing or interrupting the transmission of disease by decreasing the number of sandflies in surroundings through insecticide spray, use of insecticide-treated nets, etc.
- The government aimed to eliminate the disease in India by 2015, but that deadline was missed. However, the number of cases has been brought down significantly through the **National Kala-Azar Elimination Programme.**

- Medicines, insecticides and technical support are given by the central government, while state governments provide for costs involved in implementation.

Why in News?

- Several districts of Nepal reported rising cases of Kala-Azar disease.

Reports and Indices

1) Global Innovation Index 2023

About the Index

- Global Innovation Index (GII) is co-published annually by **Cornell University**, **INSEAD Business School**, and the **World Intellectual Property Organization (WIPO),** a specialized agency of the United Nations.
- GII **ranks global economies according to their innovation capabilities**, using **80+ indicators**.
- The metrics include institutions, human capital and research, infrastructure, market sophistication and business sophistication, knowledge and technology outputs and creative outputs.
- Over the years, the GII has established itself as a policy tool for various governments and helped them to reflect upon the existing status quo.

Why in News?

- WIPO has published its Global Innovation Index for the year 2023.

Highlights of the Index

- **Switzerland** – for a 13th year – ranks first in the index. **Sweden** is now second and the **United States** is in third, followed by the **United Kingdom** and **Singapore**.
- India has retained **40th rank out of 132 economies** in 2023 Index. India has been on a **rising trajectory,** over the past several years in GII, from a **rank of 81 in 2015 to 40 in 2023.**
- India was also highlighted as the **top innovation economy among the lower-middle-income countries**, followed by Vietnam and Ukraine.

- India holds top rankings in key indicators, including **ICT services exports** (at place 5), **Venture capital received** (6), **graduates in science and engineering** (11) and **global corporate R&D investors** (13).
- The broad areas where a lot of improvement needs to happen are **infrastructure** (84th rank), **business sophistication** (57) and **institutions** (56).
- Apart from India, only four other middle-income economies are among the top 40, namely, China (12th), Malaysia (36th), Bulgaria (38th), and Türkiye (39th).

2) Global Hunger Index 2023

What is it?

- The Global Hunger Index is an annual score ranking countries of the world on hunger levels.
- The Index is a peer-reviewed report released annually by **Concern Worldwide**, Ireland based humanitarian agency and **Welthungerhilfe**, one of the largest private aid organisations in Germany.
- The GHI determines hunger on a **100-point scale**, where 0 is the best possible score (no hunger) and 100 is the worst. Each country's GHI score is classified by severity, from low to extremely alarming.
- It is based on 4 indicators:
    - **Undernourishment** - population with inadequate food availability
    - **Child wasting** - the share of children under the age of five who have low weight for their height, reflecting acute undernutrition

- o **Child stunting** - children under the age of five who have low height for their age, reflecting chronic undernutrition
- o **Child mortality** - the mortality rate of children under the age of five.
- The reason for mapping hunger is to ensure that the world achieves **"Zero Hunger by 2030"** — one of the Sustainable Development Goals laid out by the United Nations. It is for this reason that GHI scores are **not calculated for certain high-income countries.**

Why in News?
- The Global Hunger Index (GHI) 2023 was released recently.

## Highlights of the Index
Global Status
- The 2023 GHI shows that, after many years of advancement up to 2015, **progress against hunger worldwide remains largely at a standstill**.
- The **2023 GHI score for the world is 18.3**, considered moderate and less than one point below the world's 2015 GHI score of 19.1.
- The compounding impacts of **climate change, conflicts, economic shocks, the global pandemic,** and the **Russia-Ukraine war** have exacerbated social and economic inequalities and slowed or reversed previous progress in reducing hunger in many countries.
- **South Asia and sub-Saharan Africa** are the global regions characterised by the **most severe hunger levels**, both holding a **GHI score of 27**, signifying a serious state of hunger.

Scenario in India
- **India** has been ranked at the **111th position out of 124 countries**, with neighbouring Pakistan

(102th), Bangladesh (81st), Nepal (69th) and Sri Lanka (60th) faring better than it in the index. The country slipped four notches from its **107th position in 2022.**
- **India scored 28.7** on the GHI, classifying it under the **'serious' hunger category.**

GHI Score Trend for India
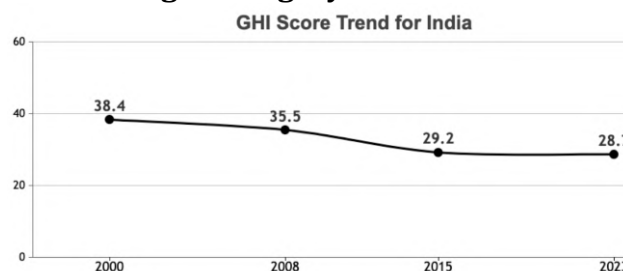
- **India topped** the list of countries with the **highest child-wasting rate** in the world, at **18.7 per cent**, reflecting acute undernutrition.
- As far as **child stunting** goes, India comes in the category of **'very high' risk countries. More than 35% of children have been marked stunted** in India.
- With about **16.6% of the overall population undernourished**, India's levels of undernourishment have been marked as of **'medium' risk.** And, in **under-5 mortality,** India has been categorised as a country with **'low risk',** with about **3.1% of children dying before the age of five.**
- The **prevalence of anaemia among women aged 15-24** has been reported as a major problem for the country. **More than 50% of women and adolescents are anaemic** in the country – one of the highest across the world.

India's Response
- The Union government, however, **rejected the findings of the report**, calling the methodology "an erroneous measure of hunger with serious methodological issues".
- **Poshan Tracker**, a mobile-based application rolled out by the Union

Ministry of Women and Child Development, consistently reports a **child wasting rate of less than 7.2 per cent each month,** against the 18.7 per cent recorded in GHI.

