

APRIL EDITION 2023

VOL. II ISSUE 04

# Varthaman

MONTHLY CURRENT AFFAIRS MAGAZINE  
BY RV TRAINING ACADEMY

## BUMCHU BUDDHIST FESTIVAL

Bumchu Festival was celebrated in Tashiding Monastery, located in Sikkim.

Bumchu means “pot of sacred water” in Tibetan. The vase is opened during the event, and water inside is thought to have healing qualities shared among the worshippers.

+ APPOINTMENT OF ELECTION  
COMMISSIONERS

+ CRYPTO CURRENCY UNDER  
MONEY LAUNDERING LAW

+ GANDHAMARDAN HILL RANGE  
OF ODISHA

CURRENT AFFAIRS  
& PRACTICE QUESTIONS



# ADMISSIONS OPEN

NEW BATCH STARTS

**JUNE  
2023**

## COURSE HIGHLIGHTS

BASIC NCERT FOUNDATION

PRELIMS CLASSES

WEEKLY CURRENT AFFAIRS

MAINS UPGRADATION

ANSWER WRITING PRACTICE

PERSONALISED MENTORING

STUDY MATERIALS

RV TRAINING ACADEMY



# IMPORTANT HISTORICAL EVENT

## *The first railway is established between Bombay and Thane*

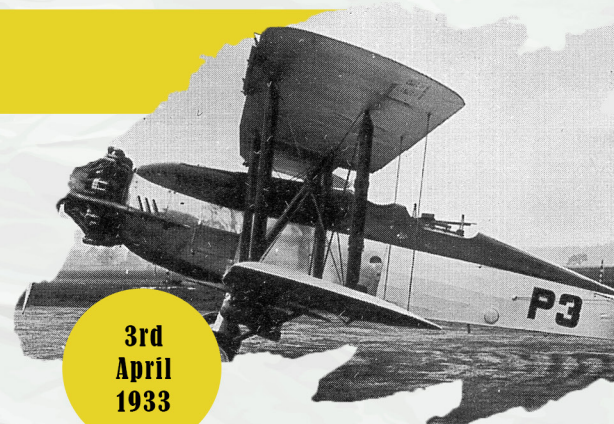


**16th  
April  
1853**

The first passenger train in India ran between Bombay (Bori Bunder) and Thane on 16th April 1853. The 14-carriage train was hauled by three steam locomotives – Sahib, Sindh and Sultan; it carried 400 people and ran on a line of 34 kilometres (21 mi) built and operated by the Great Indian Peninsula Railway. This line was built in 1,676 mm (5 ft 6 in) broad gauge, which became the standard for railways in the country.

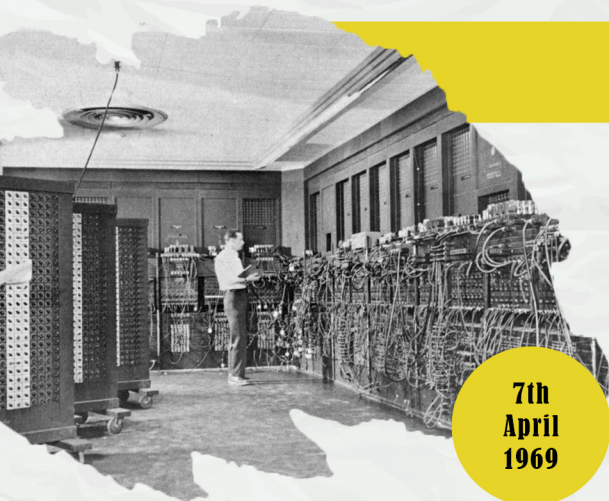
## *First flight over Mount Everest, by the British Houston–Mount Everest Flight*

RAF squadron leader Douglas Douglas-Hamilton, otherwise known as Lord Clydesdale, led an ambitious attempt to fly over the summit of the world's tallest mountain. With the financial backing of philanthropist Lady Houston, the Houston Everest Expedition took off from an airstrip near Purnea, India at 8:25 a.m. on April 3, 1933. The flight would test not only the mechanical capabilities of the biplanes at dizzying altitudes, but also the endurance of the pilots in the thin and frigid air.



**3rd  
April  
1933**

## *The birth of the Internet as a project of the US military*



**7th  
April  
1969**

The computer networking revolution began in the early 1960s and has led to today's technology. The Internet was first invented for military purposes, and then expanded to the purpose of communication among scientists. The invention also came about in part by the increasing need for computers in the 1960s. ARPANET is considered the first known group of interconnected computers, also known as the Internet. This system was used to transfer confidential data between the military.

## *Doordarshan aired India's first colour TV broadcast*

The test run for the coloured broadcast was started by Doordarshan, marking a new phase for the Indian television. The decision to bring in colour TV to India was made by the union ministry ahead of the 1982 Asian Games which was hosted by India. The test run for the coloured broadcast was started on April 25, 1982, by the network channel, marking a new phase for the Indian television.



**25th  
April  
1982**

## Purpose of the magazine

The purpose of Varthaman is to focus solely on issues which are relevant to the actual as well as applied aspects of the General Studies syllabus. The unique way the "Varthaman" team puts forward the facts and analysis would help you understand, retain and reproduce the information during the journey towards toppers' list.

## The sources relied for selection and application of issues

The Hindu  
The Indian Express  
Times of India  
PIB  
Live Mint  
Hindustan Times  
News on Air  
Prasar Bharati website  
IDSA Website  
NASA website  
PRS India Website  
Down to Earth  
Rajya Sabha TV website  
Lok Sabha TV website  
Economic and Political Weekly  
Yojana  
Kurukshetra  
NITI Aayog reports  
BBC

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## Features of the magazine

### Current Affairs Analysis

- This month's edition covers the analysis of news from the immediately preceding month.
- The news are categorized subject wise viz. Polity, Economics, Environment and Ecology, Science and Technology, International Relations, etc. for easy and efficient study.
- Lead articles on burning issues are included.

### Practice Questions

- Prelims Practice Questions
- Mains Practice Questions



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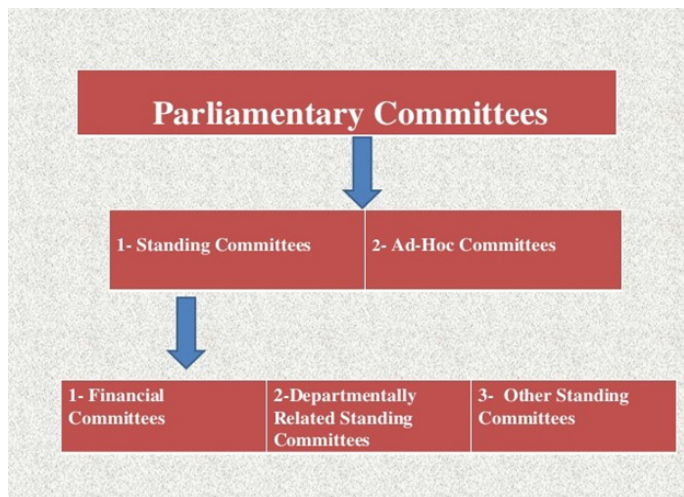
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# POLITY AND GOVERNANCE

## PARLIAMENTARY COMMITTEES

**In News:** Eight officers from the personal staff of Vice President and Rajya Sabha Chairman Jagdeep Dhankhar have been “attached” to 12 standing committees and eight department-related standing committees of Parliament, drawing criticism from the Opposition.



### More on the Topic:

- A Parliamentary Committee is a **panel of MPs** that is **appointed or elected by the House or nominated by the Speaker**, and which works under the direction of the Speaker. It presents its report to the House or to the Speaker.
- Parliamentary Committees have their origins in the British Parliament.
- They draw their authority from **Article 105**, which deals with the privileges of MPs, and **Article 118**, which gives Parliament authority to make rules to regulate its procedure and conduct of business.

### What are the various Committees of Parliament?

- Broadly, Parliamentary Committees can be classified into **Financial Committees, Departmentally Related Standing Committees, Other Parliamentary Standing Committees, and Ad hoc Committees**.
- **Financial Committees:** The Financial Committees include the Estimates Committee, Public Accounts Committee, and the Committee on Public Undertakings. These committees were constituted in 1950.
- **Departmentally Related Standing Committees:** Seventeen Departmentally Related Standing Committees came into being in 1993, to examine budgetary proposals and crucial

government policies.

- The aim was to increase Parliamentary scrutiny, and to give members more time and a wider role in examining important legislation.
- The number of Committees was subsequently increased to 24. Each of these Committees has 31 members – 21 from Lok Sabha and 10 from Rajya Sabha.
- **Ad hoc Committees:** Ad hoc Committees are appointed for a specific purpose. They cease to exist after they have completed the task assigned to them, and have submitted a report to the House. The principal Ad hoc Committees are the Select and Joint Committees on Bills.
- **Joint Parliamentary Committee (JPC):** Parliament can also constitute a Joint Parliamentary Committee (JPC) with a special purpose, with members from both Houses, for detailed scrutiny of a subject or Bill.
- Also, either of the two Houses can set up a Select Committee with members from that House. JPCs and Select Committees are usually chaired by ruling party MPs, and are disbanded after they have submitted their report.

