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DIGEST

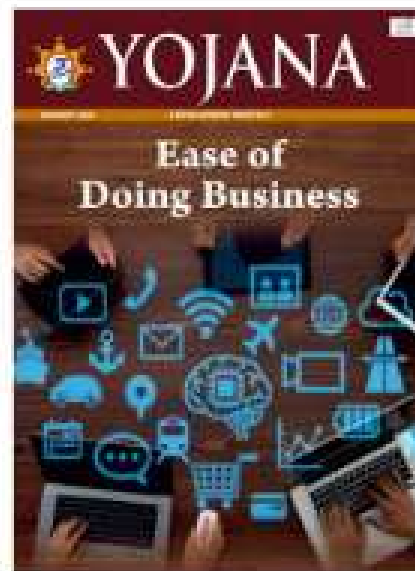
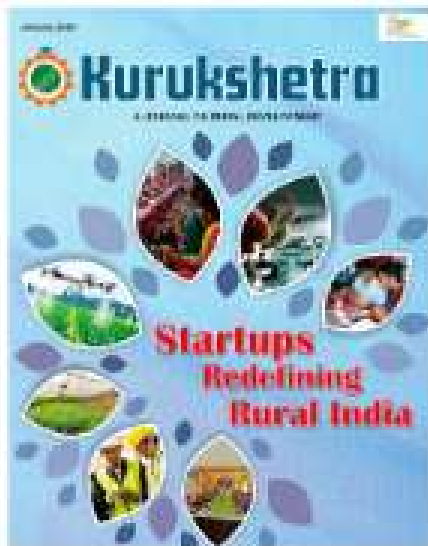
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DownToEarth

Business Standard



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Current Affairs Monthly

The **PULSE** of UPSC at your fingertips.

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Schemes

1) Sukanya Samriddhi Yojana

About the Scheme

- Sukanya Samriddhi Yojana (SSY) is a **government-backed small savings scheme that helps parents secure the future of their girl child.**
- It was launched in **2015** as a **part of the 'Beti Bachao Beti Padhao (BBBP) campaign.**
 - *BBBP is a tri-ministerial, convergent effort of Ministries of Women and Child Development, Health & Family Welfare and Education.*
 - *The scheme is envisaged to address the declining Child Sex Ratio and related issues of women empowerment over a life-cycle continuum.*
- Accounts under SSY can be easily opened at post offices and designated private or public banks in the form of a savings account in the name of the baby girl.
- The **interest rates** for Sukanya Samriddhi Yojana are **declared quarterly.**
- The **principal** amount deposited, **interest** earned during the entire tenure, and **maturity benefits** are **tax-exempt.**



Eligibility criteria for opening a Sukanya Samriddhi Yojana account

- **Only parents or legal guardians of the girl child** can open a Sukanya Samriddhi account in the **name of the girl.**
- The **girl child should be less than 10 years** at the time of account opening. The account can be operational till the girl reaches the **age of 21 years.**
- To meet the requirement of the child's higher education expenses, **partial withdrawal of 50 per cent of the balance is allowed after she turns 18.**
- The **investment can start at Rs. 250 and go up to Rs. 1,50,000 annually.**
- A single girl child **cannot have multiple Sukanya Samriddhi accounts.**
- **Only two Sukanya Samriddhi Yojana accounts are allowed per family, i.e., one for each girl child.**

Why in News?

- The Government of India has retained the interest rate on the Sukanya Samriddhi scheme at 8 per cent.

2) PRITHVI Scheme

What's in the news?

- The Union Cabinet has approved the overarching scheme **"PRITHvi Vigyan (PRITHVI)"** of the **Ministry of Earth Sciences** to **study the atmosphere, ocean, predicting weather and Earth system sciences.**
- The scheme would be implemented till **2026** and **encompasses five ongoing sub-schemes** namely **"Atmosphere & Climate Research-Modelling Observing Systems & Services (ACROSS)", "Ocean Services, Modelling Application,**

Resources and Technology (**O-SMART**)”, “Polar Science and Cryosphere Research (**PACER**)”, “Seismology and Geosciences (**SAGE**)” and “Research, Education, Training and Outreach (**REACHOUT**)”.

- **Objectives of the scheme:**

- Augmentation and sustenance of **long-term observations** of the atmosphere, ocean, geosphere, cryosphere and solid earth to record the vital signs of the Earth System and change;
- Development of **modelling systems** for understanding and predicting weather, ocean and climate hazards and understanding the science of climate change;
- **Exploration polar and high seas regions** of the Earth towards discovery of new phenomena and resources;
- **Development of technology** for exploration and sustainable harnessing of oceanic resources for societal applications;
- **Translation of knowledge and insights** from Earth

systems science into services for societal, environmental and economic benefit.

Significance

- **Earth System Sciences** deal with all the **five components of the earth system**: atmosphere, hydrosphere, geosphere, cryosphere, and biosphere and their complex interactions.
- The **Ministry of Earth Sciences (MoES)** holistically addresses all the aspects relating to the Earth System Science.
- The overarching scheme of PRITHVI will **holistically address all the five components of the earth system** to improve the understanding of the Earth System Sciences and to provide reliable services for the country.

Initiatives

1) SATHEE Portal

What's in the news?

- The **Ministry of Education** in collaboration with **IIT Kanpur** has started the **SATHEE** (Self-Assessment, Test and Help for Entrance Examination) portal to **provide quality education to every student who intend to participate in competitive education** such as JEE, NEET and various State level Engineering and other Examinations.
- It is an **online coaching platform** available to students at **no cost**.
- The portal uses **Artificial Intelligence (AI)** to interact with students, and can be customized to each student's pace of learning.

2) Revised Pharma Manufacturing Rules

What's in the news?

- Aimed at ensuring robust quality control for pharma and biopharmaceutical products, the Union Health Ministry has notified revised rules under **Schedule M of the Drugs and Cosmetics Rules, 1945**.
 - *The Drugs and Cosmetics Rules, 1945 present guidelines for the storage, sale, display and prescription of drugs.*
- **Schedule M** prescribes the **Good Manufacturing Practices (GMP)** for pharmaceutical products and the revised Schedule M has been notified as rules to **ensure GMP is adhered to, and requirements of premises, plant, and equipment for pharmaceutical products**.
 - GMP is mandatory standards which builds and brings quality into a product by way

of control on materials, methods, machines, processes, personnel, and facility/environment, etc.

- With the amendment, the words 'Good Manufacturing Practices' has been replaced with '**Good Manufacturing Practices and Requirements of Premises, Plant and Equipment for Pharmaceutical Products**'.
- The notification states that **manufacturers must assume responsibility for the quality of the pharmaceutical products** to ensure that they are fit for their intended use, comply with the requirements of the licence, and do not place patients at risk due to inadequate safety, quality, or efficacy.
- The rules also mandates that pharmaceutical companies will have to **intimate the drug licensing authorities about recalling a drug** and also **report product defects, deterioration or faulty production**.

Coverage

- The revised rules is to be **implemented on the basis of company turnovers** where the **medium and small manufacturers** include those with an **annual turnover of less than ₹250 crore** who will have to implement the revised rules **within 12 months** from its date of publication, whereas **large manufacturers** with an **annual turnover of over ₹250 crore** will be given **six months** to do so.

3) Khelo India Youth Games 2023

What's in the news?

- The Khelo India Youth Games (KIYG) 2023 were recently held in Tamil Nadu.
 - The Khelo India Youth Games began in 2018 to **harness the power of the youth and give them a platform to showcase their talent.**

About KIYG 2023

- The Khelo India Youth Games 2023 were held across **four cities of Tamil Nadu**, namely **Chennai, Madurai, Trichy and Coimbatore.**
- Over 5600 athletes participated in this edition of Khelo India Youth Games, spread across **26 sporting disciplines**, over 275 competitive events along with one demo sport.
- The 26 sporting disciplines are a diverse mix of **conventional sports** such as Football, Volleyball, Badminton etc. and **traditional sports** such as Kalaripayattu, Gatka, Thang ta, Kabaddi and Yogasana.
- **Silambam**, a traditional sport of Tamil Nadu, was introduced as a demo sport for the first time in the history of Khelo India Youth Games.
- This was the **first time** that Khelo India Youth Games were held in **South India.**
- The **mascot** for the games is **Veera Mangai**.
 - *Rani Velu Nachiyar, fondly called **Veera Mangai**, was an Indian queen who waged a war against British colonial rule.*
 - *Born in **Ramanathapuram (Tamil Nadu)** in 1730, Velu Nachiyar was the **first queen to have ever actively opposed British rule.***
 - *In collaboration with **Hyder Ali and Gopala Nayaker**, she waged a war against the*

British and emerged victorious.

- *Eventually, she went on to produce the **first human bomb** as well as establish the **first army of trained women soldiers** in the late 1700s.*
- *Nachiyar was **trained in many methods of combat**, including war match weapons usage, martial arts like Valari, Silambam, horse riding, and archery.*
- *She was a **scholar in many languages** and was **proficient** in languages like French, English, and Urdu.*



- The **logo** for the games incorporates the figure of **poet Thiruvalluvar**.
 - *Thiruvalluvar, is a celebrated Tamil poet and philosopher whose contribution to Tamil literature is the **Thirukkural**, a work on ethics.*
 - *Thirukkural contains **1330 couplets** (kurals) that are divided into **133 sections** of 10 couplets each. The text is divided into **three parts** with teachings on **dharma, artha, and kama** (virtue, wealth and love).*
- **Maharashtra** finished in the top position while **Tamil Nadu** and **Haryana** took the 2nd and 3rd positions respectively.

4) Know India Programme

About

- The Know India Programme was launched in **2003**, with the primary objective of **fostering closer connections between Indian diaspora youth and their ancestral homeland**.
- Launched by the **Ministry of External Affairs**, the programme provides **diaspora youth exposure to India's history and cultural heritage, along with the growth and development of modern India**.
- The participants are engaged in learning tours to a spectrum of institutions and organizations encompassing both the private and public sectors.
- The Programme is open to **Persons of Indian Origin (PIO), aged between 21 to 35 years, from all the countries**, with preference to those from **Girmitiya countries**.
 - *"Girmitiyas" or Indentured Labourers, is the name given to the Indians who left India in the middle and late 19th Century to serve as labourers in the British colonies, where the majority eventually settled.*
 - *Mauritius, Fiji, Suriname, Guyana, Trinidad & Tobago, etc. are known as Girmitiya Countries.*
- **Non-Resident Indians (NRIs) are not eligible** for the programme.

Why in News?

- The Flagship programme of the External Affairs Ministry - 'Know India Programme' for the youth diaspora has completed its **20 years**, making it one of the longest-running diaspora engagement programmes of the Government of India.

- The 70th Know India Programme was held recently. Thirty-four participants from Fiji, Mauritius, Trinidad & Tobago, Suriname, Sri Lanka, South Africa, Myanmar, Malaysia, and Colombia attended the programme.

5) Other Notable Topics

5.1. Udyam Sakhi Portal

About

- The Udyam Sakhi Portal provides **information on various financial schemes, policies & programmes and the supporting institutions** functioning under the administrative control of the **Ministry of MSME to make women entrepreneurs self-reliant**.
- The Udyam Sakhi portal provides the following services to women:
 - **Financial Schemes** of Ministry of MSME and other central Ministries/Departments;
 - **Policies and Programmes** of Ministry of MSME & other Central Ministries;
 - Information about **preparation of Business plan**;
 - Details of Nodal offices / supporting organisations of the Ministry of MSME in the respective States/UTs;
 - Information about **exhibitions, trade fairs & international events** organised by the Ministry of MSME.

5.2. ODOP Programme

About

- The One District One Product (ODOP) programme was launched by the **Ministry of Commerce & Industry** to foster **balanced**

regional development across all districts of the country.

- The idea is to **select, brand, and promote one product from each district** of the country.
- This will help promote the indigenous products from each district of the nation.
- The ODOP Initiative has identified more than 1100 products from 750+ districts across the country.

5.3. Digi Yatra

About

- The Digi Yatra initiative aims to **promote digital processing of passengers** based on **Facial Recognition Technology** for paper-less and seamless movement through various checkpoints at airports.
- The Digi Yatra policy was unveiled by the **Ministry of Civil Aviation** in 2018 as an **entirely voluntary programme**.
- The Digi Yatra initiative, currently being implemented at **13 airports**, involves a **mobile app** where passengers can register with the help of their **Aadhaar and a selfie** so that they can use their **face as a boarding pass** at various checkpoints at an airport.
- The **DigiYatra Foundation**, a **joint venture** established in 2019, administers the system.
 - DigiYatra Foundation is a **blend of public and private entities**. While the **government holds a 26% stake** through the **Airports Authority of India**, the rest is divided among major airports.

5.4. Pravasi Bhartiya Divas

About PBD

- Pravasi Bharatiya Divas (PBD) Convention is the flagship event of the **Ministry of External Affairs** to mark the contribution of the Overseas Indian community in the development of India.
- It is **celebrated on January 9 once every two years to strengthen the engagement of the overseas Indian community** with the Government of India and reconnect them with their roots.
- The day commemorates the return of **Mahatma Gandhi** from South Africa to Mumbai on 9 January 1915.
- The first Pravasi Bharatiya Divas was organized in **2003**.



Pravasi Bharatiya Samman Award

- The Pravasi Bharatiya Samman Award (PBSA) is the **highest honour conferred on overseas Indians**.
- The award is to commemorate the contribution of the Indian diaspora to create a better understanding of India abroad, support India's causes and work for the welfare of the local Indian community.
- PBSA is conferred by the **President of India** as a part of the Pravasi Bharatiya Divas Conventions.

Environment

1) Fog

Context

- As winter tightened its grip on northern India, a thick blanket of fog descended on several states in the last days of 2023 and first of 2024, creating challenging conditions for residents and travellers.