3) Periodic Labour Force Survey Annual Report

About PLFS

- In India, the **National Statistical Office (NSO)** has been **quinquennially** (over a period of five years) collecting data on employment and unemployment but from **2017** onwards, the Periodic Labour Force Survey (PLFS) was **launched by the NSO** to provide **quarterly employment and unemployment data.**
  - *The NSO is a wing of the Ministry of Statistics and Programme Implementation.*
- Under the PLFS, households are selected in **both rural and urban areas** by providing **75 per cent weightage** to households where at least one member has **secondary education (Class 10) or above.**
- PLFS is India's **first computer-based survey** which gives estimates of Key employment and unemployment indicators such as:
  - **Labour Force Participation Rate (LFPR)**: LFPR is defined as the percentage of persons in the labour force (i.e. working or seeking or available for work) in the population.
  - **Worker Population Ratio (WPR):** WPR is defined as the percentage of employed persons in the population.
  - **Unemployment Rate (UR):** UR is defined as the percentage of persons unemployed among the persons in the labour force.

- **Activity Status-Usual Status:** The activity status of a person is determined on the basis of the activities pursued by the person during the specified reference period. When the activity status is determined on the **basis of the reference period of the last 365 days preceding the date of survey**, it is known as the usual activity status of the person.
  - **Activity Status-Current Weekly Status (CWS):** The activity status determined on the **basis of a reference period of last 7 days preceding the date of survey** is known as the current weekly status of the person.
- The PLFS also gives the **distribution of educated and unemployed people,** which in turn can be used as a basis for skilling of youth to make them more employable by industry.
- It also provides data on the **earnings of different segments of workers.**

Objective of PLFS

- The objective of PLFS is primarily twofold:
  - to **estimate the key employment and unemployment indicators** in the **short time interval of three months for the urban areas only** in the **Current Weekly Status.**
  - to **estimate employment and unemployment indicators** in **both Usual status and CWS in both rural and urban areas annually.**

Why in News?

- The National Statistical Office has released its Periodic Labour Force Survey Annual Report 2022-2023.

Highlights of the Report

- India's **Unemployment Rate (UR)** for persons aged 15 years and above at the all-India level came down to **six-year low of 3.2 per cent** in 2022-23 from 4.1 per cent in 2021-22.
  - In **rural areas**, UR decreased from 5.3 per cent in 2017-18 to **2.4 per cent** in 2022-23 while for **urban areas** it decreased from 7.7 per cent to **5.4 per cent.** The **UR for male** in India decreased from 6.1 per cent in 2017-18 to **3.3 per cent** in 2022-23 and corresponding decrease in **UR for females** was from 5.6 per cent to **2.9 per cent**.

- The survey also showed that the **Labour Force Participation Rate (LFPR) in usual status** for persons of age 15 years and above **increased to 58 per cent** from 50 per cent in 2017-18.
  - LFPR: **Rural areas - 61 per cent, urban areas - 50 per cent, male - 79 per cent, female - 37 per cent**.
- The **Worker Population Ratio (WPR) in usual status** for persons of age 15 years and above also increased to **56 per cent** in 2022-23 from 47 per cent in 2017-18.
  - WPR: **Rural areas - 59 per cent, urban areas - 48 percent, male - 76 per cent, female - 35 per cent.**
- While **about 80 per cent** of those working in rural India are **self-employed or casual workers,** the **proportion is over half even in urban India**.

Figure 5: Percentage distribution of workers in usual status (ps+ss) in rural areas by status in employment estimated from PLFS 2022-23