### Significance of Parliamentary Committees:

- MPs often do not get adequate time to put forward their views in Parliament, even if they are experts on the subject.
- **Committees are small groups with relatively less demands on their time; in these meetings, every MP gets a chance and the time to contribute to the discussion.**
- Parliament has only around 100 sittings a year; **Committee meetings are independent of Parliament's calendar.**
- Also, because the discussions are confidential and off-camera, MP's express their views irrespective of party affiliation.
- The Committees work closely with multiple Ministries, and **facilitate inter-ministerial coordination.**
- Bills that are referred to Committees often return to the House with significant value-addition.
- Reports of Departmentally Related Standing Committees are **recommendatory in nature**. They are not binding on the government, but they do carry significant weight.



## LOKAYUKTA

**In News:** Recently In Karnataka, Lokayukta has raided and seized crores of unaccounted money from an office of MLA.



### More on the Topic:

- The Lokayukta is an anti-corruption authority constituted at the state level.
- It investigates allegations of **corruption and mal-administration** against public servants and is tasked with speedy redressal of public grievances.
- The origin of the Lokayukta can be traced to the Ombudsman in Scandinavian countries.
- The **Administrative Reforms Commission** headed by Late Morarji Desai in 1966 recommended the creation of the Lokpal at the Centre and Lokayukta in the states.
- The **State of Maharashtra** is the first and pioneer state in India to introduce the concept of Lokayukta by enacting the Maharashtra Lokayukta and Upa-Lokayuktas Act, 1971.
- The **Lokpal and Lokayukta Act, 2013** provided for the establishment of Lokpal for the Union and Lokayukta for States.
- The Act states that not less than 50% of the members of the Lokpal should be from among persons belonging to the SCs, the STs, OBCs, minorities and women.
- The same rules apply to members of the search committee.
- **Salaries, allowances and service conditions** of the Lokpal chairperson will be the same as those for the Chief Justice of India; those for other members will be the same as those for a judge of the Supreme Court.
- These institutions are **statutory bodies** without any constitutional status.

## APPOINTMENT OF ELECTION COMMISSIONERS

**In News:** A five-judge bench of the Supreme Court unanimously ruled that a high-power committee consisting of the Prime Minister, Leader of Opposition in Lok Sabha, and the Chief Justice of India must pick the Chief Election Commissioner (CEC) and Election Commissioners (ECs).



### More on the Topic:

- Currently, the central government has the authority to choose members of the Election Commission.
- A public interest litigation was filed in the recent past challenging the constitutional validity of the practice of the Centre appointing members of the Election Commission.
- The crux of the challenge is that since there is **no law made by Parliament on this issue**, the Court must step in to fill the "constitutional vacuum."
- This examination also leads to the larger question of **separation of powers** and if the judiciary is overstepping its role in filling this gap in the law.
- The present judgement mentioned above is considered as a **landmark judgment**, which aims to alter the process for choosing India's top election officials, might have a huge impact.

### About Election Commission:

- The Election Commission of India is a constitutional body constituted under **Article 324 of the Indian constitution**.
- It was established by the Constitution of India to conduct and regulate elections in the country.
- The Constitution provides the Election Commission of India with the power of direction, superintendence, and control of elections to parliament, state legislatures, the office of president of India and the office of vice-president of India.
- The Election Commission is an all-India body

that is common to both the Central government and the State governments.

### Election Commissioner:

- The President appoints Chief Election Commissioner and Election Commissioners.
- Tenure of 6 years, or up to 65 years of age, whichever is earlier.
- The status, salary and perks of election commissioners are equivalent to Judges of the Supreme Court of India.
- The Chief Election Commissioner can be removed from office only through impeachment by Parliament.
- The President can remove other members in consultation with the Chief Election Commissioner.
- The term of the Election Commission's members is not specified in the Constitution.
- The Constitution does not prohibit the government from appointing retiring election commissioners in the future.

as various court rulings regarding the powers, duties, and responsibilities in all areas, including legislative relations, administrative relations, the role of governors, emergency provisions and others.

- In 2010, the Commission submitted its report to the Centre in seven volumes.

### Key Recommendations:

#### Governor:

- Giving a fixed term of five years to the governors and their removal by the process of impeachment.
- Union should be extremely restrained in asserting Parliamentary supremacy in matters assigned to the states
- It prescribed certain conditions that one should keep in mind while appointing governors:
- He should be eminent in some walk of life
- He should be a person from outside the state
- He should be a detached figure and not connected with the local politics
- He should not be connected with politics in recent past
- Government should be given a fixed tenure of five years
- Procedure given for the impeachment of the President could be made applicable to governor as well
- Governor should insist on Chief Minister proving his majority on the floor of the house for which he should prescribe a time-limit

#### National Integration Council:

- Create a superseding structure for matters relating to internal security (like the Homeland Security Department in the United States). This structure could be known as the 'National Integration Council'.

#### President's Rule:

- Article 355 and Article 356 of the Constitution should be amended.
- Article 355 talks about the duty of the Centre to protect the state against any external aggression and Article 356 talks about the implementation of President's rule in case of failure of the machinery of the state.
- The recommendations of Bommai case guidelines should be kept in mind while deciding cases related to President's rule

## PUNCHHI COMMISSION

In News: Nearly five years after announcing that its work on the Punchhi Commission's report on Centre-state relations is "complete", the Union Ministry of Home Affairs (MHA) has decided to start the process of seeking the states' comments on the issue afresh.

CONFLICTS IN INDIA'S FEDERAL SYSTEM	
Centre-State Relations	• SPECIAL PROVISIONS
Demands for Autonomy	• Jammu and Kashmir
Role of Governors and President's Rule	• Art.370
Demands for New States	• NORTH EASTERN STATES
Interstate Conflicts	• Art.371

### More on the Topic:

- The Punchhi Commission was constituted by the then government in April 2007 under the chairmanship of former Chief Justice of India (CJI) Madan Mohan Punchhi.
- The Commission examined and reviewed how the existing arrangements between the Union and States were functioning, as well



- Inter-state council should be made more use of to further centre-state relations

#### Concurrent List:

- The States should be consulted through the inter-state council before bills are introduced on matters that fall in the concurrent list.

#### Chief Ministers:

- Clear guidelines should be made with regard to the appointment of chief ministers so that the **governor's discretionary powers are limited** in this aspect.
- A pre-poll alliance is to be considered as a **single political party**.

### GST APPELLATE TRIBUNAL

**In News:** The Lok Sabha has cleared changes in Finance Bill 2023 to pave the way for setting up of an appellate tribunal for resolution of disputes under GST (Goods and Services Tax).



#### More on the Topic:

- Currently, taxpayers are filing writ petitions before high courts in the absence of the appellate tribunal.
- Benches of the GST Appellate Tribunal would be set up in every state while there will be a **principal bench in Delhi** which will hear appeals related to 'place of supply'.
- The GST Appellate Tribunal is a quasi-judicial body proposed to be established to resolve disputes related to the Goods and Services Tax (GST) in India.
- It will function as an **independent body to hear appeals against orders passed by the GST authorities or the Appellate Authority**.
- The tribunal will be **composed of a national bench and various regional benches**, headed by a chairperson appointed by the central government.

- The proposed tribunal is expected to help expedite the resolution of disputes related to GST and reduce the burden on the judiciary.

#### Significance of GST Appellate Tribunal:

- Even after more than five years of implementation of the Goods and Services Tax (GST), the appellate tribunal has not been set up.
- As a result, unresolved legal matters under GST have accumulated.
- The appellate tribunal would result in **lower burden on high courts, Supreme Court and at the same time**, would also provide taxpayers the much needed reprieve.
- Overall, the establishment of the GST Appellate Tribunal is expected to improve the **efficiency and effectiveness of the GST system in India**.

#### About GST:

- GST is a destination-based taxation system has been established by the **101st Constitutional Amendment Act**.
- It is an indirect tax for the whole country to make India a unified market.
- It is a single tax on the supply of Goods and Services in its entire product cycle or life cycle i.e. from manufacturer to the consumer.
- It is calculated only in the **"Value addition"** at any stage of goods or services.
- There is a provision of the **GST Council** to decide upon any matter related to GST whose chairman is the finance minister of India.

### SPICE BOARD

**In News:** 36th Anniversary Celebrations of Spices Board was held at Kochi.

#### More on the Topic:

- Spices Board was **constituted in 1987 under Spices Board Act 1986** with the responsibility of production/development of cardamom and export promotion of 52 spices shown in the schedule of the Act.
- The Board functions **an international link between the Indian exporters and the importers abroad** and it has been involved in various activities which touch upon every segment of the spices sector.
- The Spices Board functions under the **Ministry of Commerce and Industry**, is a flagship regulatory and export promotion agency for Indian spices.

## DIGITAL INDIA BILL

**In News:** Minister of State for Electronics and IT has presented a broad overview of the upcoming Digital India Bill – the proposed successor to the decades-old Information Technology Act, 2000.



### More on the Topic:

- Currently, the Information Technology Act, 2000 is the core framework that regulates entities on the Internet.
- However, the law needs an update since it was framed for an Internet era that looked very different from the Internet of today.
- Given its limitations, the government has also on occasion found it difficult to promulgate rules since the parent Act is limited in its scope.
- The Bill is a key pillar of an overarching framework of technology regulations the Centre is building, including the draft Digital Personal Data Protection Bill, 2022; Indian Telecommunication Bill, 2022; and a policy for non-personal data governance.