What is a Fog?

- A fog is a **collection of small droplets of water produced when evaporated water has cooled down and condensed.**

Formation of Fog

- For a thick fog to form, **temperatures should be lower and abundant moisture should be available** near the surface. Fog materializes whenever there is a **temperature disparity between the ground and the air.**
- This happens frequently during **Indian winters** — fog is created when the temperature drops at night and in the early morning, aerosols present in the atmosphere condense.
- **High humidity, combined with an ample presence of water vapour or moisture,** encourages foggy conditions.

Infrared cooling & Radiation fog

- One primary mechanism contributing to fog formation is called **infrared cooling.** It typically occurs when the **weather is transitioning from summer to winter.** In the summer, the ground absorbs radiation from the sun, becomes warmer, and moistens the air passing over it.
- When cooler weather kicks in, this mass of warm, moist air comes in contact with processes that cool it. The **'collision'** prompts the water

vapour in the air to condense rapidly, giving rise to fog.

- Another type of fog, known as **radiation fog,** is prevalent and occurs when an **unseasonably warm day with high humidity is followed by rapidly dropping temperatures.**

Why is Northern India prone to Fog?

- The **entire Indo-Gangetic plains** are prone to formation of fog during winter season, as all the conditions — **low temperatures, low wind speed, moisture availability and plenty of aerosols** — are present in this region.
- **Moisture incursion** into this region can happen once a **Western Disturbance** — a precipitational pattern that brings rain to north India during winter months — moves across northern parts.
- Sometimes, moisture incursion can happen from the **Arabian Sea** also.

2) Oil spills

What are oil spills?

- Oil spills refer to the **accidental or intentional release of liquid petroleum hydrocarbons into the environment.**
- These spills can have **detrimental effects** on ecosystems, wildlife, and human communities.
- Oil spills can occur through various means:
 - **Accidents:** Accidental spills can happen during the **extraction, transportation, and refining** of oil.
 - **Leakage:** **Aging infrastructure, corrosion, or technical failures in oil pipelines and storage facilities** can result in leaks, leading to oil spills.

- **Shipwrecks:** **Maritime accidents**, such as collisions, groundings, or sinking of oil tankers, can cause significant oil spills in marine environments.

Impacts of oil spills

- Oil is **toxic to many marine organisms**. Fish, shellfish, and other aquatic organisms may suffer direct mortality when exposed to oil.
- **Birds** that come into contact with oil can experience **feather contamination**, making it difficult for them to fly.
- Oil spills can **contaminate coastal habitats**, including marshes, mangroves, and estuaries.
- Oil spills can have **cascading effects on plankton and small organisms**, disrupting the base of the marine food chain.

Measures to mitigate oil spills

- **Booms and barriers** are **physical structures** deployed on the water's surface to contain and control the spread of spilled oil.
- **Skimmers** are devices used to remove oil from the water's surface. They work by **physically separating** the oil from the water, allowing for the recovery of the spilled oil.
- **Oilzapper technology** is an **eco-friendly technology** for the remediation of oil spills. It makes use of five bacterial strains for the treatment of oil spills.
- **Advanced Technologies** can be used for oil drilling, transportation, and storage to minimize the risk of spills. This includes the use of **double-hulled tankers, blowout preventers, and safety equipment**.

Why in News?

- The Tamil Nadu government has fixed a total of ₹8.68 crore as relief

fund for families that were affected by the oil spill from industries surrounding Ennore creek during Cyclone Michaung.

About Ennore creek

- Ennore Creek is a **backwater** located in **Ennore, Chennai** along the **Coromandel Coast** of the **Bay of Bengal**.
- The north-south trending channels of the creek connect it with the **Pulicat Lake** to the **north** and to the distributaries of the **Kosasthalaiyar River** in the **south**.
- Ennore creek is part of **Ennore-Pulicat wetland system**, which acts as an ecological unit that protects biodiversity and recharges groundwater.
- Once a flourishing **mangrove swamp**, the creek has been **immensely degraded** due to human activities such as release of untreated industrial effluents into the water bodies.

3) 2023 - Warmest year on record Context

- **Europe's Copernicus Climate Change Service (C3S)** has announced that **2023 was the warmest year since records began in 1850**, beating the previous record of 2016.
- The announcement said temperatures in 2023 likely exceeded those of any year-long period in at least the last 100,000 years.

Findings of C3S

- Last year was **1.48 degree Celsius warmer** than the average of the 1850-1900 pre-industrial level and 0.17 degree Celsius warmer than 2016.
 - Rising temperatures contributed to a large number of **extreme weather events** around the

world in 2023, including **heatwaves, floods, droughts, and wildfires.**

- **Global daily average sea surface temperature (SST)** also went off the charts. Since mid-March 2023, the daily average SST has been the **highest ever.**
 - It led to **marine heatwaves** in the Mediterranean, the Gulf of Mexico and the Caribbean, the Indian Ocean and the North Pacific, and much of the North Atlantic.
- **Sea ice extent in Antarctica** plummeted to a new low. In September, it reached an annual maximum 16.96 million sq km, which was 1.03 million sq km less than the previous record low set in 1986.
 - *Sea ice extent is defined as the area of ocean where at least 15 percent of the surface is frozen.*

Why was it so hot?

- The main driver behind the extreme warming is the **increasing greenhouse gas concentrations** in the atmosphere.
- In 2023, **greenhouse gas concentrations reached the highest levels ever recorded** in the atmosphere.
- The **onset of El Niño** last year, after seven years, played a role.
 - *El Niño refers to an abnormal warming of surface waters in the equatorial Pacific Ocean. It increased the likelihood*

that temperature records would be broken, and there would be more extreme heat in many parts of the world and the ocean.

What could happen now?

- Scientists have suggested that **2024 could be warmer than even 2023.** Typically, in the past few decades, **very hot years have been ones that began in an El Niño state.**
- Last year, El Niño didn't set in until around July, which means that it wasn't the primary reason behind the abnormal heat at that point. Therefore, 2024 could be hotter than last year.

Impacts

- A long-term breach of the 1.5 degree limit would unleash far **more severe climate change impacts**, including more frequent and severe droughts, heatwaves, and rainfall.
- To prevent this, the world needs to urgently implement certain steps, including greenhouse gas emission cuts, which it has failed to do so far.

Related Information

About C3S

- The Copernicus Climate Change Service (C3S) is one of six thematic information services provided by the **Copernicus Earth Observation Programme** launched by the **European Union in 2014.**
- C3S supports society by providing authoritative information about the past, present and future climate in Europe and the rest of the World.



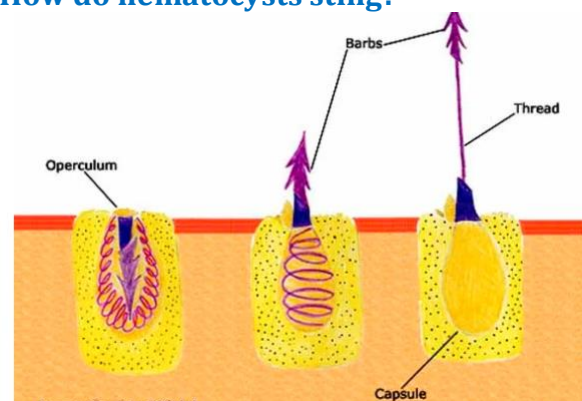
4) Other Notable Topics

4.1. Nematocyst: A cellular weapon

What are nematocysts?

- Nematocysts are **microscopic capsules** found in the **tentacles of cnidarians**, such as **jellyfish, corals, sea anemones, etc.**
 - *Cnidarians are a diverse phylum of aquatic animals. They have two major body forms - free roaming (jellyfish) or attached (sea anemones).*
- Nematocysts play a crucial role in the **feeding and defence strategies of cnidarians.**
- Nematocysts serve as **potent weapons** to hunt prey and fend off predators.
- The **toxins in nematocysts** also have different effects. Some are **paralytic, immobilising the prey**; others are **cytolytic**, meaning they **break down cells.**
- Nematocysts sting occurs within a **millionth of a second** and is considered as one of the fastest processes known in animal systems in terms of speed.

How do nematocysts sting?



- Nematocysts are **bulb-shaped capsules** in tentacle surface tissues, with solid elastic walls and lid structures that keep the capsule closed. Inside are strong, dart-like protein tubules with **spiked barbs** at the end.
- They're loaded with **neurotoxins** to kill or sting prey. Threads wrap around them, keeping them tethered to their capsules when launched.
- When contact with a prey triggers them, the lid pops open and the **barbed darts** are rapidly **expelled**. As they do so, the coiled threads unravel with them.

- Like arrowheads, they stick into the prey, injecting toxin to invade and paralyze their victim's tissues.

4.2. Pesticides

What are pesticides?

- Pesticides are substances or mixtures of substances that are used to **prevent, control, or mitigate pests.**

Types of pesticides

- **Insecticides:** These are pesticides designed to control and eliminate **insects.** They can be used to protect crops, livestock, and stored products from insect damage.
- **Herbicides:** These are pesticides that target **weeds, unwanted plants** that can compete with crops for nutrients, water, and sunlight.
- **Fungicides:** These pesticides are used to control **fungal diseases** that can damage plants, crops, and stored products.
- **Rodenticides:** These are substances used to control **rodents,** such as **rats and mice,** which can be pests in agricultural settings or pose health risks in urban environments.
- **Bactericides:** These pesticides are formulated to control or eliminate **bacteria** that can cause diseases in plants, animals, or humans.
- **Nematicides:** These pesticides target **nematodes,** which are microscopic worms that can harm plant roots and affect crop growth.

Pesticide Poisoning

- A pesticide poisoning occurs when pesticides intended to control a pest **affect non-target organisms** such as humans, wildlife, plants, or bees.
- Pesticides are responsible for an estimated 11,000 human fatalities and the poisoning of 385 million people every year.
- **India** is one of the largest producers and consumers of pesticides in the world, with **Maharashtra**

occupying the top spot in pesticide consumption in the country.

- There are at least **116 pesticides** that are banned internationally but are being allowed to be used in India and pose serious health hazards to farmers, according to the **Pesticide Action Network (PAN),** a **non profit organization** working to promote sustainable alternatives to hazardous pesticides.
- Insecticides such as **Profenophos, Fipronil, Acephate, Difenthrion,** and **Monochrotophos** are responsible for large scale pesticide poisoning in our country.
- Several studies attribute **45 different types of cancers** affecting rural farm workers in India to **pesticide usage.**
- The chemicals have been shown to cause **DNA damage, hormone disruption,** and lead to a **weakened immune system.** All of these contribute to the development of **cancer** in the body.

4.3. Carbon capture and storage

What is meant by carbon capture and storage?

- Carbon capture and storage (CCS) refers to technologies that can **capture carbon dioxide (CO₂) at a source of emissions before it is released** into the atmosphere.
- These sources include the **fossil fuel industry** (where coal, oil and gas are combusted to generate power) and **industrial processes** like steel and cement production.
- **Process involved**
 - **Capture:** CO₂ is captured at its source, typically from industrial facilities or power plants, before it is released into the atmosphere.
 - **Transportation:** The captured CO₂ is then transported, often by

pipelines, to a suitable storage site.

- **Storage:** The final step involves injecting the CO₂ into **geological formations** such as depleted oil and gas fields or deep saline aquifers.

Benefits of CCS

- By capturing CO₂ emissions from various sources, CCS can help **stabilize atmospheric CO₂ levels**, which is crucial for addressing climate change.
- CCS can contribute to **energy security** by allowing for the continued use of domestic fossil fuel resources, which can help reduce reliance on **imported energy sources**.
- CCS technologies can be integrated into industrial processes to improve efficiency and reduce emissions, leading to **cost savings and environmental benefits**.

Carbon Capture and Utilization

- In some cases, captured CO₂ can be used to **produce manufactured goods and in industrial and other processes**, rather than being stored underground. Such utilization is known as **CCUS (carbon capture, utilization, and storage)**.
- Companies and labs are working on turning CO₂ into **plastics, building materials** like cement and concrete, **fuels, futuristic materials** like carbon fibers and graphene, and even **household products** like baking soda, bleach, antifreeze, inks and paints.
- One of the primary uses of CO₂ is for **enhanced oil recovery (EOR)**, a method of oil extraction that uses CO₂ and water to drive oil up the well, improving oil recovery and sequestering the CO₂ underground.

4.4. Ammonia

About Ammonia

- **Ammonia (NH₃)** is a **colorless gas** with a characteristic **pungent smell**.
- Ammonia is **naturally present** in the environment, often as a product of decay and decomposition of organic matter. It is also found in trace amounts in the **atmosphere**.
- Industrially, ammonia is produced through the **Haber-Bosch process**, which involves the reaction of nitrogen and hydrogen gases at high pressure and temperature in the presence of a catalyst.
- Ammonia is **highly soluble in water**, and can form **ammonium hydroxide**.

Uses

- **Fertilizer:** One of the primary uses of ammonia is in the production of **fertilizers**. It serves as a key ingredient in the synthesis of ammonium nitrate and urea.
- **Cleaning Agent:** Ammonia is commonly used in **household cleaning products** for its ability to cut through grease and grime.
- **Refrigerants:** Large **cold storage plants** use ammonia as refrigerant.
- **Industrial Processes:** Ammonia is utilized in various industrial processes, including the **production of chemicals and pharmaceuticals**.

Exposure to Ammonia

- Most people are exposed to ammonia from **inhalation of the gas or vapors**.
- The widespread use of ammonia on farms and in industrial and commercial locations also means that exposure can occur from an **accidental release** or from a deliberate **terrorist attack**.
- Exposure to **high concentrations** of ammonia in air causes **immediate burning of the eyes**,

nose, throat and respiratory tract and can result in **blindness, lung damage or death**. Inhalation of **lower concentrations** can cause **coughing, and nose and throat irritation**.