rural male

casual labour, 26.8%

regular wage/ salaried 14.3%

self-employed, 58.8%

rural female

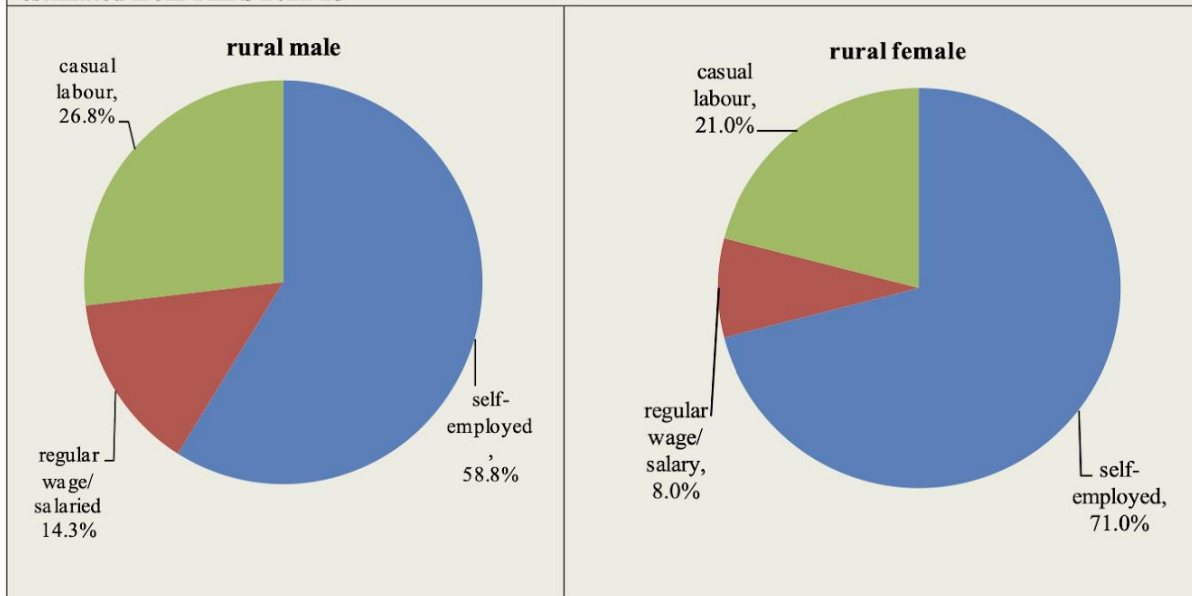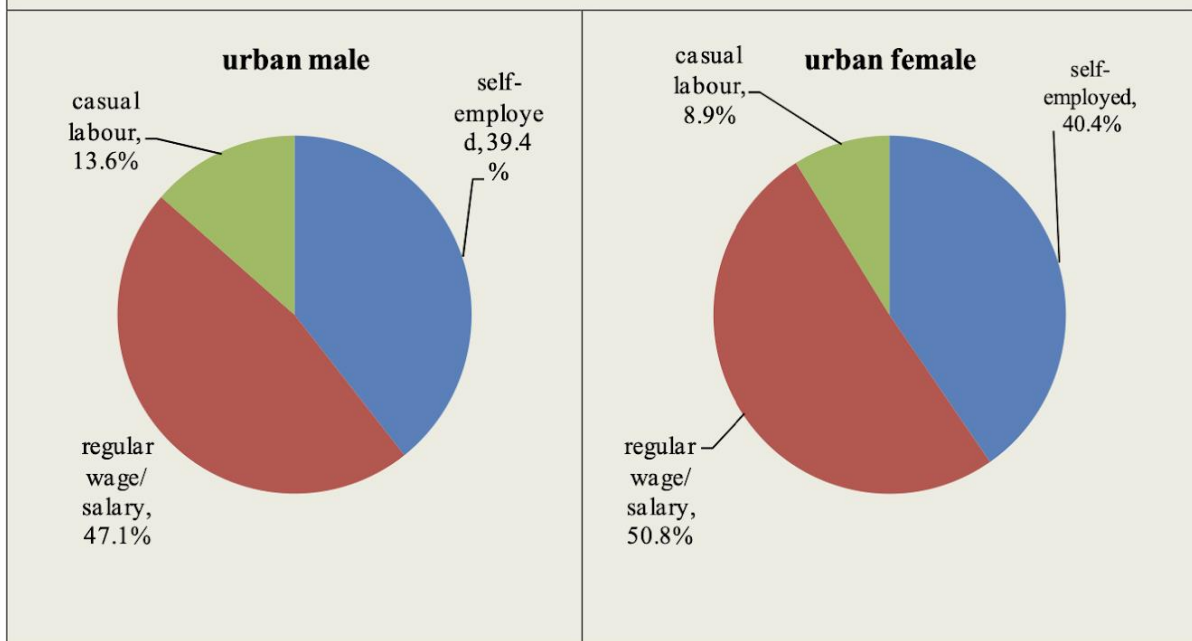casual labour, 21.0%

regular wage/ salary, 8.0%

self-employed, 71.0%

Figure 6: Percentage distribution of workers in usual status (ps+ss) in urban areas by status in employment estimated from PLFS 2022-23

urban male

casual labour, 13.6%

self-employed, 39.4%

regular wage/ salary, 47.1%

urban female

casual labour, 8.9%

self-employed, 40.4%

regular wage/ salary, 50.8%

Statement 7: Percentage distribution of workers in usual status (ps+ss) by broad industry division estimated from PLFS (2020-21), PLFS (2021-22) and PLFS (2022-23)

all-India

broad industry division as per NIC 2008	rural			urban			rural+urban		
	male	female	persons	male	female	person	male	female	person
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
PLFS (2022-23)									
agriculture	49.1	76.2	58.4	4.7	11.7	6.4	37.1	64.3	45.8
mining & quarrying	0.4	0.1	0.3	0.6	0.1	0.5	0.4	0.1	0.3
manufacturing	8.2	8.3	8.2	20.5	23.9	21.3	11.6	11.1	11.4
electricity, water, etc.	0.5	0.1	0.4	1.3	0.5	1.1	0.7	0.2	0.5
construction	19.0	4.2	13.9	12.6	3.1	10.3	17.3	4.0	13.0
trade, hotel & restaurant	10.5	4.1	8.3	26.5	15.2	23.8	14.8	6.2	12.1
transport, storage & communications	5.3	0.2	3.5	13.2	5.5	11.4	7.4	1.2	5.4
other services	7.0	6.9	7.0	20.6	40.1	25.3	10.7	13.0	11.4
all	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

- In **rural India**, **58.4 per cent of the jobs are in agriculture**, while construction, manufacturing, trade and restaurants account for 13.9 per cent, 8.2 per cent and 8.3 per cent, respectively. In **urban India**, **trade and hotels, at 23.8 per cent, is the largest employer,** followed by manufacturing and construction.

- The PLFS points to the **need to upgrade skills** across rural and urban India to cater to India's growth ambitions.

Polity

1) Central Vigilance Commission

About CVC

- The Central Vigilance Commission (CVC) was established in 1964 as an **apex body for exercising general superintendence and control over Vigilance Administration,** through the **Government of India Resolution.**
- It was set up on the recommendations of the Committee on Prevention of Corruption, popularly known as the **Santhanam Committee.**
- In 2003, the Parliament enacted the **CVC Act 2003** conferring **statutory status** on the CVC.
- The CVC is **not controlled by any Ministry/Department.** It is an **independent body which is only responsible for the Parliament.**

Composition

- The Commission consists of a **Central Vigilance Commissioner** and **not more than two Vigilance Commissioners.**
- The Central Vigilance Commissioner and the Vigilance Commissioners are appointed by the **President** on **recommendation of a Committee** consisting of the **Prime Minister**, the **Minister of Home Affairs** and the **Leader of the Opposition** in the Lok Sabha.
- The tenure of a CVC and vigilance commissioner is of **four years** or till the incumbent attains the **age of 65 years.**

Functions & Powers of CVC:

- To **deal with the complaints against employees of Central Government and Central Government controlled organisations** including PSBs, PSUs and UTs.

- To **supervise the work of CBI** related to investigation of offences under the **Prevention of Corruption Act, 1988;**
- To tender **independent and impartial advice** to the disciplinary and other authorities in disciplinary cases, involving vigilance angle.
- To exercise a **general check and supervision over vigilance and anti-corruption work** in Ministries or Departments of the Government of India.