### Highlights of the Bill:

- The bill will create new regulations around **newer technology**, including 5G, IoT devices, cloud computing, metaverse, blockchain, and cryptocurrency.
- **Reclassify online intermediaries** to separate categories instead of one general intermediary label, each one with its own set of regulations.
- Intermediaries are any company or platform that facilitates information sharing or provides online services.
- **Removal of “safe harbour” immunity** for online intermediaries for purposeful misinformation or other content violations from third parties.
- In the past, online intermediaries, such as social media platforms, were given a “safe

harbour” legal immunity, effectively protecting them from third-party content posted on their respective platforms because they had no control over it.

- **Creating digital standards and laws** regarding artificial intelligence (AI) and machine learning (ML) technology. The Digital India Act wants to get ahead of the wave by focusing on one major aspect: accountability.
- **Criminalize cyberbullying, identity theft, and unauthorized sharing of personal information** without consent.
- **Regulate monetization of content creation** and its creators by advertising technology (adtech) companies.
- **Remove monopolies of the digital space (big tech)** and allowing fair competition from local startups and more choices for users.

### The core objectives of the new Digital India Bill:

- To ensure an open and safe Internet in the country
- To ensure users’ rights and reduce risks for them online
- To Accelerate the growth of technology innovation
- To provide an overarching framework of technology regulations including the draft Digital Personal Data Protection Bill, 2022; Indian Telecommunication Bill, 2022; and a policy for non-personal data governance.

### Significance of Digital India Bill:

- It will potentially govern the entire country’s digital laws for the next decade or two.
- With this new law, the country hopes to future-proof its digital laws and enable businesses to compete on a global scale.
- The rules and framework enable a **comprehensive IT ecosystem** within the country for at least the next decade.
- Digital India Act will be **designed to stimulate the digital economy** for Indian businesses .
- India can achieve a trillion dollar digital economy by 2026, centered around the Digital India Act.

## RIGHT TO HEALTH BILL

**In News:** The Rajasthan Assembly has passed the Right to Health (RTH) bill.



## SALIENT FEATURES OF THE RIGHT TO HEALTH DRAFT BILL, RAJASTHAN

### RIGHTS OF THE RESIDENTS

- To collect information to make themselves healthy
- Free consultation, drugs, diagnostics, emergency transport and emergency care at all government hospitals as prescribed under rules
- Free or affordable care for surgeries at all government hospitals
- Free services from private hospitals established through the land allocation on concessional rates as per the condition of land allotment
- Right to informed consent and right to confidentiality
- Right to safe and quality treatment at government and private hospitals as per standards prescribed

Source: Rajasthan Government



### More on the Topic:

- RTH gives every resident of the state the right to avail free Out Patient Department (OPD) services and In Patient Department (IPD) services at all public health facilities and select private facilities.
- The free healthcare services, including consultation, drugs, diagnostics, emergency transport, procedure and emergency care, will be provided subject to conditions specified in the rules, which will be formulated now.
- Also, all residents will be entitled to emergency treatment and care without prepayment of any fee or charges, and the hospital can't delay treatment on grounds of police clearance if it is a medico-legal case.

### Government of India Initiatives to have Right to healthcare in India:

- The Ayushman Bharat Programme launched last year provides for holistic and integrated health care and is the principal vehicle for achieving Universal Health Coverage (UHC).
- Ayushman Bharat – Health and Wellness Centres (AB-HWCs) are free and universal to all individuals residing in the service area.
- Mobile Medical Units (MMUs) & Telemedicine are also being implemented with National Health Mission support to improve healthcare access particularly in rural areas.
- AB-Pradhan Mantri Jan Arogya Yojana (AB-PMJAY) provides free and cashless care to about 500 million poor and deprived people for secondary and tertiary hospitalization care.
- High-Level Group constituted under 15th Finance Commission recommended to declare RTH a fundamental right.

## PERSONAL DATA PROTECTION BILL

In News: The proposed new Data protection law could allow global data flows by default to all jurisdictions other than a specified negative list of countries where such transfers would be restricted.

### Decoding the data protection bill

#### WHAT IT MEANS FOR CONSUMERS

- **DATA** can be processed or shared by any entity only after consent.
- **SAFEGUARDS**, including penalties, introduced to prevent misuse of personal data.
- **ALL** data to be categorized under three heads—general, sensitive and critical.

#### THE GOVERNMENT & REGULATORY ROLE

- **GOVT** will have the power to obtain any user's non-personal data from companies.
- **THE** bill mandates that all financial and critical data has to be stored in India.
- **SENSITIVE** data has to be stored in India but can be processed outside with consent.

#### WHAT COMPANIES HAVE TO DO

- **SOCIAL** media firms to formulate a voluntary verification process for users.
- **SHARING** data without consent will entail a fine of ₹15 crore or 4% of global turnover.
- **DATA** breach or inaction will entail a fine of ₹5 crore or 2% of global turnover.

### More on the Topic:

#### Key Features of the bill:

##### Applicability:

- The Bill will apply to the processing of digital personal data within India where such data is: (i) collected online, or (ii) collected offline and is digitised.
- It will also apply to the processing of personal data outside India, if it is for offering goods or services or profiling individuals in India.
- Personal data is defined as any data about an individual who is identifiable by or in relation to such data.
- Processing has been defined as an automated operation or set of operations performed on digital personal data. It includes collection, storage, use, and sharing.

##### Consent:

- Personal data may be processed only for a lawful purpose for which an individual has given consent.
- A notice must be given before seeking consent. Notice should contain details about the personal data to be collected and the purpose of processing.
- Consent may be withdrawn at any point in time.

##### Rights and duties of data principal:

- An individual, whose data is being processed (data principal), will have the right to: (i) obtain information about processing, (ii) seek correction and erasure of personal data,

(iii) nominate another person to exercise rights in the event of death or incapacity, and (iv) grievance redressal. Data principals will have certain duties.

- They must not: (i) register a false or frivolous complaint, (ii) furnish any false particulars, suppress information, or impersonate another person in specified cases. Violation of duties will be punishable with a penalty of up to Rs 10,000.

#### Obligations of data fiduciaries:

- The entity determining the purpose and means of processing, called data fiduciary, must: (i) make reasonable efforts to ensure the accuracy and completeness of data, (ii) build reasonable security safeguards to prevent a data breach and inform the Data Protection Board of India and affected persons in the event of a breach, and
- (iii) cease to retain personal data as soon as the purpose has been met and retention is not necessary for legal or business purposes (storage limitation). The storage limitation requirement will not apply in case of processing by government entities.

#### Transfer of personal data outside India:

- The central government will notify countries where a data fiduciary may transfer personal data. Transfers will be subject to prescribed terms and conditions.
- **Exemptions:** Rights of the data principal and obligations of data fiduciaries (except data security) will not apply in specified cases including prevention and investigation of offences, and enforcement of legal rights or claims.

#### Data Protection Board of India:

- The central government will establish the Data Protection Board of India. Key functions of the Board include: (i) monitoring compliance and imposing penalties, (ii) directing data fiduciaries to take necessary measures in the event of a data breach, and (iii) hearing grievances made by affected persons. Etc.

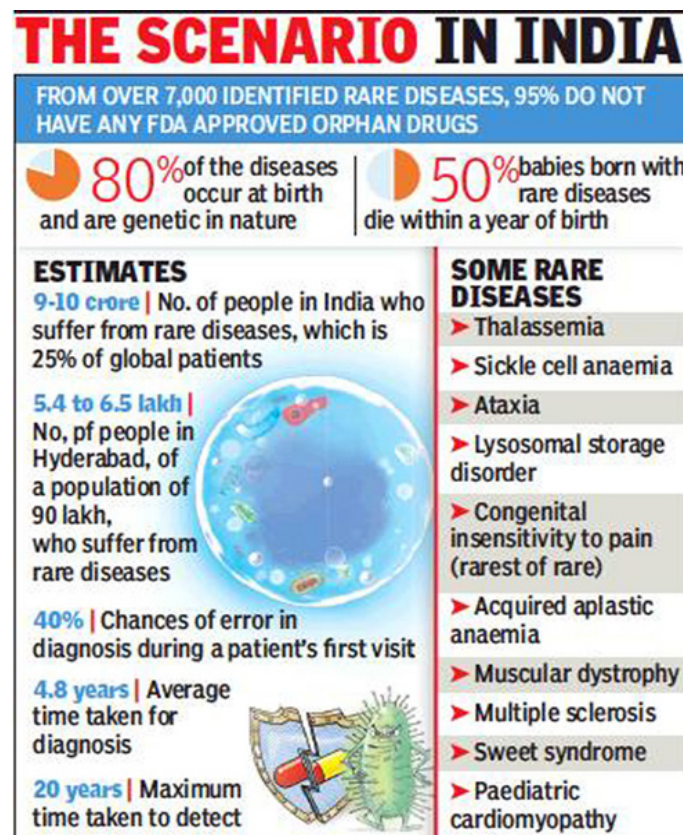
#### Penalties:

- The schedule to the Bill specifies penalties for various offences such as: (i) up to Rs 150 crore for non-fulfilment of obligations for children and
- (ii) up to Rs 250 crore for failure to take security measures to prevent data breaches. Penalties will be imposed by the Board after conducting an inquiry.