4.5. Asola-Bhati Wildlife Sanctuary

About

- Asola-Bhati Wildlife Sanctuary is located on the **Southern Delhi Ridge of Aravalli hill range** on **Delhi-Haryana border**.
- It is also part of the **Sariska-Delhi Wildlife Corridor**, which runs from the **Sariska Tiger Reserve in Rajasthan to Delhi Ridge**.
- There are about 193 species of **birds** reported from Asola along with large number of **medicinal**

plants, more than 80 species of **butterflies**, hundreds of other **insects, mammals** such as leopards, nilgai, blackbuck, black-naped hare, Indian crested porcupine, small Indian civet, golden jackal, etc.

- It is **Delhi NCR's green lung, carbon sink, source of ground water recharge, and shelterbelt** against advancing aridity.
- Historical places around the sanctuary are **Surajkund and Anangpur Dam, Tughlaqabad Fort and Chhatarpur Temple**.

Flora & Fauna

1) Red weaver ants

About

- The **red weaver ants** belong to the **genus *Oecophylla*** which contains two closely related living species, ***Oecophylla smaragdina*** and ***Oecophylla longinoda***.
- ***Oecophylla smaragdina***, thrives in the warm and humid climates of **Tropical Asia** and **Australia**, whereas ***Oecophylla longinoda*** is commonly found in **central** and **western Africa**.
- In India, red weaver ants are found in various regions within the country including the **western** and **eastern ghats, central india, North-Eastern states**, etc.,
- In **Odisha**, the red weaver ants, also known as **Kai Ants**, are used by tribal communities for the preparation of **kai chutney**, a traditional delicacy.



Characteristics of Weaver Ants

- The red weaver ants build their **nests** in trees like **mango, sal, jambu, and jackfruit**.
- Their nests are usually **elliptical** and are usually made of leaves stitched together with **silk** produced by their **larvae**.
- The **colonies** of Red weaver ants consists of **three categories** of

members — **workers, major workers, and queens**.

- They are also recognized as **bio-control agents** because they **protect a variety of tropical crops against insect pests**.

Why in News?

- **Kai chutney** made with **Red weaver ants** by the tribal people of **Odisha's Mayurbhanj district** has received a **Geographical Indication (GI) tag**.
- Geographical indications assign products to the **place of its origin**. It conveys an assurance of quality and distinctiveness for such goods.
 - *Refer Pulse August 2023 Digest edition for more details about GI Tag.*
- Kai chutney contains valuable proteins, calcium, zinc, vitamin B-12, iron, magnesium, potassium, sodium, copper, amino acids which help to boost the immune system.

2) Pallas's Fish Eagle

About

- The Pallas's fish eagle (*Haliaeetus leucoryphus*), also known as the **Pallas's sea eagle** or **band-tailed fish eagle**, is a **large, brownish sea eagle**.
- The **females** are **larger** and **heavier** in comparison to their male counterparts.
- These birds prefer **nesting** on tall trees along **inland marshes, lakes, and rivers**.



Geographical Distribution

- The Pallas's fish eagle is found in **Russia, Turkmenistan, Uzbekistan, Tajikistan, Kazakhstan, Mongolia, China, India, Nepal, Bangladesh, Myanmar and Bhutan.**
- In **India**, the Pallas's fish eagle primarily resides in the **Himalayan foothills and Northeastern India** during **breeding season** and **migrates to wetlands and water bodies in North and Eastern India** during **winters**.
- These birds are **partially migratory**.
 - *Partially migratory describes a situation where only some individuals in a population migrate, while others remain resident in the same area year-round.*

Feeding Habits

- These eagle species are **carnivorous** in their diet, feeding mainly on **fish**. They also feed on **small mammals, reptiles, birds**, etc.

Threats

- Major threats include **habitat loss** and **degradation**. The **felling** of large trees near **wetlands** has reduced the availability of **nesting sites**.

- **Draining of wetlands** for agriculture and human settlements has reduced the population of this species significantly.
- In India, **water hyacinth**, an **invasive aquatic plant** that spreads on wetlands, depleting dissolved oxygen levels, leading to fish mortality, is affecting available prey populations for the birds.
- **Pollution of wetlands with pesticides and industrial effluents** has also affected the bird populations.

Protection Status

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

Why in News?

- After 10 years, the **Pallas's fish eagle** was sighted in **Chilika lake**.

Chilika lake

- **Chilika Lake** is regarded as **Asia's largest brackish water lake**
- It is spread across the districts of Puri, Khurda and Ganjam in the state of **Odisha**.
- It is an important **wintering ground** for **migratory birds** from Central Asia and beyond, seeking refuge during the harsh winter months.
- Chilika lake is designated as a "**Ramsar Site**".
- **Nalabana Island** within Chilika Lake is notified as a **Bird Sanctuary** under the **Wildlife (Protection) Act, 1972**.

3) Kashmir Saffron

About Saffron

- Saffron, also known as "**red gold**", is one of the world's most expensive spices, prized for its unique flavor, aroma, and color.
- Saffron originates from the **dried stigma of Crocus sativus flower**.
 - *The stigma is part of the female reproductive system of*

a flower. It is found in the center of a flower and helps to collect pollen.



Global Production

- **Iran** is the largest producer of saffron, accounting for 90 percent of the total saffron production in the world, followed by **India, Spain and Greece** respectively.

Kashmir Saffron

- Kashmir saffron is cultivated and harvested in the **Karewa (highlands)** of **Jammu and Kashmir**.
- It is the **only saffron in the world grown at an altitude of 1,600 m to 1,800 m above mean sea level**.
- **Pampore region**, commonly known as **Saffron bowl of Kashmir**, is the main contributor to saffron production.
 - **Pampore Saffron Heritage** of Kashmir is one of the **Globally Important Agricultural Heritage systems (GIAHS)** recognised sites in India.
- The **unique characteristics** of Kashmir saffron are its **longer and thicker stigmas, natural deep-red colour, high aroma, and high quantity of crocin** (a compound that gives saffron its color and aroma).

Climatic conditions for Kashmiri saffron

- **Ideal temperature**

- It requires temperatures ranging from **not more than 35 or 40 degree Celsius** in **summer** to about **-15 or -20 degree Celsius** in **winter**.
- **Soil conditions**
 - It thrives well in **calcareous** (soil that has calcium carbonate in abundance) and **well-drained soil** with a **pH between 6 and 8**.
- **Rainfall**
 - It requires adequate rainfall that is **1000-1500 mm per annum**.

Why in News?

- **Cement dust** produced from cement factories is affecting Kashmir's saffron production.
- Cement dust, which primarily contains **nitrogen oxides, sulphur dioxide, carbon monoxide and carbon dioxide**, gets accumulated on the flowers, impacting the growth, quality and quantity of saffron.
- It also results in **decreased chlorophyll, clogged stomata in leaves, interrupted light absorption**, inducing early leaf fall and resulting in stunted growth.

Related Information About GIAHS

- The Globally Important Agricultural Heritage Systems (GIAHS) programme was started by the **Food and Agriculture Organisation (FAO)** to **safeguard the world's agricultural systems**.
- A GIAHS is a living, evolving system of human communities in an intricate relationship with their territory, cultural or agricultural landscape or biophysical and wider social environment.
- GIAHS represent not only **stunning natural landscapes** but also **agricultural practices** that create

livelihoods in rural areas while combining biodiversity, resilient ecosystems and tradition and innovation in a unique way.

- Since 2005, FAO has designated **86 GIAHS sites in 26 countries.**
- **GIAHS Sites in India:**
 1. **Koraput Traditional Agriculture - Odisha**
 2. **Kuttanad Below Sea Level Farming System - Kerala**
 3. **Pampore Saffron Heritage - Kashmir**

4) Himalayan wolf

About

- The **Himalayan wolf** (*Canis lupus chanco*), also known as the **Tibetan wolf**, is a **subspecies of the grey wolf** native to the high mountainous regions of the **Himalayas, Tibetan Plateau, and Central Asia**, including **India, Nepal, Bhutan, China, and Mongolia.**
- In India, it occurs in the **Union Territory of Ladakh** and in the **Lahaul and Spiti region in northeastern Himachal Pradesh.**



Physical characteristics

- It is **larger in size than the Indian and European wolves.**

- They have **thick fur** with **brown colouration** on the **tail**, with **paler yellows** on the **face, limbs** and **underside.**
- Their bodies are **specially adapted** to withstand the **low oxygen levels** at **high elevations.**
- The **average pack size** of Himalayan wolves is **smaller** than their Grey wolf counterparts. While Grey wolf packs typically range from 6 to 12 individuals, Himalayan wolf packs usually comprise only 2-6 individuals.

Diet

- Himalayan wolves are **primarily carnivorous** and are found feeding on yak, kiang, bharal, Tibetan gazelle, Siberian ibex, marmot and other small mammals.

Threats

- **Construction of roads, dams, and other infrastructure projects** fragment and degrade wolf habitats.
- Wolves sometimes prey on livestock, leading to **conflicts with herders** who may retaliate by killing wolves.
- The wolves face **competition from feral dogs and snow leopards** for prey populations.

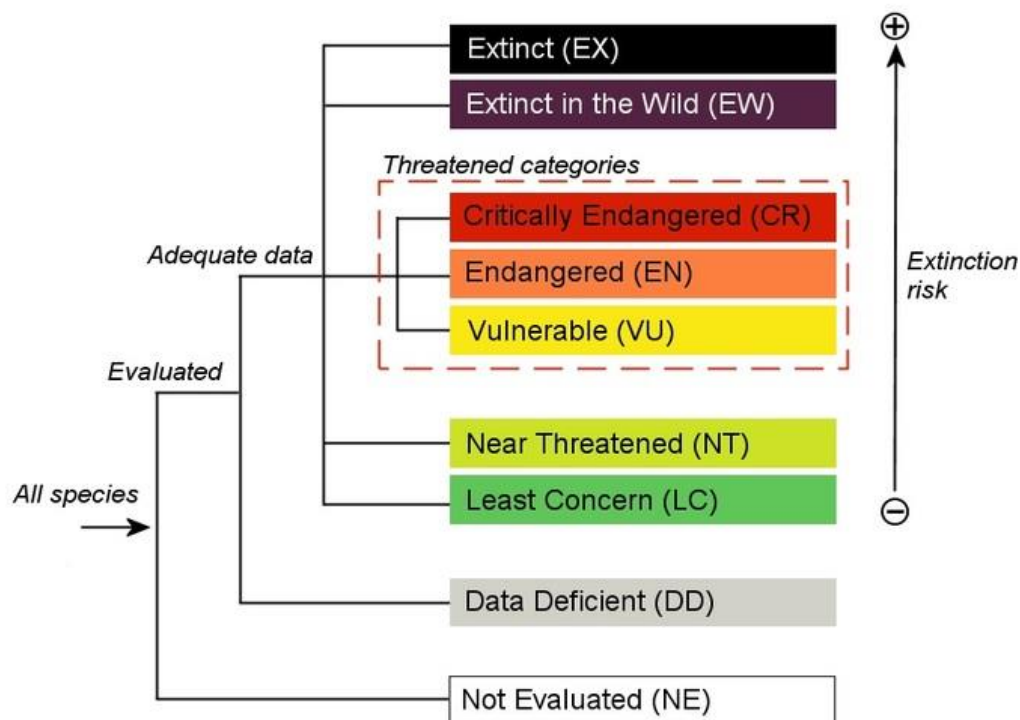
Why in News?

- The Himalayan Wolf has been assessed for the first time in the International Union for Conservation of Nature (IUCN)'s Red List and categorised as **'Vulnerable'**.
- Several studies have previously noted that Himalayan wolf is a **distinct species of wolf** different from the grey wolf and thus deserves formal taxonomic recognition.

About IUCN Red List

- IUCN is a **membership union of government and civil society organisations.**

- Created in **1948**, IUCN is the **world's largest and most diverse environmental network**.
- The **IUCN Red List of Threatened Species** is the **world's most comprehensive information source on the extinction risk of animals, fungi and plants**.
- For each species, the list provides information about its **range, population size, habitat and ecology, use and/or trade, threats and conservation actions**.
- The IUCN Red List categories indicate how close a species is to becoming extinct. The **nine Red List Categories** are shown below:

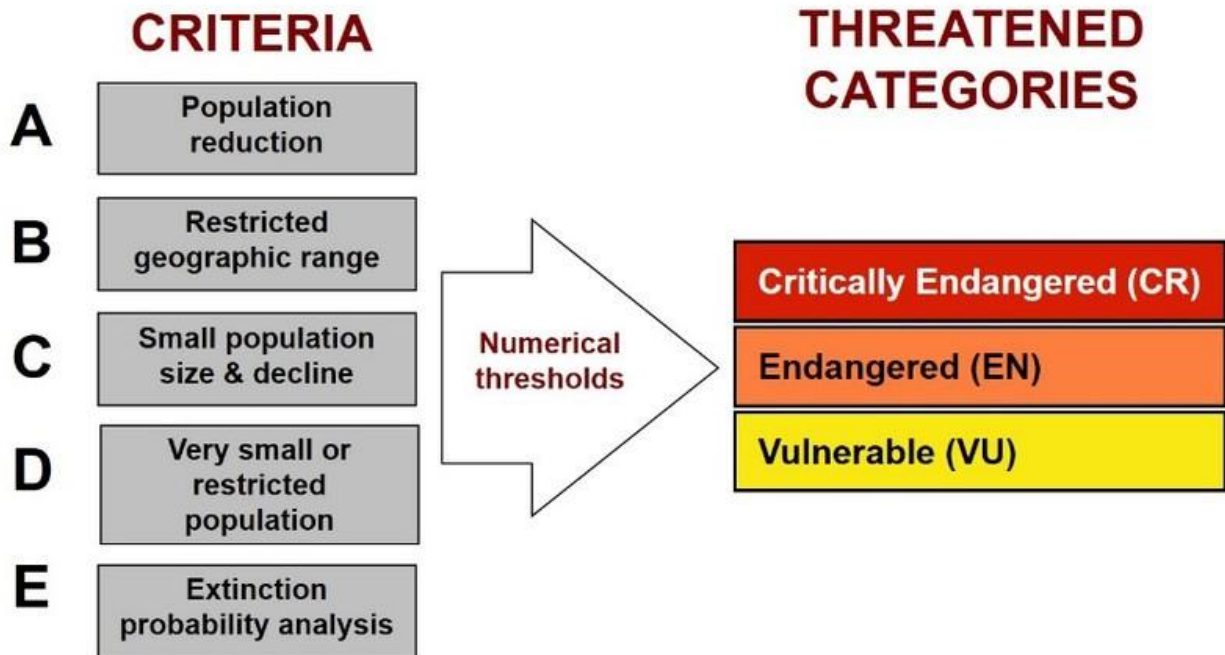


Species are assessed against **five criteria** based on **geographic range, population size and population decline/increase, in addition to extinction probability**

analyses. These criteria determine which category is most appropriate for the species.