Why in News?

- The Central Vigilance Commission is observing the Vigilance Awareness Week 2023 from 30th October to 5th November, 2023.

2) Right to Information Act

About RTI Act, 2005

- Under the Right to Information Act, 2005, **Public Authorities** are required to make disclosures on various aspects of their structure and functioning.
  - This includes: (i) disclosure on their organisation, functions, and structure, (ii) powers and duties of its officers and employees, and (iii) financial information.
- The intent of such *suo moto disclosures* is that the public should need minimum recourse through the Act to obtain such information. If such information is not made available, citizens have the **right to request** it from the Authorities.
- This may include information in the **form of documents, files, or electronic records** under the control of the Public Authority. The intent behind the enactment of the Act is to **promote transparency**

and accountability in the working of Public Authorities.

Who is included in the ambit of 'Public Authorities'?

- The RTI Act defines "public authorities" in **Section 2(h).**
- A **"public authority"** means **any authority or body or institution of self- government established or constituted**
  o by or under the Constitution;
  o by any other law made by Parliament;
  o by any other law made by State Legislature;
  o by notification issued or order made by the appropriate Government, and includes any –
  o body owned, controlled or substantially financed;
  o Non-Government organization substantially financed, directly or indirectly by funds provided by the appropriate Government.

Section 8 of the RTI

- This provides for **exemption from disclosure of information** that are more valid in reasons
  o Which would affect the sovereignty and integrity of India, the security, strategic, scientific or economic interests of the State;
  o Which has been expressly forbidden to be published by any court of law or tribunal;
  o Which would cause a breach of privilege of Parliament or the State Legislature;
  o Information including commercial confidence, trade secrets or intellectual property;
  o Information received in confidence from foreign government;
  o Information which would endanger the life or physical safety of any person; etc.

How is the right to information enforced under the Act?

- The Act has established a **three tier structure** for enforcing the right to information guaranteed under the Act.
- The first request for information goes to the **Central/State Assistant Public Information Officer** and **Central/State Public Information Officer**, designated by the Public Authorities. These Officers are required to provide information to an RTI applicant **within 30 days** of the request. If information sought **concerns the life or liberty of a person,** it shall be supplied within **48 hours.**
- Appeals from their decisions go to an **Appellate Authority**.
- Appeals against the order of the Appellate Authority go to the **State Information Commission or the Central Information Commission**. These Information Commissions consist of a **Chief Information Commissioner, and up to 10 Information Commissioners.**

Section 4(2) of the RTI

- It mandates that different authorities and government departments should **voluntarily disclose *(suo motu)* much information to the public at regular intervals through various means**, including the internet, so that the public have minimum resort to the use of this Act to obtain information.

Fee

- There is an **application fee** that **varies for the Centre and for States.**

- For **public authorities under the Central Government**, this is **Rs. 10.**

Why in News?

- According to a report released by Satark Nagrik Sangathan (SNS), a citizens' group working to promote transparency and accountability in governance, more than three lakh appeals and complaints are pending in 27 State Information Commissions across the country and the backlog has been steadily increasing.
- Of the 3,21,537 pending appeals, the maximum number was reported in **Maharashtra** (1,15,524) followed by **Karnataka** (41,047).
- **Four Information Commissions** — Jharkhand, Telangana, Mizoram and Tripura — are **defunct** as no new Information Commissioners were appointed upon incumbents demitting office.
- An analysis of penalties imposed by Information Commissions shows that the commissions did not impose penalties in 91% of the cases where they could have been imposed.

3) MTP (Amendment) Act, 2021
About MTP Amendment Act 2021

- According to the **Medical Termination of Pregnancy (MTP) Amendment Act 2021,** the **opinion of only one registered medical practitioner** will be required for the **abortion of a foetus up to 20 weeks of gestation** and of **two for the termination of pregnancy from 20 to 24 weeks of gestation.**
- The **opinion of a state-level medical board** is required for abortions **over 24 weeks,** in case of **suspected foetal abnormalities.**

  - Each board will have one gynaecologist, one radiologist or sonologist, one paediatrician, and other members prescribed by the State/UT government.

How is the 2021 law different from the earlier 1971 MTP Act?

- The 2021 Act **increased the upper gestation limit from 20 to 24 weeks for special categories of women,** including survivors of rape, victims of incest and other vulnerable women like differently abled and minors.
- A **confidentiality clause** was added which said that the name and other particulars of a woman whose pregnancy has been terminated cannot be revealed except to a person authorised by law.
- It also **extended MTP services**, under the clause of **failure of contraceptive,** to **unmarried women** to provide access to safe abortion based on a woman's choice, irrespective of marital status.

Why in News?

- The Supreme Court has declined a married woman's plea to medically terminate her 26-week pregnancy, saying the court is averse to ordering doctors to abort when medical reports found "no substantial foetal abnormalities".
- The court made it clear that the **woman cannot claim an "absolute, overriding right" to abort,** especially when multiple reports from the medical board have confirmed that the pregnancy was neither a cause of immediate danger to her life nor that of the foetus.

4) Criminal Procedure (Identification) Act, 2022

Background

- Last year, the Parliament passed the Criminal Procedure (Identification) Act, 2022.

Key Features of the Act

- The Act repeals **The Identification of Prisoners Act, 1920.** The over 100-year-old Act's scope was limited to capturing of finger impression, foot-print impressions and photographs of convicted prisoners and certain categories of arrested and non-convicted persons on the order of a Magistrate.
- The new Act will allow police and prison authorities to **collect, store and analyse physical and biological samples including retina and iris scans of convicted, arrested and detained persons.**
- The Act expands:
  - the type of data that may be collected,
  - persons from whom such data may be collected, and
  - the authority that may authorise such collection.