## GOVERNMENT SCHEMES

### NATIONAL POLICY FOR RARE DISEASES

**In News:** The Health Ministry has added six rare diseases under National Policy for Rare Diseases.



#### More on the Topic:

- The newly added diseases are Laron's Syndrome, Wilson's disease, congenital adrenal hyperplasia (CAH), neonatal onset multisystem inflammatory disease (NOMID) Hypophosphatemic rickets and atypical hemolytic uremic syndrome (AHUS).

#### The salient features of NPRD, 2021 are:

- The rare diseases have been identified and categorized into 3 groups namely Group 1, Group 2 and Group 3.
- **Group 1:** Disorders amenable to one-time curative treatment.
- **Group-2:** Diseases requiring long term/lifelong treatment having relatively lower cost of treatment and benefit has been documented in literature and annual or more frequent surveillance is required.
- **Group 3:-** Diseases for which definitive treatment is available but challenges are to make optimal patient selection for benefit, very high cost and lifelong therapy.



- Provision for financial support of up to Rs. 50 lakhs to the patients suffering from any category of the Rare Diseases and for treatment in any of the Centre of Excellence (CoE) mentioned in NPRD-2021, outside the Umbrella Scheme of Rashtriya Arogya Nidhi.
- Five Nidan Kendras have been set up for genetic testing and counselling services.
- Centres of Excellence (CoEs) under NPRD has been initiated for diagnosis, prevention and treatment of rare diseases
- Government has given exemption from Basic Customs Duty to drugs or medicines, which are used in the treatment of Rare Diseases when imported by Centres of Excellence (CoEs).
- The NPRD, 2021 has provisions for promotion of research and development for diagnosis and treatment of rare diseases; promotion of local development and manufacture of drugs and creation of conducive environment for indigenous manufacturing of drugs for rare diseases at affordable prices.

#### About Rare Diseases:

- A rare disease is a disease that affects a small percentage of the population.
- In some parts of the world, an orphan disease is a rare disease whose rarity means there is a lack of a market large enough to gain support and resources for discovering treatments for it, except by the government granting economically advantageous conditions to creating and selling such treatments. Orphan drugs are ones so created or sold.

#### ATL SARTHI

**In News:** Atal Innovation Mission (AIM) of NITI Aayog launched ATL Sarthi, a comprehensive self-monitoring framework to strengthen the ever-growing ecosystem of Atal Tinkering Labs (ATL).



#### More on the Topic:

- Atal Innovation Mission is establishing Atal Tinkering Laboratories (ATLs) in schools across India to foster curiosity, creativity, and imagination in young minds; and inculcate skills such as design thinking mindset, computational thinking, adaptive learning, physical computing etc.
- As of date, AIM has funded 10,000 schools to establish Atal Tinkering Labs (ATLs).
- As the name suggests, Sarthi is a charioteer and ATL Sarthi will enable the ATLs to be efficient and effective.
- AIM is Government of India's flagship initiative to create and promote a culture of innovation and entrepreneurship across the country.

#### UNIQUE LAND PARCEL IDENTIFICATION NUMBER (ULPIN) OR BHU-AADHAAR

**In News:** Department of Land Resources has organised the National Conference - Bhumi Samvaad IV on implementation of Unique Land Parcel Identification Number (ULPIN) or Bhu-Aadhaar.

#### More on the Topic:

- Unique Land Parcel Identification Number (ULPIN) is part of the Digital India Land Records Modernization Programme (DILRMP).
- The identification is based on the longitude and latitude coordinates of the land parcel and depends on detailed surveys and geo-referenced cadastral maps.
- It is a 14-digit identification number accorded to a land parcel.
- ULPIN is a Single, Authoritative Source of Truth for information on any parcel of land or property to provide Integrated Land Services to the citizens as well as all stakeholders.

#### MSME COMPETITIVE (LEAN) SCHEME

**In News:** The revamped MSME Competitive (LEAN) scheme introduced recently.

#### More on the Topic:

- Under the scheme, MSMEs will be provided handholding towards the implementation of lean tools at three levels – basic, intermediate, and advanced.

- Completion of each stage will be verified through an end-term assessment or assessment by the scheme's implementation agencies like the National Productivity Council and Quality Council of India along with MSME –DFOs (Development and Facilitation Offices).
- Under the scheme, MSMEs will implement LEAN manufacturing tools like 5S, Kaizen, KANBAN, Poka Yoka etc.



#### About Lean Manufacturing:

- Lean Manufacturing or Lean Production, known simply as LEAN, is a production practice that considers the expenditure of resources for any goal, other than the creation of value for the end customer, to be wasteful and hence should be eliminated.
- Lean manufacturing includes a set of principles that lean thinkers use to achieve improvements in productivity, quality, and lead-time by eliminating waste through kaizen.

#### Objectives of the Scheme:

- The scheme essentially aims at promoting the adoption of lean manufacturing techniques and methodologies by Udyam-registered MSMEs to reduce rejection rates and production cost.
- It also aims to optimise space utilisation and resources such as water, energy, natural resources etc., in order to enhance quality in product and processes, production and export capabilities, and overall profitability.

#### VAIBHAV FELLOWSHIP

**In News:** VAIBHAV Fellowship scheme for the Indian Diaspora abroad has been launched on National Science Day.



#### More on the Topic:

- Vaibhav Fellowship intends to improve the research ecosystem of India's Higher Educational Institutions.
- It facilitates academic and research collaborations between Indian institutions and best institutions in world through mobility of faculty/researcher from overseas institutions to India.

#### Criteria for Application:

- Applicant should be Non-Resident Indian (NRI), Persons of Indian Origin (PIO) or Overseas Citizen of India (OCI).
- Must have obtained a Ph.D/M.D/M.S degree from a recognised University.
- Plan to work for a minimum of 1 month to maximum of 2 months a year in a research institution / academic institution in India.

#### PM MITRA SCHEME

**In News:** The Ministry of Textiles will shortly name the States identified for implementation of Prime Minister MITRA (Mega Integrated Textile Region and Apparel) scheme.

#### More on the Topic:

- PM MITRA Parks will offer an opportunity to create an integrated textiles value chain right from spinning, weaving, processing/dyeing and printing to garment manufacturing at 1 location.
- It will give a boost to the five F (farm, fibre, factory, fashion, foreign) vision of the Prime Minister.
- Integrated Textile Value chain at 1 location will reduce logistics cost of Industry
- Intended to generate ~1 lakh direct and 2 lakh indirect employment per park
- Sites for PM MITRA Parks will be selected by a Challenge Method based on objective criteria.



## eSANJEEVANI PROGRAMME

**In News:** eSanjeevani Programme was mentioned during PM's 'Mann Ki Baat' recently.

### More on the Topic:

- eSanjeevani is the first-ever online OPD (outpatient) consultation service offered by the government of India to citizens.
- Also called the National Teleconsultation Service, it aims to provide healthcare services to patients in their homes. The scheme was started in 2019.
- The eSanjeevani OPD portal and system has been developed by the Centre for Development of Advanced Computing (C-DAC) in Mohali and includes a structured and safe tele-consultation between a doctor and a patient through online mode (eSanjeevani OPD).
- various ministries, academics, business professionals, partners in knowledge, and other stakeholders to strengthen strategic partnerships that can further support the development of comprehensive frameworks for scientific synthesis, propagation, and protection of traditional knowledge systems while also guaranteeing its accessibility to the ordinary citizen of the country.
- Indian Knowledge System (IKS) is an innovative cell under the Union Ministry of Education (MoE).
- It will actively engage in spreading the rich heritage of our country and traditional knowledge in the field of Arts and literature, Agriculture, Basic Sciences, Engineering & Technology, Architecture, Management, Economics, etc.

## DHARA

**In News:** The Ministry of Culture celebrated the first anniversary of the "Dhara: Ode to Indian Knowledge Systems" initiative under the Azadi Ka Amrit Mahotsav.



### More on the Topic:

- The programme was conceptualized as a series of lectures and discussions dedicated to specific areas of inquiry highlighting India's civilizational achievements.
- During its yearlong activities, it has been successful in creating public awareness, stakeholder participation and helped to devise a framework for the promotion and revival of multiple domains of Indian Knowledge Systems.
- The key execution partner for Dhara programs is the Indian Knowledge Systems (IKS) Division of the Ministry of Education.
- The Dhara initiative aimed to bring together
- Hallmarking of Gold jewellery is done as per Indian Standards specified in IS 1417: 2016 with 3 symbols as BIS logo as first symbol. Purity and fineness of gold as second symbol. HUID as third symbol.
- It can be verified in BIS CARE app.
- HUID number is a six-digit alphanumeric code. It is given to every piece of jewellery at the time of hallmarking, and is a unique identifier for each gold item.
- The jewellery is stamped with the unique number manually at the Assaying & Hallmarking centre.
- The HUID makes it easy to trace the individual

## HALL MARK UNIQUE IDENTIFICATION NUMBER (HUID)

**In News:** From April 1, the sale of gold jewellery will not be allowed without a Hallmark Unique Identification (HUID) number.



### More on the Topic:

piece of jewellery, and is a guarantee of quality.