Criteria for categorisation of species:

Error!



5) Rare Tibetan Brown Bear Discovered in Sikkim

About

- **Tibetan brown bear** (*Ursus arctos pruinosus*) also known as the **Tibetan blue bear** is **one of the rarest subspecies of bears** in the world, and is rarely sighted in the wild.
- It is an **omnivore** with its diet generally consisting of marmots and alpine vegetation.
- This rare bear is **very different** from the more commonly found Himalayan Black Bear in terms of its **appearance, habitat, and behaviour**.
- It inhabits **high-altitude alpine forests, meadows, and steppes above 4000 m**. Also, it is **very shy of human contact** and therefore very seldom observed.
- It is **uniquely adapted to the harsh conditions of the Tibetan Plateau**.
- Until now, there were only a few confirmed records from **Nepal, Bhutan, and the Tibetan plateau**.



Why in News?

- In the first-ever confirmed record of the **Tibetan brown bear in India**, camera traps recorded this rare species in the high-altitudes of **North Sikkim**.
- This discovery adds a **new subspecies to the mammal diversity** of the country.

6) Other Notable Topics

6.1. Lemongrass

About lemongrass

- Lemongrass is a **tall, perennial grass** with thin, green stalks that can grow up to 6 feet in height.

- The plant's leaves are **long** and **slender**, and the base of the stalks forms a **bulbous portion**.
- Lemongrass is **native to tropical regions**, such as Southeast Asia, and it thrives in **warm climates**.
- The plant requires **well-draining soil** and **plenty of sunlight** for optimal growth.



Uses of Lemongrass

- In traditional medicine, lemongrass has been used for its potential

health benefits. It is believed to have **anti-inflammatory, antioxidant, and antimicrobial properties**.

- **Lemongrass essential oil** is extracted from the leaves and stems of the plant. It is used in **aromatherapy**.
- Lemongrass is often used as a **natural mosquito repellent** due to its **high citronella content**.
 - *Citronella is a natural oil found in lemongrass that is known for its insect-repelling properties.*
- Many farmers in the **man-elephant conflict areas** cultivate lemongrass as the scent of these crops have been found to be effective **elephant repellants**.

Economy

1) Generalized System of Preferences

About GSP

- The Generalized System of Preferences (GSP) scheme is a **voluntary trade measure** implemented by **developed countries** that provide an **advantageous or preferential tariff treatment to imports from developing countries**.
- It was instituted in **1971** under the aegis of the **United Nations Conference on Trade and Development (UNCTAD)**.
- These **non-reciprocal benefits** extended by some developed countries to developing countries are expected to **contribute to developing countries' export growth** particularly in the manufacturing sector.
- More than **20 developed countries** including Australia, Canada, Japan, New Zealand, the Russian Federation, Switzerland, United Kingdom and the United States of America grant GSP preferences.

Why in News?

- India has **sought restoration of its beneficiary status under the US Generalized System of Preferences programme** to facilitate trade exports from India.
- The previous Trump administration in the U.S. **revoked the GSP from India in 2019** citing India had denied adequate access to its agricultural and dairy markets and had placed prohibitive price controls on medical devices.
- About 1,900 Indian products from sectors such as chemicals and engineering were getting duty-free access to the US market under the GSP, introduced in 1976.

Related Information About UNCTAD

- UNCTAD is a **permanent intergovernmental body** established by the United Nations General Assembly in 1964.
- Its headquarters is located in **Geneva, Switzerland**.
- UNCTAD is the **UN's leading institution dealing with trade and development**.
- UNCTAD supports developing countries to access the benefits of a globalized economy more fairly and effectively.

2) FIU-IND act against virtual asset providers

What are Virtual Assets?

- A virtual asset is a **digital representation of an item that has value in a specific environment**. This medium of exchange or property can be **digitally traded, transferred or used for payment or investment purposes**.
- Virtual assets **do not include digital representation of fiat currencies**.
 - *Fiat money is a government-issued currency that is not backed by a commodity such as gold.*
- The most common example of a virtual asset is **virtual currency** such as **Bitcoin, Litecoin, Ethereum or Dogecoin**.
- **Gaming tokens and non-fungible tokens (NFTs)** might also be considered virtual assets, depending on the circumstances and the context in which the assets exist and are used.

Who are Virtual Digital Asset Service Providers?

- VASPs are entities that **carry out exchanges between different forms of virtual assets or between virtual assets and fiat currencies.**
- A VASP may also transfer virtual assets, administer them, or oversee their sale by an issuer's office.

Why in News?

- The Financial Intelligence Unit India (FIU IND) has issued show-cause notices to 9 offshore **virtual digital asset service providers (VDA SPs)**, including Binance, Kucoin, Huobi, Bitfinex and MEXC Global, among others.
- This was for "operating illegally" without complying with the provisions of the **Prevention of Money Laundering Act, 2002 (PMLA)**.
 - *Refer Pulse June 2023 Digest edition for details about PMLA.*
- It has also been written to the Ministry of Electronics and Information Technology to block URLs of the mentioned entities.

What purpose does the PMLA compliance serve?

- Last year, VDA SPs in India were mandated to comply with PMLA 2002, verify the identities of onboarded clients, and maintain records of their financial positions and potentially suspicious transactions.
- The rules were brought to enable monitoring and tracking of financial transactions to curb money laundering and terror financing.

Related Information

About FIU-IND

- The Financial Intelligence Unit India (FIU IND) was set by the Government of India in 2004 as the **central national agency**

responsible for receiving, processing, analyzing and disseminating information relating to suspect financial transactions.

- FIU-IND is also responsible for coordinating and strengthening efforts of national and international intelligence, investigation and enforcement agencies in pursuing the global efforts **against money laundering and financing of terrorism.**
- FIU-IND is an independent body **reporting directly to the Economic Intelligence Council (EIC) headed by the Finance Minister.**

3) Appointment of RBI Deputy Governor

About RBI

- The Reserve Bank of India was established on **April 1, 1935** in accordance with the provisions of the **Reserve Bank of India Act, 1934.**
- Though originally privately owned, since **nationalisation in 1949**, the Reserve Bank is **fully owned by the Government of India.**

Main Functions

Monetary Authority:

- Formulates, implements and monitors the monetary policy.
- **Objective:** Maintaining price stability while keeping in mind the objective of growth.

Regulator and supervisor of the financial system:

- Prescribes broad parameters of banking operations within which the country's banking and financial system functions.
- **Objective:** Maintain public confidence in the system, protect depositors' interest and provide

cost-effective banking services to the public.

Manager of Foreign Exchange:

- Manages the Foreign Exchange Management Act, 1999.
- **Objective:** To facilitate external trade and payment and promote orderly development and maintenance of foreign exchange market in India.

Issuer of currency:

- Issues, exchanges and destroys currency notes as well as puts into circulation coins minted by Government of India.
- **Objective:** To give the public adequate quantity of supplies of currency notes and coins and in good quality.

Developmental role:

- Performs a wide range of promotional functions to support national objectives.

Regulator and Supervisor of Payment and Settlement Systems:

- Introduces and upgrades safe and efficient modes of payment systems in the country to meet the requirements of the public at large.
- **Objective:** Maintain public confidence in payment and settlement system

Related Functions:

- **Banker to the Government:** Performs merchant banking function for the central and the state governments; also acts as their banker.
- **Banker to banks:** Maintains banking accounts of all scheduled banks.

Central Board of Directors

- The Reserve Bank's affairs are governed by a **Central Board of Directors**.
- Section 8(1)(a) of the Reserve Bank of India Act, 1934, provides that **there shall be one Governor and not more than four Deputy**

Governors to be appointed by the **central government** on the central board of RBI.

- **Functions:** General superintendence and direction of the Bank's affairs.

Appointments

- The RBI governor is appointed by the **Prime Minister's office** on the recommendation of the **Union Finance Minister**.
- Deputy Governors are appointed on the basis of the **Appointment Committee of Cabinet (ACC)**-approved guidelines, which stipulate that the **search committee** constituted for the purpose will recommend the person to be appointed as a Deputy Governor.

Why in News?

- Reserve Bank of India Deputy Governor Michael D. Patra has been given a one-year extension ahead of the end of his tenure.

Related Information

Appointment Committee of Cabinet

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

4) New SEBI norms on short-selling

What's in the news?

- Market regulator Securities and Exchange Board of India (SEBI) has announced that **institutional investors will have to disclose all short-sell transactions upfront** at the time of placing an order.
 - An **Institutional Investor** is a legal organization that pools funds of a large number of individual investors or other legal entities, and invests in different financial

instruments such as stocks, bonds, commodities or any other investment options.

What is short selling?

- Short selling in the stock market refers to the practice wherein an **investor sells borrowed shares with the anticipation that the stock price will decline in the future.**
- The process involves the investor borrowing shares from a broker, selling them at the current market price, and then buying them back at a later time, ideally at a lower price, to return them to the lender.
- The difference between the selling and buying prices represents the profit or loss for the investor.
- Short selling can be a **speculative strategy for traders** who believe that certain stocks are overvalued or will underperform in the near term. However, it also carries **significant risks**, as there is no limit to the potential loss if the stock price rises unexpectedly.
- To regulate this practice and maintain market stability, stock exchanges and regulatory authorities like SEBI impose certain restrictions and disclosure requirements on short selling activities.

5) Other Notable Topics

5.1. Most Favoured Nation

About MFN Principle

- The Most Favoured Nation (MFN) principle is based on the idea that **countries should treat all their trade partners equally—that no one country should be “more favoured.”**
- It means **no country should give special treatment** to goods or services coming from one particular

trading partner. Although its name implies favoritism toward another nation, it denotes the equal treatment of all countries.

- The **World Trade Organization (WTO)** has made the most favoured nation principle part of its rules under the **General Agreement on Tariffs and Trade (GATT)** - to which **India** is a signatory.
- WTO members are not allowed to favour any one country with, for example, lower tariffs on particular products without giving all members the same benefit.

Exceptions

- Some exceptions are allowed. For example:
 - countries can set up a **free trade agreement** that applies only to goods traded within the group — discriminating against goods from outside.
 - Or they can **give developing countries special access** to their markets.
 - Or a country can raise **barriers against products** that are considered to be traded unfairly from specific countries.
 - And in **services**, countries are allowed, in **limited circumstances**, to **discriminate.**
- But the agreements only permit these exceptions under **strict conditions.**

Related Information

About GATT

- The General Agreement on Tariffs and Trade (GATT), signed in **1947**, is a treaty **minimizing barriers to international trade** by eliminating or reducing quotas, tariffs, and subsidies. It was intended to **boost economic recovery after World War II.**

- GATT was expanded and refined over the years, leading to the creation in **1995** of the **World Trade Organization**, which absorbed the organization created to implement GATT.
- The **Council for Trade in Goods (Goods Council)** is now responsible for the GATT and consists of representatives from all WTO member countries.

5.2. Hedge Funds

About

- As per SEBI's definition, "Hedge funds are **unregistered private investment partnerships, funds or pools** that may invest and trade in many different markets, strategies and instruments (including securities, non-securities and derivatives) and are **not subject to the same regulatory requirements as mutual funds.**"
- In simple terms, Hedge Funds pool money from high-net-worth individuals and large companies to **generate higher return and diversify risk.**
- The funds are managed by professional fund managers who follow a wide range of strategies to invest in traditional or non-traditional assets, to earn above-average investment returns.
- The investments are often considered **high-risk** and usually done by high net worth individuals.

5.3. Masala Bonds

What are masala bonds?

- These are **rupee-denominated borrowings raised in overseas markets.**

- Indian companies issue masala bonds outside India to raise money from foreign investors.

What is the advantage of borrowing abroad in rupees?

- The bonds are **directly pegged to the Indian currency**. So, **investors will directly take the currency risk or exchange rate risks.**
- If the value of Indian currency falls, the foreign investor will have to bear the losses, not the issuer which is an Indian entity or a corporate.

5.4. RBI changes definition of Politically-Exposed Persons

News:

- The Reserve Bank of India (RBI) has changed the definition of Politically-Exposed Persons (PEPs) under its Know Your Customer (KYC) norms, a move that will make it easier for those individuals to carry out various banking transactions.
- In the amended KYC direction, the central bank defines PEPs as "individuals who are or have been entrusted with **prominent public functions by a foreign country**, including the heads of states/governments, senior politicians, senior government or judicial or military officers, senior executives of state-owned corporations and important political party officials".
- Bank accounts of PEPs have **additional KYC norms** under the current provisions and special due diligence has to be undertaken by a senior bank official.