Comparison of key provisions of the 1920 Act and the 2022 Act

Provisions	Identification of Prisoners Act, 1920	Changes in the 2022 Act
1. **Data permitted to be collected**	• Fingerprints, foot-print impressions, photographs	• Adds: (i) biological samples, and their analysis, (ii) behavioural attributes including signatures, handwriting, and (iii) examinations under sections 53 and 53A of CrPC (includes blood, semen, hair samples, and swabs, and analyses such as DNA profiling)
2. **Persons whose data may be collected**	• Convicted or arrested for offences punishable with rigorous imprisonment of one year or more; • Persons ordered to give security for good behaviour or maintaining peace; • Magistrate may order in other cases collection from any	• Convicted or arrested for any offence. However, **biological samples may be taken forcibly only from persons arrested for offences against a woman or a child, or if the offence carries a minimum of seven years imprisonment.** • Persons detained under any **preventive detention law;** • On the order of Magistrate, from **any person** (not just an arrested person) to aid

	arrested person to aid criminal investigation.	investigation.
3. Persons who may require/ direct collection of data	• Investigating officer, officer in charge of a police station, or of rank Sub-Inspector or above; • Magistrate.	• Officer in charge of a police station, or of rank **Head Constable or above.** In addition, a **Head Warder** of a prison; • **Metropolitan Magistrate or Judicial Magistrate of first class.** In case of persons required to maintain good behaviour or peace, the **Executive Magistrate.**

Other Key Provisions
- The **National Crime Records Bureau (NCRB)** will be the central agency to maintain the records. It will **share the data with law enforcement agencies.** Further, states/UTs may notify agencies to collect, preserve, and share data in their respective jurisdictions.
- The data collected **will be retained in digital or electronic form for 75 years.** Records will be **destroyed in case of persons who are acquitted** after all appeals, or released without trial. However, in such cases, a Court or Magistrate may direct the retention of details after recording reasons in writing.

Concerns
- When the Bill was debated in Parliament, the Opposition members termed it **"unconstitutional"** and an **attack on privacy** as it allowed the record of samples of even political detainees.
- However, the rules notified recently state that **samples of those detained under preventive Sections** such as 107, 108, 109, 110, 144, 145 and 151 of the CrPC **shall not be taken unless** such person is charged or arrested in **connection with any other offence punishable under any other law.**

Why in News?
- More than a year after the Criminal Procedure Identification Act (CrPI) was passed by Parliament, the **National Crime Records Bureau (NCRB)** is all set to roll out **'DNA and Face Matching' systems** at 1,300 police stations across the country.
- Under the **National Automated Fingerprint Identification System (NAFIS),** another project maintained and managed by NCRB, workstations and scanners have been put up at around 1,300 police stations.
- NAFIS has fingerprint details, a **unique 10-digit number of over 1 crore people**, accused and convicts, across the country. This database is also being **integrated with the Criminal Procedure Identification Act.**

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o *Conceptualized and managed by the NCRB, NAFIS project is a country-wide **searchable database of crime- and criminal-related fingerprints.** It enables law enforcement agencies to upload, trace, and retrieve data from the database in real time on a 24×7 basis.*

o *NAFIS assigns a unique **10-digit National Fingerprint Number (NFN)** to each person arrested for a crime. This unique ID will be used for the person's lifetime, and different crimes registered under different FIRs will be linked to the same NFN.*

Related Information
About NCRB

- NCRB was set-up in **1986** to function as a **repository of information on crime and criminals** so as to assist the investigators in linking crime to the perpetrators.

- Headquartered in **New Delhi**, NCRB functions under the **Ministry of Home Affairs.**

- NCRB has been entrusted with the responsibility for monitoring, coordinating and implementing the **Crime and Criminal Tracking Network & Systems (CCTNS) project.**

  o CCTNS project aims to inter-link all police stations under a common application software for the purpose of investigation, data analytics, research, policy making and providing Citizen Services such as reporting & tracking of complaints, request for antecedent verifications by Police etc.

- NCRB also compiles and publishes **National Crime Statistics, Accidental Deaths & Suicides and also Prison Statistics.**

International Relations

1) Israel-Palestine Conflict

Background

- **Britain** took control of the area known as **Palestine** after the ruler of that part of the Middle East, the **Ottoman Empire**, was defeated in **World War 1.** The land was inhabited by a **Jewish minority and Arab majority.**
- Tensions between the two peoples grew when the international community gave **Britain the task of establishing a "national home" in Palestine for Jewish people.** For Jews, it was their ancestral home, but Palestinian Arabs also claimed the land and opposed the move.
- Between the 1920s and 40s, the number of Jews arriving there grew, with many fleeing from persecution in Europe and seeking a homeland after the **Holocaust of WWII.** Violence between Jews and Arabs, and against British rule, also grew.
- In **1947**, the **UN voted for Palestine to be split into separate Jewish and Arab states, with Jerusalem becoming an international city.**
- That plan was accepted by Jewish leaders but rejected by the Arab side and never implemented.

Major Issues

- **Jerusalem** lies in the heart of the Israel-Palestine conflict. The tussle is over who gets to control the ancient city that is **sacred to Jews, Muslims and Christians.**
- After the end of the **First Arab-Israel War in 1948,** Jerusalem was partitioned into West and East, under Israeli and Palestinian control respectively.
- But in 1967, during the **Six-Day Arab-Israel War**, Israel occupied East Jerusalem from Jordanian forces, and Israel's Parliament declared the territory had been annexed to Israel.
- This marginalised the Palestinians, who wanted East Jerusalem to be their capital under the **"two-state solution".**
- Most Palestinians, at present, live in **Gaza and the West Bank**, as well as in **neighbouring Jordan, Syria and Lebanon.**

What is the Two-State Solution?