#### **Significance:**

- Hallmark is a mark on gold jewellery which is affixed by an entity recognised by Bureau of Indian Standards (BIS) to assure its fineness and purity.
- In HUID-based Hallmarking, registration of jewellers is automatic with no human interference.
- It is aimed at ensuring the purity of Hallmarked jewellery and check any malpractice.

#### **SAMARTH (SCHEME FOR CAPACITY BUILDING IN TEXTILES SECTOR) SCHEME**

**In News:** Ministry of Textiles has invited proposals for empanelment of industry partners to implement training programmes under SAMARTH.

#### **More on the Topic:**

- Samarth is a demand driven and placement-oriented umbrella skilling programme of Ministry of Textiles.
- Scheme aims to train 10 lakh persons (9 lakhs in organised & 1 lakh in traditional sector)
- The implementation period of the scheme is up to March 2024.
- The scheme was formulated under the broad skilling policy framework adopted by M/o Skill Development & Entrepreneurship.

#### **Objectives of the Scheme:**

- Samarth aims to incentivize and supplement the efforts of the industry in creating jobs in the organized textile and related sectors, covering the entire value chain of textiles, excluding Spinning and Weaving.
- The training programme and course curriculum have been rationalized keeping in view the technological and market demand of the domestic and international economies.
- In addition to the entry level skilling, a special provision for upskilling/ re-skilling programme has also been operationalized under the scheme towards improving the productivity of the existing workers in Apparel & Garmenting segments.
- Samarth also caters to the upskilling/ re-skilling requirement of traditional textile

sector such as handloom, handicraft, silk and jute.

#### **Achievements of the Scheme:**

- Around 1.5 lakh persons (86% are women) have been trained so far. More than 70% placement has taken place in organised sector.

#### **About Indian Textiles Industry:**

- The Indian textile and apparel market is currently estimated at over \$150 billion, of which, export constitutes over \$40 billion.
- India holds a 4% share of the global textile and apparel market, and is in fifth position.
- It contributes 3% to Indian Gross Domestic Product, 7% of Industrial Output, 12% to the export earnings of India and employs more than 21% of total employment.
- India is also the second largest producer of silk in the world and 95% of the world's hand woven fabric comes from India.
- India is the 6th largest producer of Technical Textiles with 6% Global Share, largest producer of cotton & jute in the world.

#### **SWAYATT INITIATIVE**

**In News:** A function was held to commemorate the success of "SWAYATT", an initiative to promote Start-ups, Women and Youth Advantage Through eTransactions on Government eMarketplace (GeM).

#### **More on the Topic:**

- The initiative to promote "Start-ups, Women and Youth Advantage Through eTransactions" (SWAYATT) on GeM was first launched in February 2019.
- The intent of SWAYATT 2019 was to promote inclusiveness of various categories of sellers and service providers on the portal, by taking proactive steps to facilitate their training and registrations of such specific category of manufacturers and sellers, develop women entrepreneurship and encourage participation of MSME sector and Start-ups in public procurement.
- Government e Marketplace (GeM) - GeM is a Section 8 company setup under the administrative control of the Department of Commerce, Ministry of Commerce and Industry, for procurement of goods and services by Central Ministries, State Departments, PSEs



and Autonomous Bodies.

- Social inclusion is a core value at GeM and it is focused on increasing participation from under-served sellers who face challenges in public procurement.

## MISSION SAHBHAGITA

In News: Mission Sahbhagita is established for participatory conservation and sustainable use of Wetlands.

### More on the Topic:

- Ministry of Environment, Forest and Climate Change (MoEFCC) with a mission of healthy and effectively managed network of 75 wetlands of national and international significance.
- It strives to enable a society ownership approach with communities leading at the forefront.

## CRISP MOBILE APP

In News: Rubber Board has launched a mobile app—CRISP—to inform growers about rubber cultivation and provides solutions online.

### More on the Topic:

- Farmers will now be able to obtain suggestions on production and productivity increase, cultivation cost reduction, soil fertility management, disease control measures, and so on with the use of CRISP.
- Rubber Board is a statutory body constituted under Rubber Act 1947, for overall development of rubber industry.
- It functions under administrative control of Ministry of Commerce and Industry.

### Significance of Rubber:

- One of the most significant polymers for human society is natural rubber. Natural rubber is a critical raw material utilised in the manufacture of over 40,000 items.
- Latex is found in medical gadgets, surgical gloves, aviation and automotive tyres, pacifiers, clothing, and toys, among other things.

# INDIAN ECONOMY

## TOO-BIG-TO-FAIL BANKS

In News: The failure of Silicon Valley Bank and Signature Bank in the US raises questions on the safety of depositors' wealth everywhere.

# TOO BIG TO FAIL

- Domestic Systemically Important Banks (D-SIBs) classified into five grades (buckets)
- RBI to announce list every August starting this year
- Banks will have to fulfil extra capital requirement norms (common equity tier I capital)

Bucket	Banks	Additional common equity tier I need as % of RWAs*
5	—	1
4	—	0.8
3	SBI	0.6
2	—	0.4
1	ICICI	0.2

- Banks must meet the extra norms in three years by April 1, 2019
- Common equity tier I capital usually comprises a bank's equity capital, retained earnings and share premium

*\*RWAs: Risk weighted assets*

### More on the Topic:

- India remained a safe haven during the global financial crisis triggered by the collapse of investment bank Lehman Brothers in 2008, with domestic banks, backed by sound regulatory practices, showing strength and resilience.
- A decade and a half on, Indian banks remained unaffected by the failure of Silicon Valley Bank (SVB) and Signature Bank in the US recently, despite the global interconnectedness in the financial sector.
- Also, RBI has classified SBI, ICICI Bank, and HDFC Bank as D-SIBs — these banks have to earmark additional capital and provisions to safeguard their operations.

### About the resilience of Indian banks:

- A reason why an SVB-like failure is unlikely in India is that domestic banks have a different balance sheet structure.
- Household savings constitute a major part of bank deposits in India, this is different from the US, where a large portion of bank deposits are from corporates.
- A large chunk of Indian deposits is with public sector banks, and most of the rest is with very strong private sector lenders such as HDFC Bank, ICICI Bank, and Axis Bank.

## About Domestic Systemically Important Banks (D-SIBs):

- RBI has classified SBI, ICICI Bank, and HDFC Bank as D-SIBs. The additional Common Equity Tier 1 (CET1) requirement for D-SIBs was phased-in from April 1, 2016, and became fully effective from April 1, 2019.
- The additional CET1 requirement was in addition to the capital conservation buffer.
- It means that these banks have to earmark additional capital and provisions to safeguard their operations.
- Under the D-SIB framework announced by RBI on July 2014, the central bank was required, from 2015, to disclose the names of banks designated as D-SIBs, and to place them in appropriate buckets depending upon their Systemic Importance Scores (SISs).
- Depending on the bucket in which a D-SIB is placed, an additional common equity requirement is applicable to it.

### How does RBI select D-SIBs?

- The RBI follows a two-step process to assess the systemic importance of banks.
- First, a sample of banks to be assessed for their systemic importance is decided.
- Banks are selected for computation of systemic importance based on an analysis of their size (based on Basel-III Leverage Ratio Exposure Measure) as a percentage of GDP. Banks having a size beyond 2% of GDP will be selected in the sample.
- Once the sample of banks is selected, a detailed study to compute their systemic importance is initiated.
- Based on a range of indicators, a composite score of systemic importance is computed for each bank. Banks that have a systemic importance above a certain threshold are designated as D-SIBs.
- Next, the D-SIBs are segregated into buckets based on their systemic importance scores, and subjected to a graded loss absorbency capital surcharge, depending on the buckets in which they are placed.
- A D-SIB in the lower bucket will attract a lower capital charge, and a D-SIB in the higher bucket will attract a higher capital charge.

## FRICTION OVER REVENUE SHARING FORMULA OF CENTRE AND THE STATES

**In News:** The Fifteenth Finance Commission's (XVFC) formula is skewed in favour of some States, resulting in wide inter-State variations.

### More on the Topic:

- As population is given a higher weightage, it tilts the balance in favour of some northern States. This has been a bone of contention between the Centre and the affected States.
- It has been criticised that the notion to allocate funds based on the population, it rewards those who have not been able to achieve population control.
- The government defended the Finance commission formula stating that the basic rationale of sharing is horizontal equity.
- The objective of the transfer of funds is to enable a State to provide comparable levels of services.

### The Fifteenth Finance Commission's (XVFC) formula:

- The XVFC had arrived at the States' share in the divisible pool of taxes based on each State's needs (population, area and forest and ecology), equity (per capita income difference) and performance (own tax revenue and lower fertility rate).
- The weight assigned to needs was 40%, equity 45%, and 15% for performance.
- This formula meant that Uttar Pradesh and Bihar got 17.9% and 10%, respectively in the XVFC.
- Karnataka, Kerala and Tamil Nadu got 3.65%, 1.93% and 4.08%, respectively.
- Notably, the XVFC introduced the fertility rate in the formula to reward States which had reduced the fertility levels.
- While this does favour the developed States which have pushed their TFR below replacement rate, the weightage given to the component is relatively lower than equity and need.

### What are the Arguments of the Southern States:

- The southern states have grown faster and contributed larger revenue to the central revenue share. It should be considered while the distribution.
- Equity should not adversely impact efficiency.
- The money that goes to poorer States is not leading to their development. The reasons



should be stated.