Organisations

1) UNRWA

What is UNRWA?

- UNRWA stands for **UN Relief and Works Agency for Palestinian Refugees in the Near East**.
- It was founded in **1949** by an **U.N. resolution to provide aid to about 700,000 Palestinians** who were forced to leave their homes in what is now Israel during the **1948 Arab-Israeli war**.
- The UN agency operates in **Gaza** and the **Israeli-occupied West Bank**, as well as **Lebanon, Syria, and Jordan** — countries where the refugees took shelter after their expulsion.
- UNRWA runs education, health, relief and social services, microfinance and emergency assistance programmes inside and outside refugee camps based in the aforementioned areas.
- Currently, around 5.9 million Palestine refugees — most of them are descendants of original refugees — access the agency's services.
- UNRWA is **funded almost entirely by voluntary contributions** by donor states like the US. It also gets a **limited subsidy from the UN**.
- UNRWA was initially created as a **temporary agency**. However, in the absence of a solution to the Palestine refugee problem, the General Assembly has repeatedly renewed UNRWA's mandate.

Why in News?

- The US and eight other Western countries, which together provided more than half of UNRWA's 2022 budget, cut the money after Israel accused some of the agency's staff members of involvement in the Hamas attacks on Israel.

- The UNRWA has denied all the allegations, saying it has no links to Hamas.
 - *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.*
 - Refer Pulse October 2023 Digest edition for details about *Israel-Palestine Conflict*.

2) Other Notable Topics

2.1. Central Board of Film Certification

About

- Central Board of Film Certification (CBFC) is a **statutory body** under the **Ministry of Information and Broadcasting**.
- CBFC **regulates the public exhibition of films** under the provisions of the **Cinematograph Act 1952**.
- Films can be **publicly exhibited in India only after they have been certified** by the Central Board of Film Certification.
- The Board consists of **non-official members** and a **Chairman** (all of whom are appointed by **Central Government**) and functions with headquarters at **Mumbai**.
- The Certification process is in accordance with **The Cinematograph Act, 1952, The Cinematograph (certification) Rules, 1983**, and the guidelines issued by the Central government.

- **Certifications:**
 - U – Unrestricted Public Exhibition.
 - U/A – Unrestricted Public Exhibition but with a word of caution that discretion required for children below 12 years.
 - A – Restricted to adults.
 - S – Restricted to any special class of persons.

2.2. Coal Controller's Organization

About

- The Coal Controller's Organization is a **subordinate office of the Ministry of Coal**, having its offices at **Kolkata, Delhi** and field Offices at **Dhanbad, Ranchi, Bilaspur, Nagpur, Sambalpur** and **Kothagudem**.
- **CCO collects and maintains coal production data of all private and public sector coal mines** in the country.
- The information is collected on a **monthly basis**.
- CCO performs various functions under different statutes/rules to **ensure fair production and commercial transactions of coal including quality surveillance**.
- The Coal Controller's Organization discharges the following functions: -
 - **Inspection of collieries** so as to ensure the correctness of the class, grade or size of coal;
 - To issue **directives** for the purpose of declaration and maintenance of grades of coal of a seam mined in a colliery;
 - To act as the **appellate authority** in case of dispute between consumers and owner arising out of declaration of grade of coal;
 - **Quality surveillance** with respect to maintenance of grade, loading of coal in wagons/trucks according to laid down procedures regarding grades and sizes;
 - To grant **opening/re-opening permission** of coal mine;
 - **Approval** of Mining Plan and Mine Closure Plan;
 - **Review/evaluations of mines** under Star rating Policy;
 - Collection, Compilation of **Monthly Coal & Lignite Statistics and Release of Annual Publication**;
 - **Reimbursement of funds** against progressive/ final mine closure activities from Escrow Accounts;
 - **Disbursement** of sums of credit from Coal Mines Conservation and Development account;
 - To hear **objections to the Central Government's Notification** relating to acquisition of coal bearing land under Coal Bearing Area (Acquisition and Development) Act, 1957 and to furnish his reports to Central Govt;
 - To facilitate **field visit** for prospective bidders for proposed coal blocks for auction;
 - **Parliament Quarries & RTI**;
 - **Support** of Niti Ayog, IBM, State Govt. and DPIIT etc.

Science and Technology

1) AMATERASU - The Second highest energy cosmic ray

What are Cosmic Rays?

- Cosmic rays are **streams of energetic particles and clusters of particles coming from outer space and the sun**. They include **protons and alpha particles** (nuclei of helium atoms).
- **Only low-intensity cosmic rays reach the earth's surface** because their energy is mostly lost in the atmosphere itself, as they smash into atoms of the atmospheric gases and produce a shower of other particles. Otherwise life wouldn't have been possible on the earth.

Types of Cosmic Rays

- Cosmic rays can be divided into two types: those **originating from beyond our solar system**, called **galactic cosmic rays (GCR)**, and **high-energy particles emitted by the sun**, called **solar cosmic rays**, that are mainly protons. Solar cosmic rays originate primarily in **solar flares**.
 - *Solar flares are huge explosions of electromagnetic radiation from the Sun.*
- GCRs are **slowly changing streams of high-energy particles that constantly strike the earth**. They are thought to originate outside the solar system in **events such as supernovae**.
 - *A supernova is an explosion that occurs when a massive star nears the end of its life after running out of matter that it can fuse.*
- Although some **89% of GCRs is hydrogen**, the remainder includes the **nuclei of all elements**, down to and including trace amounts of **uranium**. These nuclei are also

fully ionized, meaning all of their electrons have been stripped away.

- As a result, these particles **interact with and are affected by magnetic fields**. This is why the **sun's strong magnetic fields alter the energy levels of GCRs reaching the earth**.
- When cosmic ray particles reach the earth's atmosphere, they ionize air molecules that are at least about 3 km above the surface. Beyond that, they will have lost most of their energy.

Why in News?

- Astronomers have detected an ultra-high-energy cosmic ray (UHECR) with a whopping energy level of **240 exa-electron-volt (EeV)**.
 - The electron-volt (eV) is a unit of energy, like joules, used to measure the energy of subatomic particles. The **energy of 1 eV is approximately 1.6×10^{-19} joules**.
 - **One joule** is the energy required to light a one-watt bulb for one second.
- Cosmic rays typically range in energy from about **one billion eV to about 100 billion billion eV**. The Amaterasu cosmic ray had an energy of **240 EeV – or 240 billion billion eV**. This is extremely high.
- It's the most energetic cosmic ray detected since 1991, when astronomers detected the so-called **"Oh-My-God" particle**, with energies of an even more impressive 320 EeV.

2) Square Kilometer Array Project About SKA Project

- The Square Kilometre Array (SKA) project is an **international effort** to build the **world's biggest and most**

sensitive radio telescope, with eventually over a square kilometre (one million square metres) of collecting area.

- SKA will be a **group of radio telescopes operating out of South Africa and Australia in two different ranges of radio frequency.** Its **headquarters** are at the **Jodrell Bank Observatory in the UK.**
 - The South-African array will scan for mid-frequency signals, between 350 MHz and 15.4 GHz, while the Australian telescope will work in the low-frequency range of 50-350 MHz.
 - To improve the accuracy of triangulation of data and its resolution, the project will include **additional dishes in the future** in neighbouring African countries — Botswana, Ghana, Kenya, Madagascar, Mauritius, Mozambique, Namibia, and Zambia.
- Once operational, SKA would be between **5 to 60 times more powerful** than the most advanced existing radio telescopes functioning in comparable frequency ranges.
- It will also be **one of the world's largest collaborative research projects**, involving thousands of researchers and the world's fastest supercomputers. It is expected to begin operations by **2029.**

Objectives

- The project aims to answer a **wide variety of long-standing questions in physics and cosmology**, by observing the universe.
- It will **study the Milky Way** in great detail.

- The telescope will **study magnetism and radiation** from distant galaxies and **map** them as well. This will provide details about **galaxy formation and evolution.**
- It will also study the **'Dark Ages'** of the universe and what happened within a few million years following the Big Bang before there was any light, of which we do not know much.
- Through these observations, the SKA will also aim to detect and understand the **role of dark matter and dark energy** in the universe.
- Finally, it will **aid in the search for life beyond the Earth** by looking for planets that orbit stars in habitable zones and studying their atmosphere for organic compounds, as a part of a science programme called **Cradle of Life.**



Who is involved in the SKA Project?

- Founded in **2019**, the **Square Kilometre Array Observatory (SKAO)** has **16 consortium members** — Australia, South Africa, Canada, China, India, Japan, South Korea, the UK, Spain, Portugal, Switzerland, France, Germany, the Netherlands, Sweden, and Italy.

Why in News?

- The Government of India has accorded its approval for **India's participation in the Square Kilometer Array (SKA)**, at an estimated cost of ₹1250 Cr.
- This approval covers **funding support** for the construction phase

of the international SKA Observatory (SKAO) spread over the next 7 years.

- The project will be **jointly funded by the Department of Atomic Energy (DAE) and Department of Science and Technology (DST)**, with **DAE as the lead agency**.
- Subsequent to this approval, India will be signing the **SKA treaty** to become a **full-fledged member** of the SKA Observatory and thus join the growing list of countries participating in the project.

Related Information

What are radio telescopes?

- Radio telescopes **detect and amplify radio waves** from space, turning them into signals that astronomers use to enhance our understanding of the Universe.
- Unlike optical telescopes, radio telescopes can **detect invisible gas** and, therefore, they can reveal areas of space that may be obscured by cosmic dust.

3) Antibiotics and Antimicrobial resistance

Antimicrobial Resistance

- Antimicrobial resistance, also known as **drug resistance**, is the **resistance acquired by microorganisms** such as **bacteria, viruses, fungi, and parasites** against **antimicrobial drugs** that are used to treat infections.
- When the microorganisms become resistant to most antimicrobials they are often referred to as **“superbugs”**
- According to the **World Health Organization (WHO)**, AMR is responsible for 1.27 million deaths in a year.
- **WHO** has declared that **AMR is one of the top 10 global public health threats facing humanity**.

Causes of AMR

- AMR occurs **naturally** over time, usually through **genetic changes**.
- **Access to antibiotics without prescription, improper administration, and overconsumption** can cause AMR in humans.
- **Untreated disposal of sewage** in water bodies can lead to contamination of rivers with **antimicrobial residues**.
- Other causes
 - overuse of antibiotics in livestock and fish farming;
 - lack of access to clean water, sanitation and hygiene (WASH) for both humans and animals;
 - poor infection and disease prevention and control in health-care facilities and farms;
 - poor access to quality, affordable medicines, vaccines and diagnostics;
 - lack of awareness and knowledge; and
 - lack of enforcement of legislation.

Impact of AMR

- AMR **increases the health burden** of nations leading to higher medical costs, prolonged hospital stays, and increased mortality.
- Organ transplantations, chemotherapy, diabetes management, and surgeries become **more dangerous** without effective antibiotics for treatment of infections.
- The **economic impact** of increasing AMR includes the loss of a productive workforce, leading to lowered national outputs.
- It also **endangers** the achievement of **Sustainable development goals (SDGs)**.

Global Efforts to combat AMR

- **World Antimicrobial Awareness Week** (18 to 24 November) held annually is a global campaign that aims to increase awareness of antimicrobial resistance worldwide.
- **The Global Antimicrobial Resistance Surveillance System (GLASS)**, under the **WHO**, supports a **standardized approach** to the collection, analysis, and sharing of data related to antimicrobial resistance at a global level to promote informed decision-making.
- In 2019, the WHO launched a new online tool aimed at guiding policy-makers and health workers to use antibiotics safely and more effectively. The tool, known as '**AWaRe**', classifies antibiotics into three groups:
 - **Access** — antibiotics used to treat the most common and serious infections
 - **Watch** — antibiotics available at all times in the healthcare system
 - **Reserve** — antibiotics to be used sparingly or preserved and used only as a last resort.

National Initiatives

- The **National Action Plan on Antimicrobial Resistance (NAP-AMR)** focusing on '**One Health**' approach was launched in 2017 with the aim of promoting AMR containment.
 - *One Health is an integrated, unifying approach that aims to sustainably balance and optimize the health of people, animals and ecosystems.*
- The **Indian Council of Medical Research (ICMR)** has established **AMR surveillance and research network (AMRSN)** to generate evidence and capture trends and

patterns of drug resistant infections in the country.

- **The Red line campaign** is aimed at **discouraging over-the-counter sales** of antibiotics causing drug resistance for diseases including TB, malaria, HIV, etc.
- The **Union Ministry of Health and Family Welfare** has launched the **Red Line awareness campaign on AMR**, urging people not to use medicines marked with a red vertical line, including antibiotics, without a doctor's prescription.

Why in News?

- A report released by the **National Centre for Disease Control (NCDC)** revealed that **57 percent of prescribed antibiotics in India** have a high potential for causing **antimicrobial resistance (AMR)**.
- The report also found rampant **polypharmacy**, the practice of handing out five or more medications to treat infections, which can cause **AMR**.

About NCDC

- The **National Centre for Disease Control**, formerly the **National Institute of Communicable Diseases (NICD)**, had its origin as the **Central Malaria Bureau**, established at Kasauli (Himachal Pradesh) in **1909**.
- Currently headquartered in **New Delhi**, the Institute is under **administrative control** of the **Director General of Health Services, Ministry of Health and Family Welfare**.
- It functions as the **nodal agency** in the country for **disease surveillance** facilitating prevention and control of communicable diseases.
- In coordination with the State Governments, NCDC has the capacity and capability for disease surveillance, outbreak

investigation, and rapid response to contain and combat outbreaks.