- Its basis is **two separate states, Israel and Palestine, living peacefully side by side** on the land between the western bank of the Jordan river and the Mediterranean Sea.
- This territory would be divided broadly along the **pre-1967 armistice line or "green line". Jerusalem**, which both sides want as their capital, would be shared.
- Past negotiations have failed to make progress and there are currently no fresh talks in prospect.
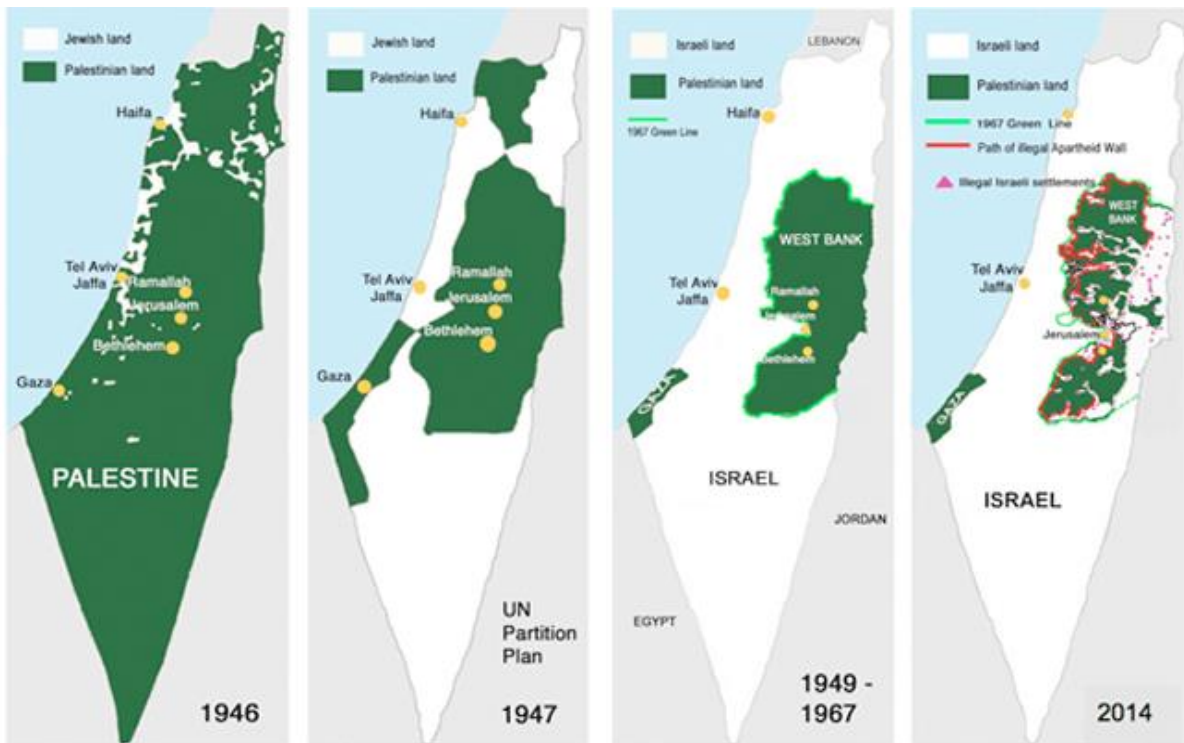
Oslo Accords & India's position

- Despite Israel's hold over Jerusalem, in 2016, the UN reaffirmed that Jerusalem's Palestinian territories were under **"hostile occupation".**
- Undeterred by the refusal of the international community to endorse the annexation, Israel further expanded settlements in the territories of East Jerusalem.
- In 1978, **Egypt and Israel** signed the **Camp David Accords**, which led to the first peace treaty between Israel and any of its Arab neighbors: The **Egypt-Israel Peace Treaty**. However, the accords' main failing is the **lack of settlement of the Israeli-Palestinian issue.**
- Under the **Oslo Accords** of the 1990s, both Israel and the Palestinians agreed that the status of settlements would be decided by negotiations. But the negotiations process has been stalled for several years now.

- **India has traditionally backed a two-state solution** to resolve the Israel-Palestine conflict.

Why in News?

- Israel has declared war on the armed Palestinian group Hamas after its unprecedented attack on Israel which claimed more than 800 Israelis.
  - *Hamas is a militant Palestinian nationalist and Islamist movement dedicated to the establishment of an independent Islamic state in historical Palestine. Hamas has been the de facto*

*governing body in the Gaza Strip since 2007.*

2) G7 Grouping

About G7

- The Group of Seven (G7) is an **informal group of seven of the world's most industrialized and developed economies.**
- Their political leaders come together annually to discuss important global economic, political, social and security issues.
- The G7 draws its roots from a meeting between the current G7 members, excluding Canada, that took place in 1975.

Members

- The G7 member countries are the **United States, Britain, France, Japan, Germany, Italy, and Canada.**
- Unlike the United Nations or NATO, the G7 is **not a formal institution with a charter and a secretariat.**
- The **presidency**, which **rotates annually among member states**, is responsible for setting the agenda of each year's summit.

- The **European Union** is a **"non-enumerated" member** and **does not assume the rotating G7 presidency.**
- **Russia** belonged to the forum from 1998 through 2014, when the bloc was known as the **G8,** but was **suspended** following its annexation of Crimea.
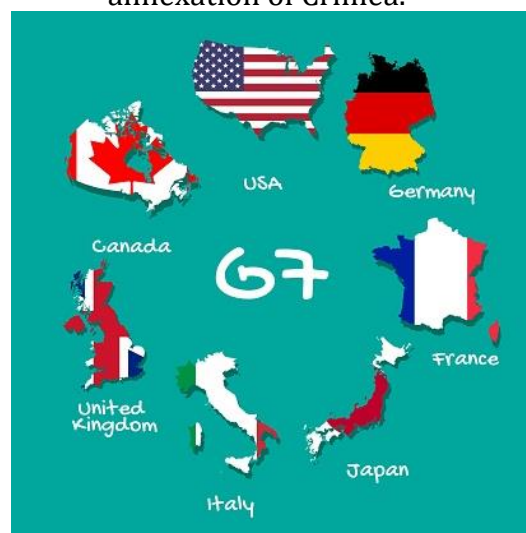
Why in News?