- State-wise HDI and per capita NSDP depict a trend where States which get more money from the Centre show sedate growth, and the progress of those who get less is relatively much superior. This should be considered with seriousness.

### Way Ahead:

- Horizontal and vertical imbalances of the fiscal federalism should be brought back to balance amicably.
- Creating the new fiscal federalism architecture based on the effective decentralization, transparent GST regime, independent Finance commission and effective NITI Aayog can strengthen India's unique cooperative federalism.

## TReDS PLATFORM

**In News:** RBI Governor have recently said that TReDS platform financed around 35000 factoring units (FU) monthly.

### More on the Topic:

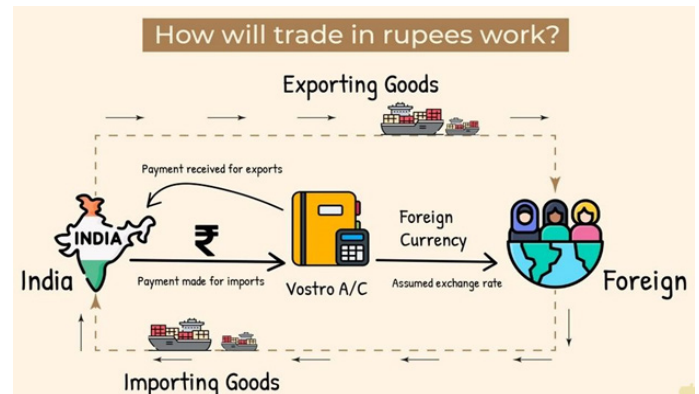
- An FU is a standard nomenclature used in TReDS for invoices or bills of exchange containing details related to the sale of goods or services by an MSME seller to the buyer including a corporate, government department or a public sector unit.
- TReDS platforms have enabled factoring of MSME receivables in a transparent and competitive manner, thereby improving the liquidity position of MSMEs.

### About TReDS:

- TReDS is an electronic platform for facilitating the financing / discounting of trade receivables of Micro, Small and Medium Enterprises (MSMEs) through multiple financiers.
- These receivables can be due from corporates and other buyers, including Government Departments and Public Sector Undertakings (PSUs).
- TReDS is a payment system authorised under the PSS Act.
- Only MSMEs can participate as sellers in TReDS.
- Corporates, Government Departments, PSU and Others can participate as buyers.
- Banks, NBFC can participate as financiers.

## TRADE IN INDIAN RUPEE

**In News:** The Reserve Bank of India has allowed banks from 18 countries to open Special Vostro Rupee Accounts (SVRAs) for settling payments in Indian rupees.



### More on the Topic:

- The SVRAs could be set up by banks of partner countries by approaching Authorised Dealer (AD) banks in India that may get permission from the RBI after due procedure.
- Russia has been a vocal proponent of using trade in local currency for the process of "de-dollarisation", while India has been supporting the idea of trade in local currency to boost exports.
- The process of SVRAs began in July 2022 when the RBI announced that it has decided to put in place an additional arrangement for invoicing, payment, and settlement of exports/imports in Indian rupees.
- This announcement came in the backdrop of the commodities crisis triggered by Western sanctions against Russia after Russia launched the "special military operation" against Ukraine in February 2022.

### What are Special Vostro Rupee Accounts (SVRAs)?

- SVRAs are bank accounts that allow foreign banks to settle payments in Indian rupees.
- This is important as it will help boost India's exports and avoid wartime international sanctions that hamper global trade flows.

### Which countries are allowed to open SVRAs with Indian banks?

- Countries included are Botswana, Fiji, Germany, Guyana, Israel, Kenya, Malaysia, Mauritius, Myanmar, New Zealand, Oman, Russia, Seychelles, Singapore, Sri Lanka, Tanzania, Uganda, and UK.

## About internationalisation of Rupee:

- The process of internationalising the rupee entails using it more frequently in cross-border transactions. Before moving on to capital account usage, it comprises promoting the use of the rupee in import and export trade as well as other current account operations.
- The dollar accounts for 88.3% of global foreign exchange market turnover, followed by the euro, Japanese Yen and Pound Sterling; the rupee accounts for a mere 1.7%, underlining the need for pushing the currency much farther to get an international tag.

## Significance of Internationalisation of the Indian Rupee:

- Currency risk is reduced for Indian enterprises when using the rupee in international dealings.
- The companies will be protected from currency volatility which will increase the likelihood that Indian companies will expand internationally.
- The requirement for maintaining foreign exchange reserves will decrease.
- India becomes less susceptible to outside shocks by reducing its reliance on foreign money.
- It will increase demand for the rupee in global trade. The value of the rupee will increase with its internationalisation.

## TREASURY BILL (T-BILL)


**In News:** Cut-off yields on treasury bills issued by the government continued to rise at primary auctions.

### More on the Topic:

- Cut off yield means the final yield so determined in an issue. In other words, it is the highest yield at which a bid is accepted.
- Treasury bills or T-bills are **short term debt instruments issued by the Government of India** and are presently issued in three maturity periods of 91 days, 182 days, and 364 days.
- Treasury bills are **zero-coupon securities as they do not carry any interest**. Rather, these are issued at a discounted value and redeemed at the face value at the time of maturity.

The Market Of Government Securities in India

## Treasury bills



Treasury bills or T-bills, which are money market instruments, are short term debt instruments issued by the Government of India and are presently issued in three tenors, namely, 91 day, 182 day and 364 day. Treasury bills are zero coupon securities and pay no interest. They are issued at a discount and redeemed at the face value at maturity.

**91 Day Bills**

**182 Day Bills**

**364 Day Bills**

For example, a 91 day Treasury bill of Rs.100/- (face value) may be issued at say Rs. 98.20, that is, at a discount of say, Rs.1.80 and would be redeemed at the face value of Rs.100/-. The return to the investors is the difference between the maturity value or the face value (that is Rs.100).

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- For example, a 182-day Treasury bill of Rs, 1000/- (face value) may be issued at say Rs. 990, that is, at a discount of say, Rs. 10 and would be redeemed at the face value of Rs. 1000/-.
- Treasury bills are highly liquid instruments.
- Return earned on treasury bills is the difference between the issue price and the face value. It is also known as the interest on the investment.
- Individuals, trusts, institutions and banks can purchase T-Bills.

## BIOFUEL EXPORT POLICY

**In News:** India has eased biofuel export rules from SEZ, export oriented units.

### More on the Topic:

- In 2018, the government had imposed restrictions on export of biofuels similar to conditions for its imports.
- A licence is required for both exports and imports of biofuels. Biofuels include ethyl alcohol, petroleum oil and oils obtained from bituminous minerals, bio-diesel and mixtures.

### Highlights of New Changes:

- If the biofuel is produced using imported feed stock, exports of biofuel from special economic zones (SEZ) and export-oriented units are permitted for both fuel and non-fuel purposes without any restrictions.

### About National biofuel policy 2018:

- The Policy categorises biofuels as "Basic Biofuels" viz. First Generation (1G) bioethanol



& biodiesel and "Advanced Biofuels" - Second Generation (2G) ethanol, Municipal Solid Waste (MSW) to drop-in fuels, Third Generation (3G) biofuels, bio-CNG etc. to enable extension of appropriate financial and fiscal incentives under each category.

- The Policy expands the scope of raw material for ethanol production by allowing use of Sugarcane Juice, Sugar containing materials like Sugar Beet, Sweet Sorghum, Starch containing materials like Corn, Cassava, Damaged food grains like wheat, broken rice, Rotten Potatoes, unfit for human consumption for ethanol production.
- Farmers are at a risk of not getting appropriate price for their produce during the surplus production phase.
- Taking this into account, the Policy allows use of surplus food grains for production of ethanol for blending with petrol with the approval of National Biofuel Coordination Committee.
- With a thrust on Advanced Biofuels, the Policy indicates a viability gap funding scheme for 2G ethanol Bio refineries of Rs.5000 crore in 6 years in addition to additional tax incentives, higher purchase price as compared to 1G biofuels.
- The Policy encourages setting up of supply chain mechanisms for biodiesel production from non-edible oilseeds, Used Cooking Oil, short gestation crops.
- Roles and responsibilities of all the concerned Ministries/Departments with respect to biofuels has been captured in the Policy document to synergise efforts.

#### Abut Bio Fuels:

- Biofuel, any fuel that is derived from biomass that is, plant or algae material or animal waste in a short duration of time Since such feedstock material can be replenished readily, biofuel is considered to be a source of renewable energy, unlike fossil fuels such as petroleum, coal, and natural gas.

#### Significance of Bio Fuels:

- **Environment Benefits:** One crore lit of E-10 (E10 is a low-level blend composed of 10% ethanol and 90% gasoline) saves around 20,000 ton of CO2 emissions.
- For the ethanol supply year 2017-18, there will be lesser emissions of CO2 to the tune of 30 lakh ton. By reducing crop burning &

conversion of agricultural residues/wastes to biofuels there will be further reduction in Green House Gas emissions.