4) Thirty Meter Telescope

About

- Thirty Meter Telescope (TMT) is a **30-meter diameter primary mirror optical and infrared telescope** being established at **Mauna Kea, Hawaii, USA**.
- TMT is a new class of **extremely large telescopes** that will allow us to **see deeper into space and observe cosmic objects with unprecedented sensitivity**.
- At the heart of the telescope is the **segmented mirror**, made up of 492 individual segments. Precisely aligned, these segments will work as a single reflective surface of 30m diameter.



- This will provide unparalleled resolution with TMT images more than 12 times sharper than those from **NASA's Hubble Space Telescope** (launched in 1990 into a low-Earth orbit).
- Once it is built, the TMT will become the **world's largest ground-based telescope operating at optical and infrared wavelengths**, allowing astronomers to study the outer reaches of the universe and study distant stars and **exoplanets** in much greater detail than is currently possible.
 - *An exoplanet, or extrasolar planet, is a planet outside of our solar system that usually*

orbits another star in our galaxy.

Who is building TMT?

- The Thirty Meter Telescope is being designed and developed by the **TMT International Observatory LLC (TIO)**.
- The TIO is an **international collaboration** of research institutions and national governments including **the USA, Japan, China, India and Canada**.
- **India** is a **Founder-Member Partner** in this project which aims to open new windows to the universe through optical and infrared astronomy.

Benefits of TMT

- It will allow astronomers to **explore the mysterious period in the life of the universe** when the first stars and galaxies were formed.
- One of its key uses will be the **study of exoplanets**, many of which have been detected in the last few years, and whether their atmospheres contain water vapour or methane — the signatures of possible life.
- TMT will also observe the **formation and development of the large-scale structures** by looking at faint **distant galaxies** and the intergalactic medium.
- It has the capability to detect and investigate **black holes** that reside in the center of many distant galaxies, as well as study in detail the black hole in the center of our own Milky Way.

Why in News?

- An Indian delegation visited Mauna Kea, Hawaii, USA and discussed challenges in the progress of the Thirty Meter Telescope (TMT) project and ways to overcome them.

5) Other Notable Topics

5.1. Nickel

About Nickel

- Nickel **does not occur freely in nature**. It is **found in association with copper, uranium and other metals**.
- Nickel is extracted from **two ores - magmatic sulfides and laterites**.
- It has a **silver white color** with a **shining base and golden tint** in it.
- Nickel is said to be useful for its properties of being **ductile** and **corrosion resistant**.

Uses of Nickel

- Nickel is widely used in **making alloys** apart from its use in **aerospace, marine, architectural and consumer applications**.
 - *An Alloy is a metal made by combining two or more metallic elements, especially to give greater strength or resistance to corrosion.*
- In particular it is used for making **utensils, coins, magnets and other metals**.

- Nickel is used for making **German silver**, a copper alloy, which is used for plating and polishing.
- **Stainless steel** is the most important alloy of nickel which is further used in making utensils, equipment, chemical plants and food processing units.
- Nickel is a key component in **global battery production** for **electric vehicles**.

Global status

- **Indonesia** is the world's largest producer of Nickel, followed by **Philippines** and **Russia**.

Reserves in India

- The **Sukinda valley** in the Jajpur district of **Odisha** has significant occurrences of **nickeliferous limonite**.
- Nickel has been discovered in association with uranium deposits in **Jaduguda, Jharkhand**. Nickel is also found in significant quantities in **Karnataka, Kerala, and Rajasthan**.

Reports and Indices

1) World Economic Situation and Prospects Report 2024

What's in the news?

- The **United Nations** has released a new report titled "World Economic Situation and Prospects Report 2024".

Highlights of the Report

- The report revised **India's gross domestic product (GDP) growth estimate** for the **2024** calendar year to **6.2 per cent**, compared to 6.7 per cent earlier.
- The report has **revised its 2023 GDP growth projection** for India upwards by 0.5 percentage points to **6.3 per cent**, primarily driven by robust private consumption and substantial public investment.
- However, **global economic growth** is projected to slow from 2.7 per cent in 2023 to **2.4 per cent** in 2024, trending below the pre-pandemic growth rate of 3 per cent.
- **GDP in South Asia** is projected to increase by **5.2 per cent** in 2024, driven by robust expansion in **India**, which remains the **fastest-growing large economy in the world**.

Related Information

About UN

- The **United Nations** is an **international organization** founded in **1945**.
- Currently made up of 193 Member States (including **India**), the UN and its work are guided by the purposes and principles contained in its **founding Charter**.
- The UN remains the one place on Earth where all the world's nations can gather together, discuss common problems, and find shared solutions that benefit all of humanity.

- The **main bodies** of the United Nations are the **General Assembly, the Security Council, the Economic and Social Council, the Trusteeship Council, the International Court of Justice, and the UN Secretariat**. All were established under the **UN Charter** when the Organization was founded in 1945.
- There are **17 Specialized Agencies** of the UN which are international organizations working with the UN, in accordance with relationship agreements between each organization and the UN.

2) Annual Status of Education Report

About ASER

- The Annual Status of Education Report (ASER) is an **annual citizen-led survey** that provides **reliable estimates of children's schooling and learning levels in rural India**.
- **Schooling status** is recorded for children in the **age group 3 to 16**, and children in the **age group 5 to 16** are **tested for their ability to read simple text and do basic arithmetic**.
- This format of **'Basic' ASER** was conducted every year for ten years, from 2005 till 2014 in **almost all rural districts of India**.
- Thereafter, an **alternate-year cycle** was introduced in which the **'basic' ASER** alternated with a **survey focusing on a different age group of children and a different set of domains**.

Where is ASER conducted?

- Unlike most other large-scale learning assessments, ASER is a **household-based** rather than school-based survey.

- This design enables **all children to be included** – those who have never been to school or have dropped out; those who are in government schools, private schools, religious or other types of schools; as well as those who are absent from school on the day of the assessment.

Who conducts the survey?

- The ASER survey is coordinated by the **ASER Centre** and facilitated by the **Pratham network**.
 - *Pratham is one of the largest non-governmental organisations in India. It works towards the provision of quality education to the underprivileged children.*
 - *ASER Centre is Pratham's autonomous research and assessment unit.*
- Around 30,000 volunteers from local partner organisations in each district conduct the survey.

What is the geographical coverage of ASER?

- ASER is a **rural survey**. Urban areas are not covered. ASER usually attempts to reach every rural district of the country.

Why in News?

- The ASER Centre, facilitated by Pratham, has published its **ASER 2023 'Beyond Basics' survey**—that offers a quick look at the educational status of India's rural children.
- The 2023 survey focused on an **older group of 14-to-18-year-old children**, surveying India's youth on **four parameters—Activity, Ability, Awareness and Digital Aptitude, and Aspirations**.
- The survey touched **28 districts across 26 states**.

Highlights of the Survey

ACTIVITY:

- Overall, **86.8% of 14-18-year-olds are enrolled** in an educational institution. There are **small gender gaps** in enrolment, but **notable differences are visible by age**. The percentage of youth **not enrolled** is **3.9% for 14-year-old** and is **32.6% for 18-year-olds**.
- About a **third (33.7 per cent) of children aged 14-18 were also found to have worked** (excluding household work) **for more than 15 days in the past month**.

ABILITY:

- When it came to how well primary schooling had prepared the surveyed children, the results were somewhat alarming.
- **Over a quarter (26.4 per cent) could not read a Class II level text fluently in their regional language**.
- **More than half struggle with division (3-digit by 1-digit) problems**. Only 43.3% of 14-18-year-olds are able to do such problems correctly that's usually taught in Class 3-4.
- **English was similarly problematic, with only 57.3 per cent being able to read a simple sentence**, and of those who could read it, **only 73.5 per cent being able to understand it**.
- Only **5.6% of surveyed youth report taking vocational training or other related courses** currently.

ACCESS, AWARENESS AND SKILLS: DIGITAL DEVICES:

- Of all the surveyed young people, **only 9 per cent had a computer, of which 85 per cent said they could use it**. Of the 91 per cent who did not have a computer, 34 per cent said they could use it.

- The figures were **better for smartphones**; Close to **90% of all youth have a smartphone in the household and know how to use it**. Of those who can use a smartphone, **males (43.7%) are more than twice as likely to have their own smartphone** than females (19.8%).

Recommendations

- The report noted that as a country, we need to **equip our young people adequately with the essential knowledge, skills, and opportunities** they need to drive their own progress and that of their families and communities.
- India's anticipated "**demographic dividend**" and "**digital dividend**" can achieve their full potential if this is done.

3) Corruption Perceptions Index 2023

What's in the news?

- **Transparency International** has recently published its Corruption Perceptions Index (CPI) for 2023.
 - *Transparency International is the global civil society organisation leading the fight against corruption. Founded in 1993, it is based in Berlin, Germany.*
- The CPI ranked **180 countries and territories** by their **perceived levels of public sector corruption on a scale of zero (highly corrupt) to 100 (very clean)**.

Highlights of the Report

- **India** has slipped from 85th position in 2022 to **93rd** in CPI 2023. The country's **overall score** for 2023 stands at **39**, one point lower than 2022.
- **Denmark**, with a score of 90, topped the index for the sixth consecutive year. It is followed by

Finland, New Zealand and Norway.

- Transparency International emphasised that the results of CPI-2023 indicated **minimal progress in addressing public sector corruption globally**, as the **average global score remained unchanged at 43** for the twelfth consecutive year, with over two-thirds of countries scoring below 50.
- While **Western Europe and the European Union** remained the top-scoring regions, its regional average score dropped to 65 this year.
- The bottom of the index included **Myanmar (162), Afghanistan (162) and North Korea (172)**. At rank 180 was **Somalia** with the lowest score of 11.

4) IMF's World Economic Outlook

What's in the news?

- The International Monetary Fund has published its latest **World Economic Outlook** in which it has **upgraded its outlook for the world economy this year**.
 - *World Economic Outlook is a report by the IMF, usually published **twice a year**.*
 - *Refer Pulse June 2023 Digest edition for details about IMF.*
- The IMF now expects the **global economy to grow 3.1% this year**, unchanged from 2023 but better than the 2.9% it had predicted for 2024 in its previous estimate in October.
- Worldwide, the IMF thinks inflation will ease from 6.8% in 2023 to 5.8% in 2024 and 4.4% in 2025.
- The IMF expects world trade to grow just 3.3% this year and 3.6% in 2025, below the historical average of 4.9%.

5) World Employment and Social Outlook

What's in the news?

- The International Labour Organisation (ILO) has released its **World Employment and Social Outlook: Trends 2024 report**.
 - *Refer Pulse November 2023 Digest edition for details about ILO.*
- This ILO flagship report details the impact of economic slowdown on the global labour market.
- The report noted that joblessness and the jobs gap have both fallen below pre-pandemic levels but global unemployment will rise in 2024.
- The **global unemployment rate** in 2023 was **5.1%**, a modest improvement from 2022.
- In 2023, the **numbers of workers living in extreme poverty – earning less than US\$2.15 per day per person in purchasing power parity (PPP) terms** – grew by about one million globally.

Polity

1) Surrogacy (Regulation) Act, 2021 & Assisted Reproductive Technology (Regulation) Act, 2021

The Surrogacy (Regulation) Act, 2021

- The Surrogacy (Regulation) Act, 2021 **defines surrogacy** as a practice where a woman gives birth to a child for an intending couple with the intention to hand over the child after the birth to the intending couple.
- It was passed by the Parliament in 2021.

Highlights of the Act

Regulation of surrogacy

- The Act **prohibits commercial surrogacy, but allows altruistic surrogacy.**
 - Altruistic surrogacy involves **no monetary compensation** to the surrogate mother other than the medical expenses and insurance coverage during the pregnancy.
 - Commercial surrogacy includes surrogacy or its related procedures undertaken for a **monetary benefit or reward** (in cash or kind) exceeding the basic medical expenses and insurance coverage.

Purposes for which surrogacy is permitted

- Surrogacy is permitted when it is:
 - (i) for intending couples who suffer from proven infertility;
 - (ii) altruistic;
 - (iii) not for commercial purposes;
 - (iv) not for producing children for sale, prostitution or other forms

of exploitation; and (v) for any condition or disease specified through regulations.

Eligibility criteria for intending couple

- The intending couple should have a **'certificate of essentiality'** and a **'certificate of eligibility'** issued by the appropriate authority.
- A certificate of essentiality will be issued upon fulfilment of the following conditions:
 - (i) a **certificate of proven infertility** of one or both members of the intending couple from a District Medical Board;
 - (ii) an **order of parentage and custody** of the surrogate child passed by a Magistrate's court; and
 - (iii) **insurance coverage** for a period of 16 months covering postpartum delivery complications for the surrogate.
- The certificate of eligibility to the intending couple is issued upon fulfilment of the following conditions:
 - (i) the couple being **Indian citizens and married for at least five years;**
 - (ii) **between 23 to 50 years old (wife) and 26 to 55 years old (husband);**
 - (iii) they **do not have any surviving child** (biological, adopted or surrogate); this would not include a child who is mentally or physically challenged or suffers from life threatening disorder or fatal illness; and
 - (iv) other conditions that may be specified by regulations.

- The law also allows **single women (widow or a divorcee between the age of 35 and 45 years)** to resort to surrogacy. **(Single men are not eligible)**

Eligibility criteria for surrogate mother

- To obtain a **certificate of eligibility** from the appropriate authority, the surrogate mother has to be:
 - (i) a **close relative** of the intending couple;
 - (ii) a **married woman** having a child of her own;
 - (iii) **25 to 35 years old**;
 - (iv) a **surrogate only once** in her lifetime; and
 - (v) possess a **certificate of medical and psychological fitness** for surrogacy.
- Further, the surrogate mother cannot provide her own gametes for surrogacy.