- The G7 Trade Ministers Meeting was recently held in Osaka, Japan.

Art & Culture

1) Durga Puja Festival

About the festival

- Durga Puja is an annual festival celebrated in September or October, most notably in **Kolkata**, in **West Bengal**, but also in other parts of India.
- It marks the **ten-day worship of the Hindu mother-goddess Durga.**
- It is a **five-day event** that begins on the fifth night of the Navratri festival and concludes on Dashami, the tenth day.
- Durga Puja is seen as the best instance of the **public performance of religion and art,** and as a **thriving ground for collaborative artists and designers.**
- The festival is characterized by **large-scale installations and pavilions** in urban areas, as well as by traditional Bengali drumming and veneration of the goddess.
- It is included in UNESCO's **"Representative List of the Intangible Cultural Heritage of Humanity".**
  - *Refer Pulse August 2023 Digest edition: "Kalbelia Dance" topic - for details about the List of the Intangible Cultural Heritage of Humanity.*

Why in News?

- Durga Puja was recently celebrated with immense devotion and grandeur.

2) Jagannath Temple

About the temple

- Jagannath Temple in **Puri, Odisha**, is a revered temple where **Lord Krishna** is worshipped as **Lord Jagannath.**
- It is **one of the Dhamas** (Holiest of the holy place) out of **four Dhamas** i.e. **Puri, Dwarika, Badrinath & Rameswar**, in India.
- The temple was constructed by a famous king of **Ganga Dynasty Ananta Varman Chodaganga Deva** dating back to **12th century** at the seashore Puri.
- The **Jagannath Puri Rath Yatra** is considered as India's biggest chariot festival.

Architecture of the temple

- The temple is built in the **Nagara style** (Sub-school: **Kalinga or Odisha school**) of temple architecture.
- The temple consists of **four structures**: **Vimana** (sanctum sanctorum), **Jagamohana** (the porch or mandap), **Natamandir** (the audience hall) and **Bhogamandap** (bhoga is the food offering made to gods).

- The Vimana is in the style of **Rekha deula** – characterised by a curvilinear tower known as **Shikhara.**
- The Jagamohana is in the form of **Pidha deula** – square building with a pyramid-shaped roof.

- There is a call to unlock the Ratna Bhandar (treasure room) of the Puri Jagannath Temple, which has remained sealed for three decades. Yet, concerns have arisen about cracks in its walls that pose a threat to the valuable ornaments housed within.

3) Nuakhai Juhar
About Nuakhai Juhar
- The word "**Nuakhai**" is derived from two Odia words: "**Nua,**" **meaning new,** and "**Khai,**" **meaning food**.

- Nuakhai Juhar is the festival of **Western Odisha**, **southern Chhattisgarh** and adjoining areas of **Simdega in Jharkhand.**
- It is an **agricultural festival** that marks the season's first harvest and is dedicated to the **worship of food grains.**
- On this day, people visit each other's homes to exchange greetings and blessings. This is known as "**Nuakhai Bhetghat**," where friends and family members come together to share the festive spirit.

Why in News?
- The Nuakhai Juhar Festival was celebrated recently.
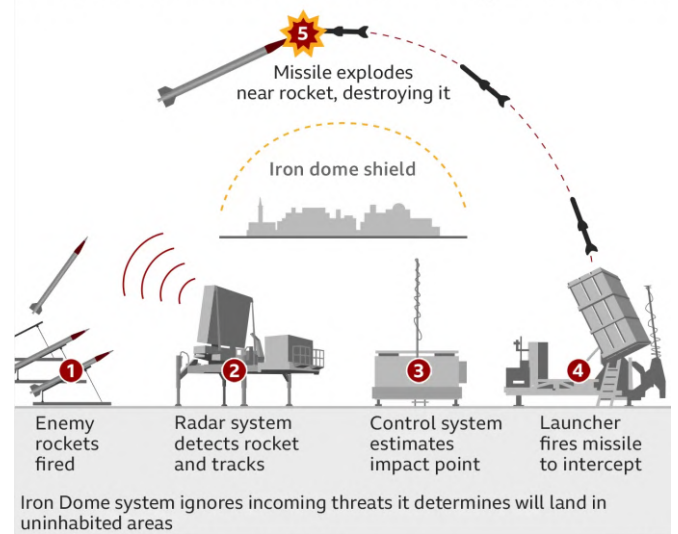
Defence

1) Iron Dome

Context

- The Iron Dome anti-missile system of Israel played a crucial role in defending the country from a multi-pronged attack by Gaza-based militant group Hamas.

About Iron Dome

- Iron Dome is a **short-range anti-rocket, anti-mortar, and anti-artillery system** with an **intercept range of 2.5 to 43 miles** and was developed by **Rafael Advanced Defence Systems of Israel**.
- It consists of a **series of batteries** that **use radar** to detect incoming short range rockets and intercept them. Iron Dome can intercept launches from **4 to 70 kms.**
- Israel has at least 10 Iron Dome batteries deployed throughout the country, each designed to defend a 60-square-mile populated area and can be moved as threats change.
- In the past, Israel has put Iron Dome's interception rate at as high as 97%.

How Israel's Iron Dome defence system works

5	Missile explodes near rocket, destroying it
1	Enemy rockets fired
2	Radar system detects rocket and tracks
3	Control system estimates impact point
4	Launcher fires missile to intercept

Iron Dome system ignores incoming threats it determines will land in uninhabited areas

Source: Rafael Advanced Defense Systems

BBC

Layered air defence

- Israel has a **four-layered air defence network** to tackle a range of projectiles, short-range mortars, rockets and long-range ballistic missiles.
- These comprise the **Iron Dome** (short range), **David's Sling** (low to mid-range), **Arrow II** (upper-atmospheric), and **Arrow III** (exo-atmospheric).

Nobel Prize

1) Background
What is Nobel Prize?
- Nobel Prize is a prestigious prize awarded separately in **six different fields** to those who, during the preceding year, 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).