- **Reduce Import Dependency:** One crore lit of E10 saves Rs.28 crore of forex at current rates. The ethanol supply year 2017-18 is likely to see a supply of around 150 crore litres of ethanol which will result in savings of over Rs.4000 crore of forex.
- **Additional Income to Farmers:** By adopting 2G technologies, agricultural residues/waste which otherwise are burnt by the farmers can be converted to ethanol and can fetch a price for these waste if a market is developed for the same.
- Also, farmers are at a risk of not getting appropriate price for their produce during the surplus production phase. Thus conversion of surplus grains and agricultural biomass can help in price stabilisation.

#### ESG REGULATIONS

**In News:** The Securities and Exchange Board of India (SEBI),substantially revised the annual Business Responsibility and Sustainability Report (BRSR) required by the 1,000 largest listed companies in India pertaining to increase in demand towards companies good at ESG .



#### More on the Topic:

- While this development is partially due to the belief that companies have a distinct responsibility as corporate citizens, the main driver is the realisation that environmental, social and governance ("ESG") considerations need to be included by investors in a company's risk profile in order to accurately assess the enterprise.
- The evolution of ESG laws and regulations is, however, still at a nascent stage in India.

## About ESG:

- "Environmental, Social and Governance" ("ESG") refers to a set of criteria to determine how a company performs in preserving the natural environment, managing relationships with its stakeholders, and also how it deals with matters including the company's leadership, internal controls, and shareholder's rights.
- These standards are used by socially and environmentally conscious investors to screen their potential investments.
- Environmental criteria consider how a company performs as a steward of nature.
- Social criteria examine how it manages relationships with employees, suppliers, customers, and the communities where it operates.
- Governance deals with a company's leadership, executive pay, audits, internal controls, and shareholder rights.
- Ever since the introduction of the United Nations Principles for Responsible Investing (UNPRI) in 2006, the ESG framework has been recognised as an inextricable link of modern day businesses.

## About ESG Fund:

- An ESG fund is a fund that incorporates environmental, social, and governance issues into the investment process.
- There are a variety of ESG fund types, and fund managers employ a number of different ESG-centric investment strategies.
- The key difference between the ESG funds and other funds is 'conscience'.
- The ESG fund focuses on companies with environment-friendly practices, ethical business practices and an employee-friendly record.
- The fund is regulated by Securities and Exchange Board of India (SEBI).

## Initiatives taken to Ensure ESG Compliance:

- In 2011, the Ministry of Corporate Affairs has released of the National Voluntary Guidelines on Social, Environmental and Economic Responsibilities of Business (NVGs).
- In 2012, the SEBI formulated the **Business Responsibility Reports (BRR)** which mandated top 100 listed entities.
- In 2021, SEBI replaced the existing BRR reporting requirement with a more

comprehensive integrated mechanism, the Business Responsibility and Sustainability Report (BRSR).

- The BRSR seeks disclosures from listed entities on their performance against the nine principles of the '**National Guidelines on Responsible Business Conduct**' (NGBRCs).

## CRYPTO CURRENCY UNDER MONEY LAUNDERING LAW

**In News:** The central government via a notification has brought digital assets and fiat currencies, virtual digital assets, more commonly, the crypto currencies and such other digital assets, their trading, safe keeping and related financial services under the ambit of Prevention of Money Laundering Act.



## More on the Topic:

- This move means that any financial wrong doing involving cryptocurrency assets can now be investigated by the Enforcement Directorate.
- With the imposition of the new rules, Indian crypto exchanges will have to report suspicious activity to the Financial Intelligence Unit India (FIU-IND).
- It also mandates entities dealing in crypto to follow KYC, anti-money laundering regulations and due diligence as followed by banking and other financial entities which fall under the classification of reporting entities under PMLA.

## Significance of the Rule:

- The new rules are introduced to prevent misuse of crypto.
- It will prevent criminal activities such as money laundering and terrorist financing.

## About Virtual Digital Assets:

- According to the Income tax act, 'virtual digital

asset' refers to any information, code, number, or token (not being Indian currency or foreign currency), generated through cryptographic means or otherwise and can be called by whatever name.

#### About Prevention of Money Laundering Act:

- Money laundering is the process of making large amounts of money generated by criminal activity, such as drug trafficking or terrorist funding, appear to have come from a legitimate source.
- PMLA forms the core of the legal framework put in place by India to combat Money Laundering.
- The provisions of this act are applicable to all financial institutions, banks (Including RBI), mutual funds, insurance companies, and their financial intermediaries.

#### FUGITIVE ECONOMIC OFFENDERS ACT

**In News:** India has called upon G20 countries to adopt multilateral action for faster extradition of fugitive economic offenders and recovery of assets both on domestic front as well as from abroad.

HEAT ON ECONOMIC ABSCONDERS	
<p>■ <b>Bill name:</b> Fugitive Economic Offenders Bill</p> <p>■ <b>Purpose:</b> Catch alleged absconders. Nirav Modi, his uncle Mehul Choksi have been charged of defrauding PNB and leaving the country. Also Vijay Mallya</p> <p>■ <b>What will govt do:</b> Try to put bill before Parliament as early as second part of budget session starting next month</p>	<p><b>Bill highlights</b></p> <p>■ ED to start proceedings in special court by first issuing notice to 'fugitive economic offender'</p> <p>■ If offender appears in six weeks, notice will be terminated</p> <p>■ Prosecution starts if he chooses to stay away from country and sends counsel</p>

#### More on the Topic:

- India has put in place specialised legislation in this regard, in the form of Fugitive Economic Offenders Act, 2018.
- The term wherein 'fugitive economic offender' (FEO) is defined as an individual against whom a warrant of arrest in relation to scheduled offence has been issued by any court in India and who has left the country so as to avoid criminal prosecution; or the FEO abroad, refuses to return to face criminal prosecution".
- FEO also includes a person whom against

an arrest warrant has been issued for any specified offences where the value involved is over Rs 100 crore.

#### OPEN NETWORK OF DIGITAL COMMERCE (ONDC)

**In News:** Amazon has announced that it will join the Indian government's ONDC (Open Network for Digital Commerce) platform.



#### More on the Topic:

- The development is considered interesting as ONDC's very purpose is to "democratise" e-commerce in India which is largely captured by Amazon and Flipkart.
- An ONDC strategy paper published last year had flagged the rising dominance of global players in India's e-commerce ecosystem, pointing out that the large quantum of investment required to build competitors to the integrated solutions offered by the big players has become an entry barrier for digital marketplaces.

#### About Open Network of Digital Commerce:

- ONDC was launched by Department for Promotion of Industry and Internal Trade (DPIIT) to control digital monopolies.
- It is an initiative aimed at promoting open networks for all aspects of exchange of goods and services over digital or electronic networks.
- ONDC is to be based on open-sourced methodology, using open specifications and open network protocols independent of any specific platform.
- It is being developed as a counter to the current duopoly in the Indian e-commerce market which is largely dictated by Amazon and Walmart-owned Flipkart.

#### How does ONDC work?

- The ONDC platform lies in the middle of the interfaces hosting the buyers and the sellers.



- When a buyer searches for an item on apps from where ONDC has gone live, the app will connect to the ONDC platform, (just like how UPI connect you to different UPI platforms of customers choice from any website) which will connect it to seller side interfaces that will list all the companies from where you can buy the particular item.

#### **Significance of ONDC:**

- It will enable small merchants and Kirana stores in parts of the country to access processes and technologies that are typically deployed by large e-commerce platforms.
- It will provide multiple options for small businesses to be discoverable over the network and conduct business.
- It would also encourage easy adoption of digital means by those currently not on digital commerce networks.
- ONDC is expected to make E-Commerce more inclusive and accessible for consumers.
- Consumers can potentially discover any seller, product, or service by using any compatible application or platform, thus increasing freedom of choice for consumers.
- It will enable the consumers to match demand with the nearest available supply. This would also give consumers the liberty to choose their preferred local businesses.

#### **Concerns:**

- There is no clarity on issues faced by consumers concerning the quality of products, payments, services, etc is also not specified.
- The lack of digital education among a large section of small business owners may hamper reaching the times outcomes of the initiative.
- It will be still difficult to compete with big players such as Amazon and Flipkart.

### **CHINESE WALL POLICY**

**In News:** SEBI require exchanges and CCs to follow a "Chinese Wall" policy to separate the functions under a vertical.

#### **More on the Topic:**

- Chinese wall policy is a virtual information barrier erected between those who have material, non-public information, and those who don't, to prevent conflicts of interest.

- It is intended to prevent misuse of inside information in securities trading by limiting availability of material, non-public information to departments of firm that might misuse such information.
- According to the policy by SEBI, officials from the regulatory, compliance, risk management and investor grievances will not interact with other exchange officials.
- The notification says these employees will not communicate any information concerning their activity to anyone in the other verticals and may be physically segregated, including with respect to access controls.