National and State Surrogacy Boards

- The central and the state governments shall constitute the **National Surrogacy Board (NSB) and the State Surrogacy Boards (SSB)**, respectively.
- Functions of the NSB include,
 - (i) advising the central government on policy matters relating to surrogacy;
 - (ii) laying down the code of conduct of surrogacy clinics; and
 - (iii) supervising the functioning of SSBs.

Parentage and abortion of surrogate child

- A child born out of a surrogacy procedure will be **deemed to be the biological child of the intending couple**.
- An **abortion** of the surrogate child requires the **written consent** of the surrogate mother and the authorisation of the appropriate authority. This authorisation must

be compliant with the **Medical Termination of Pregnancy Act, 2021**.

- *Refer Pulse October 2023 Digest edition for more details about MTP Act.*

- Further, the surrogate mother will have an option to withdraw from surrogacy before the embryo is implanted in her womb.

Offences and penalties

- The penalty for offences under the Act is imprisonment up to 10 years and a fine up to 10 lakh rupees.

Assisted Reproductive Technology (Regulation) Act, 2021

- The Act seeks to regulate and supervise Assisted reproductive technology services.
 - Assisted reproductive technologies (ART) refer to a range of fertility treatments aimed at **aiding reproduction for couples suffering from infertility or to persons who may wish to have a child through artificial methods**.
 - These arrangements include **in-vitro fertilisation** (fertilising an egg in the lab), **gamete donation** (sperm or egg), and **gestational surrogacy** (where the child is not biologically related to the surrogate mother).

Key Features of the Act

Provision of ART services:

- The Act defines ART to include **all techniques that seek to obtain a pregnancy** by handling the sperm or the oocyte (immature egg cell) outside the human body and transferring the gamete or the embryo into the reproductive system of a woman.

- These include **gamete donation, in vitro fertilization, and gestational surrogacy.**
- ART services will be provided through:
 - (i) **ART clinics**, which offer ART related treatments and procedures, and
 - (ii) **ART banks**, which collect, screen and store gametes.

Registration of ART clinics and banks:

- Every ART clinic and bank must be registered under the **National Assisted Reproductive Technology and Surrogacy Registry.**
- A **National Registry** will be established under the Act, which will act as a central database with details of all ART clinics and banks in the country.
- Clinics and banks will be registered only if they adhere to **certain standards.** The registration will be **valid for five years** and may be **renewed.**

Boards:

- The Act provides that the National and State Boards constituted under the **Surrogacy (Regulation) Act, 2021** will also act as the National and State Boards for the regulation of ART services.
- The National Board will review and monitor the Act's implementation and formulate a code of conduct and standards for ART clinics and banks.

Eligibility criteria for commissioning parties:

- ART services may be commissioned by **married couples or women** where:
 - (i) the woman is between 21 and 50 years of age, and
 - (ii) the man is between 21 and 55 years.
- Married couples must also be **infertile**, i.e. unable to conceive

after one year of unprotected coitus or suffer from any other proven medical condition which prevents conception.

Eligibility criteria for donors:

- A bank may obtain **semen from males between 21 and 55 years of age**, and **eggs from females between 23 and 35 years of age.**
- The woman may donate eggs **only once in her life** and **not more than seven eggs may be retrieved** from her.

Conditions for offering services:

- ART procedures must be conducted only with the **written consent** of the commissioning parties and the donor.
- The commissioning party will be required to provide **insurance coverage** in favour of the egg donor (for any loss, damage, or death).

Rights of a child born through ART:

- A child born through ART will be deemed to be a **biological child** of the commissioning couple and will be entitled to the **rights and privileges available to a natural child** of the commissioning couple.
- A **donor will not have any parental rights** over the child.

Offences and penalties:

- The penalty for offences under the Act is fine between five and ten lakh rupees for the first contravention. For subsequent contraventions, these offences will be punishable with imprisonment between three and eight years, and a fine between 10 and 20 lakh rupees.

Why in News?

- The Union Health Ministry has asked all states and UTs about the total number of couples and single and unmarried women who have availed services under the Surrogacy (Regulation) Act, 2021 and Assisted Reproductive Technology (Regulation) Act, 2021

to assess the functioning of the laws.

2) Classification of political parties

Unrecognised political parties

- Either newly registered parties (under the **Representation of Peoples Act, 1951**) or those which have not secured enough percentage of votes in Assembly or General Elections to become a State party or those which have never contested in elections since being registered are considered **registered unrecognised political parties (RUPPs)**.
- Such parties don't enjoy all the benefits extended to the recognised parties.

Provisions for recognised party status

- A recognised political party shall either be a **National party or a State party** if it meets certain laid down conditions.
- The **Election Symbols (Reservation and Allotment) Order, 1968**, lays down the criteria for declaring any registered political party as a national party or a state party.

National Party

- As per the Election symbols order, a registered political party needs to **fulfil at least one of the following three conditions** to be recognised as a national party:
 - It needs to win a minimum **two percent** of seats in the Lok Sabha (11 seats) from at least three different states.
 - It needs to get **at least six percent of votes in four states** in Lok Sabha and Assembly elections, in addition to **winning four Lok Sabha seats**.

- It needs to get **recognised as a state party in four or more states**.

State Party

- In order to be recognised as a state party, a political party needs to **fulfil at least one of the four criteria** laid down by the Election Commission of India.
- A political party will be recognised as a state party:
 - If it wins **three percent of the total seats** in the Legislative Assembly of the state (subject to a minimum of three seats).
 - If it wins one Lok Sabha seat for every 25 Lok Sabha seats allotted for the state.
 - If it gets **at least six percent of votes** in a state during a Lok Sabha or Assembly election. In addition, it also needs to win **at least one Lok Sabha or two Legislative Assembly seats**.
 - If it wins **at least eight percent votes** in a state during the Lok Sabha or Legislative Assembly elections.

Benefits of being a recognised state party or national party

- If a party is recognised as a 'State Party', it is entitled for exclusive allotment of its **reserved symbol to the candidates set up by it in the State of States in which it is so recognised**, and if a party is recognised as a 'National Party' it is entitled for exclusive allotment of its **reserved symbol to the candidates set up by it throughout India**.
- The registered unrecognised political parties do not have the privilege of contesting elections on affixed symbol of their own. They

- have to choose from a list of ‘**free symbols**’ issued by the Commission.
- However, the candidates set up by a political party registered with the Election Commission of India will get **preference in the matter of allotment of free symbols** vis-à-vis purely independent candidates.
 - Recognised ‘State’ and ‘National’ parties **need only one proposer** for filing the nomination and are also entitled for **two sets of electoral rolls** free of cost and **broadcast/telecast facilities** over Akashvani/Doordarshan during general elections.
 - **Note:** While the EC has the power to register parties under the Representation of the People Act, 1951, it **does not have the power to deregister parties that are inactive.**

Why in News?

- The Election Commission of India has brought in new rules for the **allocation of symbols to registered unrecognised political parties (RUPPs)**, making it mandatory for them to furnish audited accounts of the last three financial years, expenditure statements of the last two elections, and the signature of the authorised office-bearer of the party along with the application form for symbols.

3) Other Notable Topics

3.1. Article 131

What is Article 131?

- Article 131 deals with the ‘**original jurisdiction**’ of the **Supreme Court of India** in any dispute that involves a ‘**question of law or fact on which the existence of legal right depends**’.

- *Original jurisdiction refers to a court's authority to hear and decide a case for the first time before any appellate review occurs.*
- A citizen can approach the **High Court or the Supreme Court** under **Article 226** and **Article 32**, respectively, in case there is a **violation of fundamental rights**. A **State** can, meanwhile, invoke **Article 131** to approach the Supreme Court in case it feels that its **legal rights are under threat or have been violated** by another State or the Central government.
- Under Article 131, the dispute may be:
 - **between the Government of India and one or more States, or**
 - **between the Government of India and any State or States on one side and one or more other States on the other, or**
 - **between two or more States.**

Where is the original jurisdiction of the SC not applicable?

- Under Article 131, original jurisprudence **doesn't extend to a dispute arising out of a treaty, agreement, covenant, or engagement** which continues to be in operation and excludes such jurisdiction.
- The original jurisdiction of the SC is also **not applicable to cases where another body has jurisdiction** under other provisions of the Constitution or that of the SC is excluded.
- Examples of this include **Articles 262** (inter-State water disputes), **280** (matters referred to Finance Commission) and **290** (adjustment of certain expenses and pensions between the Union and the States).

- Article 131 cannot be used to settle **political differences** between state and central governments headed by different parties.

When can Article 131 be invoked?

- For a case to fall under the ambit of Article 131, the dispute must **involve a question of law or fact** on which the 'existence or extent of a legal right depends'.

- The Article, however, **doesn't explicitly define** what constitutes a legal right, or whose legal right is in question.

International Relations

1) Davos Summit

About World Economic Forum

- The World Economic Forum is the **International Organization for Public-Private Cooperation**.
- The Forum engages the foremost political, business, cultural and other leaders of society to shape global, regional and industry agendas.
- It was established in **1971** as a **not-for-profit foundation** and is headquartered in **Geneva, Switzerland**.
- The foundation is **mostly funded by its 1,000 member companies** - typically global enterprises with more than \$5 billion in turnover – as well as **public subsidies**.

Why in News?

- The World Economic Forum (WEF) held its annual meeting in Davos, Switzerland.

About Davos Summit

- Davos, Switzerland, is where the World Economic Forum holds its **annual meeting**.
- Delegates from many sectors converge for several days of talks and meetings to address urgent global issues.
- Its salience goes far beyond discussions on economic issues. In the past, it has been used as a location for **pivotal international diplomacy**.

2) Alliance for Global Good - Gender Equity and Equality

What's in the news?

- At the World Economic Forum's Davos summit, India launched the 'Alliance for Global Good – Gender Equity and Equality' to **push women's empowerment and gender equality**.

- The primary and stated objective of this new Alliance is to **bring together global best practices, knowledge sharing and investments** in the identified areas of women's health, education, and enterprise.
- The idea of this alliance emerged from the **G20 Leaders' Declaration** and India's abiding commitment to the cause of women-led development.
- It has garnered support from global corporate houses like MasterCard, Microsoft and a large number of domestic industry leaders.

3) Annual exchange of list of nuclear installations

Agreement on the Prohibition of Attack Against Nuclear Installations and Facilities

- The Agreement on the Prohibition of Attack Against Nuclear Installations and Facilities was signed between **India and Pakistan** in 1988. The agreement entered into force in 1991.
- It mandates the two countries to **inform each other of nuclear installations and facilities** to be covered under the agreement on the **first of January of every calendar year**.
- The exchange of the list came amid frosty ties between the two countries over the Kashmir issue as well as cross-border terrorism.

Why in News?

- Continuing with an over three-decade practice, **India and Pakistan exchanged a list of their nuclear installations** under the Agreement on the Prohibition of Attack Against Nuclear Installations and Facilities.

- It was done simultaneously through diplomatic channels in New Delhi and Islamabad.
- This is the 33rd consecutive exchange of such lists between the

two countries, the first one having taken place on January 1, 1992.

Art & Culture

1) Savitribai Phule

About

- Born in a small village in Satara district of **Maharashtra** in 1831, Savitribai Phule is known for her work as a **social worker, poet, and teacher**.
- Savitribai, with her husband **Jyotirao Phule**, started **India's earliest girls' school** and became **India's first woman teacher and first Indian headmistress**.
- They also started the **Balhatya Pratibandhak Griha** ('Home for the Prevention of Infanticide') for pregnant widows facing discrimination.
- In 1873, the Phules set up the **Satyashodhak Samaj** ('Truth-seekers' society'), a platform open to all, irrespective of their caste, religion or class hierarchies, with the sole aim of bringing **social equity**.
- She strongly **fought against child marriage and the Sati tradition**, she advocated for the **remarriage of widows** and raised awareness on many other critical issues.
- Savitribai Phule wrote two books, **Kavya Phule** and **Bavan Kashi Subodh Ratnakar**, which are collections of her poems.

Why in News?

- Every year on January 3rd, India celebrates Savitribai Phule Jayanti.

2) Ram Temple, Ayodhya

What's in the news?

- The Ram temple in Ayodhya, Uttar Pradesh, was inaugurated recently.

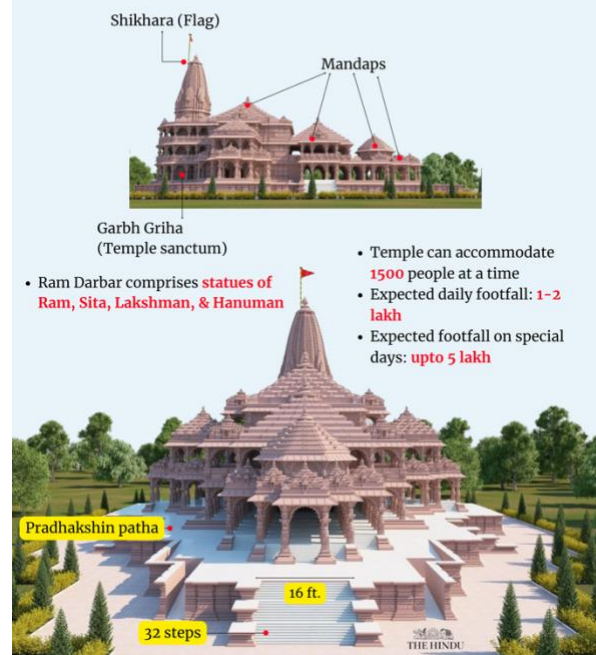
Architecture of the Temple

- It is designed in the **Nagara Style** of temple architecture.
- The **three storey temple**, built on a **raised platform**, is 250 feet in width and 161 feet in height, and is

built using **pink sandstone** from **Mirzapur** and the **hills of Bansi-Paharpur (Rajasthan)**. **No iron** has been used in the temple's construction since the durability of iron is only 80-90 years.