How and when the Nobel Prize was established?
- **Alfred Nobel**, a Swedish scientist, signed his last will and testament in 1895, giving most of his fortune to prizes in Physics, Chemistry, Physiology or Medicine, Literature and Peace.
- In his will, he gave most of his assets for the establishment of five prizes, which later became Nobel Prizes.
- The first Nobel Prize was given on 10 December, 1901.

Nobel Prize award money
- The award winners are also given a sum of money. The award money has increased over the years and currently stands at **$1.1 million per prize.**

2) Nobel Prize in Physics
What's in the news?
- The 2023 Nobel Prize in Physics has been awarded to **Pierre Agostini, Ferenc Krausz, and Anne L'Huillier** for experimental methods that **generate attosecond pulses of light for the study of electro dynamics in matter.**
- The three Nobel Laureates in Physics 2023 are being recognised for their experiments, which have given humanity new tools for **exploring the world of electrons inside atoms and molecules.**
- They have demonstrated a way to **create extremely short pulses of light** that can be used to measure the rapid processes in which electrons move or change energy.
- Their experiments granted the Laureates to **observe extremely brief events that transpire in a few tenths of attoseconds**—a quintillionth ($10-18$) of a second. An attosecond is so short that there are as many in one second as there have been seconds since the birth of the universe.
- These brief pulses of light can be used to **provide images of what occurs inside atoms and molecules.**
- The research conducted by the Laureates over a span of several decades allowed them to investigate processes that were so rapid that they were previously impossible to follow. This new technology is important to understand and control how electrons behave in a material.

3) Chemistry Nobel Prize
What's in the news?
- The 2023 Nobel Prize in chemistry was awarded to **Moungi G. Bawendi, Louis E. Brus and Alexei I. Ekimov** for the **discovery and synthesis of quantum dots**.

Quantum Dots

- Quantum dots are particles that are a **few nanometres wide.** They **exhibit unique optical properties** due to their small physical size.
- **At the scale of nanometres**, materials and particles are capable of **new, size-dependent properties because quantum physical forces start to dominate.**
- At the **macroscopic scale**, on the other hand, like in our day to day lives, **gravity and the rules of classical physics dominate.**

What is the reason behind it?

- This was mainly because electrons were **constrained in a small space.** Usually, electrons move around in a large empty space, relatively speaking, outside the nucleus of the atom.
- But when the size of the particles is reduced drastically, electrons in the atoms find themselves **increasingly squeezed.** And this could give rise to the **strange quantum effects.**

What are the applications of the quantum dots?

- Quantum dots have found many applicability in the **industrial and medical sectors.** These particles spread their light from **television screens and LED lamps.** The most common everyday use of quantum dots is probably in **"QLED" televisions.**
- They are used in **treating certain cancers** for targeted drug delivery and other therapeutic measures.
- They can be used as **security markers** on currency and documents as an anti-counterfeit measure.
- Among its future applicability also lies the possibility that quantum dots could have the potential to double the efficiency of solar cells.

4) Nobel Prize in Medicine
What's in the news?

- **Dr. Karikó and Dr. Weissman** were awarded the Noble Prize in Medicine for their research that enabled the **development of mRNA vaccines against COVID-19.**

What are mRNA vaccines?

- Traditionally, vaccines have depended on **introducing dead or weakened viruses** into the human body, so it can **develop antibodies** against them. Thus, when the actual virus infects someone, their body is prepared to fight it.
- As technology evolved, instead of the whole virus, just a **part of the viral genetic code**, instead of the whole virus, began to be introduced through vaccines. But the large-scale development of such vaccines requires **cell culture** (growing of cells under controlled conditions) and **takes time.**
- During the Covid-19 outbreak, time was of the essence in finding a weapon against the deadly and fast-spreading virus. This is where mRNA technology proved crucial. This technology had been known since the 1980s, but had not been perfected enough to create vaccines at a viable scale.
- Basically, instead of putting an inactivated virus in the body to activate an immune response, vaccines using this technology use **messenger Ribonucleic Acid, or mRNA**, to deliver a **message to the immune system.**
- Genetically engineered mRNA can **instruct cells to make the protein** needed to fight a particular virus.

5) Nobel Prize in literature
What's in the news?

- Norwegian author and dramatist **Jon Fosse** has been announced as the winner of the Nobel Prize in literature.
- One of his country's most-performed dramatists, Fosse has written some 40 plays as well as novels, short stories, children's books, poetry and essays.

6) Nobel Peace Prize
What's in the news?

- The **Norwegian Nobel Committee** awarded the 2023 Nobel Peace Prize to **Narges Mohammadi** for her fight against the oppression of women in Iran and her fight to promote human rights and freedom for all.
- Mohammadi's brave struggle has come with tremendous personal costs. The Iranian regime has arrested her 13 times, convicted her five times, and sentenced her to a total of 31 years in prison and 154 lashes. Mohammadi is still in prison.

What is the Nobel Peace Prize?

- The Peace Prize is awarded to the person who has done most for "fraternity between nations, for the abolition or reduction of standing armies and for the holding and promotion of peace congresses".

- The prize can be awarded to **individuals or organisations.**
- Unlike the other Nobel prizes that are selected and announced in **Stockholm**, founder Alfred Nobel decreed that the peace prize be decided and awarded in **Oslo** by the **five-member Norwegian Nobel Committee.**
- The independent panel is appointed by the **Norwegian parliament.**

7) Sveriges Riksbank Prize in Economic Sciences
What's in the news?

- The **Nobel Memorial Prize in Economic Sciences 2023**, officially known as **The Sveriges Riksbank Prize in Economic Sciences** has been awarded to **Claudia Goldin** for having **advanced the understanding of women's labour market outcomes.**
- Goldin's work has shed light on the participation of women in the labour market over the past 200 years, and why the pay gap between men and women refuses to close even as many women are likely to be better educated than men in high-income countries.