- The main temple area covers 2.67 acres and consists of **390 pillars, 46 doorways, and 5 mandaps**.

Ram temple at Ayodhya



- **Ram Lalla Virajman**, the infant form of Lord Rama, is the **presiding deity** of the temple.
- The idol of five-year-old Ram Lalla, crafted by **Mysuru sculptor Arun Yogiraj**, stands at 51 inches.
- The chief architect of the temple is **Chandrakant Bhai Sompura**, who had earlier designed the **Akshardham temple** in Gujarat.
- It is constructed by **Larsen and Toubro** with management by **Tata Consulting Engineers Limited**.
- **IIT Chennai** has been advising on the construction of the temple.
- It is designed to **withstand the strongest earthquakes and most intense flooding**.

3) Pradhan Mantri Rashtriya Bal Puraskar award

About PMRBP

- The Government of India confers the Pradhan Mantri Rashtriya Bal Puraskar (PMRBP) award to **children with exceptional abilities and outstanding achievements.**
- The awards are given to children in the **age group 5 – 18 years** for their excellence in **seven categories** for **Bravery, Art & Culture, Environment, Innovation, Science & Technology, Social Service and Sports** that deserve national recognition.
- Each awardee of PMRBP is given a medal, certificate and a citation booklet.

Why in News?

- The President of India presented Pradhan Mantri Rashtriya Bal Puraskar to 19 children at a function held in New Delhi.

4) Other Notable Topics

4.1. Golconda Fort

About

- Golconda Fort is located in the **western part of Hyderabad city (Telangana)** and is about 9 km from the **Hussain Sagar Lake.**
- The outer fort occupies an area of three square kilometers, which is 4.8 kilometers in length. It was originally known as **Mankal**, and built on a hilltop in **1143.**
- It was originally a **mud fort** under the reign of **Rajah of Warangal.** Later it was **fortified between the 14th and 17th centuries** by the **Bahmani Sultans** and then the ruling **Qutub Shahi dynasty.**
- Golconda was the **principal capital of the Qutub Shahi kings.** The Qutub Shahis reign at Golconda

ended in 1687 when it was run over by Mughal emperor Aurangzeb, who intentionally left it in ruins.

- The outermost enclosure is called **Fateh Darwaza** meaning **Victory gate**, after Aurangzeb's army marched successfully through this gate.



4.2. Modhera Sun Temple

About

- The Sun Temple at Modhera is located on the left bank of the **River Pushpavati**, a tributary of **River Rupan** in Mehsana District of **Gujarat.**
- It was built in **1026-27 CE** during the reign of **King Bhimadeva I of the Chaulukya dynasty.**
- It is an architectural landmark being the **earliest Solanki temple of Gujarat.**
 - *The Solanki style of temple architecture flourished in Gujarat. A Solanki typical temple plan consists of a closed hall ('sanctum') and a porch that are interconnected both internally and externally.*
 - *These temples were largely built in sandstone or limestone.*
 - *The Modhera Sun Temple and the 'Somnath Temple' at Kathiawar (12th century) are outstanding examples of the Solanki architecture.*

Architectural features

- The temple, built of in **Maru-gurjara architectural style**, consists of the main temple shrine (**garbhagriha**), a hall

(**gadhamandapa**), an outer hall or assembly hall (**Sabhamandapa** or **rangamandapa**) and a sacred pool (**Kunda**) which is now called **Ramakunda**.

- This **east facing** temple is built of **bright yellow sandstone**.



4.3. Ajmer Sharif Dargah

About

- The Ajmer Sharif Dargah is a **Sufi shrine** located in the city of **Ajmer in Rajasthan**.
- It is dedicated to the **Sufi saint Khwaja Moin-ud-din Chishti**, who is also known as "**Gharib Nawaz**," or the "**Benefactor of the Poor**."
- The shrine was built by **Mughal King Humayun** in honour of the saint.
- Made of **marble and gold plating**, the actual tomb is guarded by a **silver railing and a marble screen**.



- During his reign, **Emperor Akbar** made a pilgrimage to Ajmer every year. He, as well as **Emperor Shah Jahan**, built mosques inside the shrine complex.
- In keeping with his secular teachings, its doors are **open to people of all faiths and religions**.

4.4. Saint Ravidas

About

- Saint Ravidas, also known as **Guru Ravidas** or **Bhagat Ravidas**, was a **revered saint, poet, and social reformer** in the **Bhakti movement**.
- Born in the late 14th century in **Varanasi, Uttar Pradesh**, Guru Ravidas belonged to a family of leatherworkers, traditionally regarded as a lower caste.
- Ravidas emphasized the importance of **devotion (bhakti) to God** and believed in the **equality of all human beings**, irrespective of caste or social status.
- He played a pivotal role in **preaching social harmony** and stood against caste discrimination and social injustice.
- His teachings focused on the concept of **one formless, attributeless divine reality**.
- He **rejected ritualism and external markers** of caste and social hierarchy.
- Ravidas' devotional songs were included in the **Guru Granth Sahib**, Sikhism's holy book.
- One of his famous disciples was the saint **Mirabai**.
 - *Mirabai was a 16th-century Hindu mystic poet and an ardent devotee of Lord Krishna.*
- Among Ravidas's moral and intellectual achievements was the conceptualization of "**Begampura**", a city that was free from caste, class and sorrow.

4.5. Hornbill festival

About Hornbill festival

- Conceptualised in **2000**, the Hornbill Festival is a ten day annual tourism promotional event organised by the **State Government of Nagaland** to showcase the state's rich and traditional cultural heritage.
- Dubbed as the "**Festival of Festivals**", this event provides a unique platform for visitors to witness the Naga cultural diversity converging at one venue.
- The festival is named after the **Hornbill**, a culturally significant bird that symbolises beauty and grace in Naga folklore and ritual.
 - *Refer Pulse May 2023 Digest edition for details about Hornbill.*



- The Hornbill Festival is held at the **heritage village of Kisama**.
- Some popular dances during the festival include the **warrior dance of the Angamis**, the **fire dance of the Konyaks**, and the **bamboo dance of the Sumis**.

4.6. Medaram Jatara

About

- The Medaram Jatara originally called the '**Sammakka Sarakka Jatara**' is a **popular tribal festival of Telangana**.

- It is celebrated in **Medaram**, a remote village in the **Eturnagaram Wildlife Sanctuary**, a part of **Dandakaranya**, the largest surviving forest belt in the region.
- The festival is celebrated **once in two years** in the month of February on the **full moon day** in honour of the **Goddesses Sammakka and Saramma**.
- It is perhaps the only tribal fair devoted to **pay tribute to tribal warriors** who made supreme sacrifices defending the rights of aboriginal tribal people
- The festival is organised by the **Koya tribe** who are also considered to be the **second largest tribal community of Telangana**.
- It is believed that **after Kumbha Mela**, the Medaram jatara attracts the **largest number of devotees in the country**.

4.7. Channapatna toys

About

- Channapatna toys are a particular form of **wooden toys** that are manufactured in the town of Channapatna in the Ramanagara district of **Karnataka**.
- This traditional craft is protected with **geographical indication (GI) tag**.
- As a result of the popularity of these toys, Channapatna is known as **Gombegala Ooru (toy-town) of Karnataka**.



- Channapatna toys have a **200 year old history** and are made out of

- wood - soft ivory wood, teak, rubber, cedar or neem.**
- Its history has been traced to the era of **Hyder Ali** and **Tipu Sultan** in the **18th century**.
 - The Channapatna toys are laced with **vegetable dyes** and **colours devoid of chemicals** and hence they are safe for children.

Defence

1) Free Movement Regime agreement scrapped

Context

- India has scrapped the Free Movement Regime (FMR) with Myanmar, a bilateral arrangement that **allowed people living along the border to travel up to 16 km inside the other country without a visa.**

What is the Free Movement Regime?

- Much of India's present-day northeast was temporarily under **Burmese occupation** until the **British** pushed them out in the 1800s.
- The victors and the vanquished signed the **Treaty of Yandaboo in 1826**, leading to the current alignment of the **boundary between India and Burma**, later renamed **Myanmar**.
- The border **divided people of the same ethnicity and culture** — specifically the **Nagas** of Nagaland and Manipur and the **Kuki-Chin-Mizo communities** of Manipur and Mizoram — **without their consent.**
- Wary of increasing Chinese influence in Myanmar, New Delhi began working on improving diplomatic ties with the Myanmar government a decade ago.
- After almost a year's delay, the FMR came about in **2018** as part of the **Government's Act East policy.**
- The FMR allowed people living on either side of the border to **travel up to 16 km inside each other's country without a visa.** A border resident needs to have a **border pass, valid for a year**, to stay in the

other country for about **two weeks per visit.**

- It allowed tribes who share familial, social and ethnic ties on both sides of the border to keep in touch with their people.
- The FMR also envisaged the **promotion of localised border trade** through customs stations and designated markets apart from helping the people of Myanmar access better education and healthcare facilities on the Indian side of the border.

Why is the FMR scrapped?

- At present, **apart from a 10 km stretch** in Manipur, the India-Myanmar border through hills and jungles is **unfenced.**
- The security forces have for decades grappled with members of extremist groups carrying out **hit-and-run operations** from their clandestine bases in the **Chin and Sagaing regions** of Myanmar.
- The ease of cross-border movement, even before the FMR was in place, was often flagged for **inward trafficking of drugs and outward trafficking of wildlife body parts.**
- The trigger to suspend FMR was the conflict that broke out between the majority Meitei and the tribal Kuki-Zo communities in Manipur in 2023.
- In addition to scrapping FMR, the Union Home Minister recently said the **1,643 km India-Myanmar border** which stretches across **four states** — **Mizoram, Manipur, Nagaland, and Arunachal Pradesh** — **would soon be fenced.**

Key Takeaways From Other Articles

1) Megaherbivores

- Megaherbivores are **large herbivores**, typically weighing over 1,000 kilograms and play a crucial role in shaping and maintaining ecosystems around the world.
- They are considered as **keystone species** in their environment.
 - *A keystone species is a species that has a disproportionately large effect on its natural environment relative to its abundance.*
- Megaherbivores usually tend to have **high life expectancies, slow population growth, large offspring, lengthy pregnancies, and low mortality rates.**
- Examples include **Elephant, Rhinoceros, Giraffe, Whale, Dugong**, etc.

2) Cabo Verde declared Malaria free

- **The World Health Organization (WHO) has recently certified** Cabo Verde (also known as Cape Verde) as a **malaria-free country.**
- A country is granted malaria-free status by WHO, if it has demonstrated, using rigorous, credible evidence, that the **chain of indigenous malaria transmission by Anopheles mosquitoes has been disrupted nationwide for at least three consecutive years.**
- A country must also demonstrate the capacity to prevent the **re-establishment of transmission.**
- **Cabo Verde** has become the **third country** in the **African region** to acquire this status, following **Mauritius** and **Algeria**, who were certified in 1973 and 2019, respectively.

3) Aviation Market in India

- **India is the third-largest and fastest-growing aviation market** in the world, and has huge potential for growth as a sizable section of the population remains untapped.

4) Khadi and Village Industries Commission

- Khadi and Village Industries Commission (KVIC) is a **statutory organisation under the Ministry of MSME.**
- It was established in 1957 under an **Act of Parliament.**
- KVIC is engaged in promoting and developing Khadi and Village industries (KVI) for providing employment opportunities in the rural areas.

5) Vande Bharat Express

- Vande Bharat Express, formerly known as **Train 18**, is a **semi-high-speed, electric multiple unit train** operated by **Indian Railways.**
- It began its operations in 2019 when the first of its kind was flagged off between **New Delhi-Kanpur-Prayagraj-Varanasi route.**
- By September 2023, 50 Vande Bharat trains were running across the country.

6) Parvatmala Pariyojana

- **Parvatmala Pariyojana – National Ropeways Development Programme** is being implemented for **development of ropeways** to improve accessibility and convenience for passengers and to promote **tourism.**
- Along with hilly areas, ropeways are being developed as alternative mode of transportation

in congested urban areas e.g., those of Varanasi, Ujjain.

7) Golden quadrilateral

- Golden Quadrilateral, a network of highways connecting the four metro cities of **Delhi, Mumbai, Chennai and Kolkata**.
- The total length of the network is approximately **5,846 km**.
- The Golden Quadrilateral project is managed by the **National Highways Authority of India (NHAI)** under the **Ministry of Road, Transport and Highways**.
- The Golden Quadrilateral has played a significant role in India's economic development by facilitating faster movement of goods, reducing logistics costs, and making businesses more competitive.

8) Disease X

- Disease X is the name given by scientists and the World Health Organization to an **unknown pathogen that could emerge in future** and cause a serious international epidemic or pandemic.
- The most recent **Disease X** to emerge was the **SARS-CoV-2 virus** that causes **COVID-19**.

9) Avian Navigation

- Birds possess remarkable **navigational abilities**, which allow them to detect changes in **atmospheric pressure, weather, and the earth's magnetic field**.
- Their **internal magnetic compass**, located in their brains, is a crucial **navigational aid** that relates to the earth's magnetic field.
- The **magnetic currents** generated by the earth's magnetic field are translated into flight paths, enabling birds to locate specific regions and find their way home.
- Disturbances in the **magnetic field**, such as those caused by **solar flares**, can significantly impact birds' navigation.

10) Long Covid

- Long COVID, refers to a condition **where individuals who have recovered from the acute phase of COVID-19 continue to experience persistent symptoms** for weeks or months after the initial infection has resolved.
- The most common symptoms are Fatigue, shortness of breath, brain fog, and extreme tiredness.
- The cause of tiredness was identified as **muscle cells not receiving sufficient energy from mitochondria**.