### **HIGH PRICE DAY AHEAD MARKET (HP-DAM) AND SURPLUS POWER PORTAL (PUSHP)**

**In News:** Ministry of Power has launched High Price Day Ahead Market and Surplus Power Portal (PUSHP).

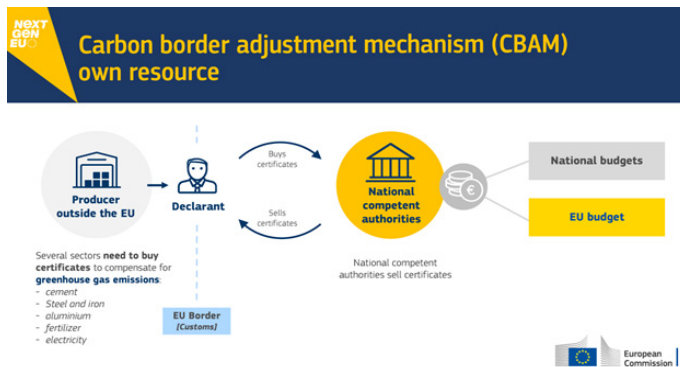
#### **More on the Topic:**

- Distribution Companies have tied up long term PPAs for power supply. They have to pay fixed charges even when they do not schedule the power.
- Now the DISCOMs will be able to indicate their surplus power in block times / days / months on portal.
- Those DISCOMs who need power will be able to requisition the surplus power.
- The new buyer will pay both variable charge (VC) and fixed cost (FC) as determined by Regulators.
- Once power is reassigned, the original beneficiary shall have no right to recall as entire FC liability is also shifted to the new beneficiary.
- Financial liability of new buyer shall be limited to quantum of temporary allocated / transferred power.
- This will reduce the fixed cost burden on the DISCOMs, and will also enable all the available generation capacity to be utilised.

# ENVIRONMENT AND ECOLOGY

## CARBON BORDER ADJUSTMENT MECHANISM (CBAM)

**In News:** The European Union has informed that it is willing to collaborate with India in easing the administrative burden for businesses while enforcing its Carbon Border Adjustment Mechanism (CBAM).



### More on the Topic:

- Carbon Border Adjustment Mechanism (CBAM) seeks to impose tariffs on imports with a high carbon footprint entering the EU countries.
- CBAM is one of the EU's climate actions, designed to prevent the offset of the EU's efforts to reduce greenhouse gas (GHG) emissions by increased emissions beyond its borders due to the relocation of production outside the EU or by increased imports of carbon-intensive products (so-called 'carbon leakage').

### Stated goal of CBAM:

- To eliminate the difference in carbon price paid by companies subject to the EU's Emissions Trading System (ETS) and the price paid by companies elsewhere.
- Levelling the playing field for EU firms.
- To implement stronger emission reduction efforts.
- Incentivises non-EU countries to increase their climate ambition.
- It will ensure that EU and global climate efforts are not undermined due to the relocation of production which is defined as 'carbon leakage'.

### Concerns of India:

- Carbon border taxes could result in market distortion.

- India exports about \$2 billion worth of products annually to EU that would attract the CBAM levy.
- It is likely to unfairly protect EU domestic industries from international competition – a practice known as 'green protectionism.'
- This will be harmful to industries in India.

## THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (IPCC)

**In News:** The Intergovernmental Panel on Climate Change (IPCC) has just launched AR6 Synthesis Report: Climate Change 2023.



### More on the Topic:

- The AR6 Synthesis Report: Climate Change 2023 summarizes five years of reports on global temperature rises, fossil fuel emissions and climate impacts.

### Highlights of the reports are the following,

- Human-caused climate change is already affecting many weather and climate extremes in every region across the globe – with widespread loss and damage to both nature and people.
- GHG emissions will lead to increasing global warming in the near term, and it's likely this will reach 1.5°C between 2030 and 2035.
- We are currently at around 1.1°C of warming and current climate policies are projected to increase global warming by 3.2°C by 2100.
- The IPCC has "very high confidence" that the risks and adverse impacts from climate change will escalate with increasing global warming.
- To keep within the 1.5°C limit, emissions need to be reduced by at least 43% by 2030 compared to 2019 levels, and at least 60% by 2035. This is the decisive decade to make that happen.
- Losses and damages will disproportionately

affect the poorest and most vulnerable populations, particularly those in Africa and least-developed countries, creating more poverty.

- Prioritizing equity, social justice, inclusion and just transition processes would enable ambitious climate mitigation actions and climate-resilient development.
- Tracked climate finance for mitigation falls short of the levels needed to limit warming to below 2°C or to 1.5°C across all sectors and regions.
- Public and private finance flows for fossil fuels are still greater than those for climate adaptation and mitigation.
- **Implications of the report for India:** Increased frequency and intensity of extreme weather events – could have dire consequences for agriculture, the economy and public health.

#### **Suggested Mitigation Measures:**

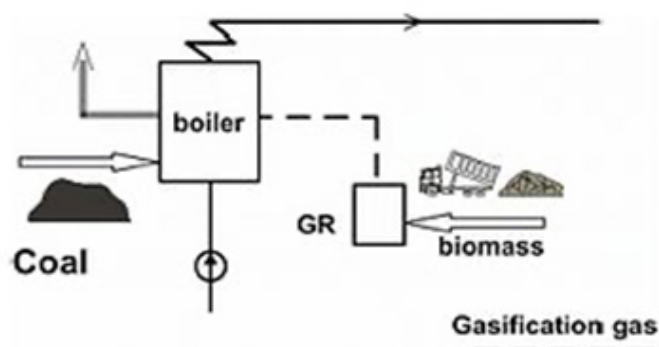
- Among other measures to ensure energy systems are net-zero CO<sub>2</sub> emitters, we need a substantial reduction in overall fossil fuel use,
- minimal use of unabated fossil fuels, and use of carbon capture and storage in the remaining fossil fuel systems;
- energy conservation and efficiency;
- and greater integration across the energy system".

#### **About IPCC:**

- The Intergovernmental Panel on Climate Change is an **intergovernmental body of the United Nations** charged with advancing scientific knowledge about anthropogenic climate change.
- It was set up in 1988 by the **World Meteorological Organisation (WMO)** and **United Nations Environment Programme (UNEP)** to provide policymakers with regular assessments of the scientific basis of climate change, its impacts and future risks, and options for adaptation and mitigation.
- IPCC assessments provide a scientific basis for governments at all levels to develop climate related policies, and they underlie negotiations at the UN Climate Conference – the United Nations Framework Convention on Climate Change (UNFCCC).

## **BIOMASS CO-FIRING**

**In News:** The Commission for Air Quality Management in NCR and adjoining areas has directed all thermal power plants in the National Capital Region to start co-firing biomass-based pellets with coal, targeting at least 5 per cent co-firing of biomass pellets by September and at least 10% by December 2023.



#### **More on the Topic:**

- The focus should be on **paddy straw utilization** for such co-firing.
- Co-firing is an option for converting biomass to electricity by adding biomass as a partial substitute fuel in coal based boilers.
- It is an effective way to curb emissions from open burning of crop residue. It also decarbonises the process of electricity generation using coal.

## **GREEN CLIMATE FUND (GCF)**

**In News:** Rwanda has been selected to host the 35th Meeting of the Green Climate Fund (GCF) Board in March 2023.



**GREEN  
CLIMATE  
FUND**

#### **More on the Topic:**

- More than 300 people including the observers from civil society, the private sector, Nationally Designated Authorities and Accredited Entities to the GCF as well as board members are expected to attend the meeting



in Rwanda.

- Attendees will have the opportunity to witness first-hand the country's efforts to address climate change, including through projects funded by Green Climate Fund.

#### About Green Climate Fund:

- The Green Climate Fund is the world's largest climate fund, mandated to support developing countries to raise and realise their climate action plans towards low-emission, climate-resilient development.
- The GCF is established in 2010 within the framework of the UNFCCC as an operating entity of the Financial Mechanism to assist developing countries in adaptation and mitigation practices to counter climate change.
- The GCF is based in Incheon, South Korea.
- The Fund is governed and supervised by a Board that will have full responsibility for funding decisions and that receives the guidance of the Conference of Parties (COP). The Fund is accountable to, and functions under the guidance of, the COP.

#### Significance of Green Climate Fund:

- The fund is intended to be the centrepiece of efforts to raise Climate Finance of \$100 billion a year by 2020.
- The Fund will promote the paradigm shift towards low-emission and climate-resilient development pathways by providing support to developing countries to limit or reduce their greenhouse gas emissions and to adapt to the impacts of climate change, taking into account the needs of those developing countries particularly vulnerable to the adverse effects of climate change.
- The Fund will strive to maximise the impact of its funding for adaptation and mitigation, and seek a balance between the two, while promoting environmental, social, economic and development co-benefits and taking a gender-sensitive approach.

#### INDIAN RENEWABLE ENERGY DEVELOPMENT AGENCY (IREDA)

**In News:** The government has approved a proposal for listing of IREDA through initial public offer by the part sale of the government stake and fresh issue of equity shares to raise funds.



#### More on the Topic:

- Indian Renewable Energy Development Agency Limited is formed in 1987 as a Mini Ratna Government of India Enterprise under Government of India and administratively controlled by the Ministry of New and Renewable Energy.
- The organisation is committed to providing innovative financing in Renewable Energy & Energy Efficiency/Conservation and Environmental Technologies
- IREDA is currently a wholly owned Government of India, Mini-Ratna CPSE.
- It is registered as a Non-banking Financial Company (NBFC) with RBI. Recently, RBI has granted Infrastructure Finance Company status to IREDA.
- IREDA headquarters are located in New Delhi.

#### FOREST FIRES

**In News:** Odisha has reported 542 forest fires in last 7 days, highest in India.



#### More on the Topic:

- No rains since October and rising temperatures is associated with increase in Odisha's forest fires. It will impact wildlife and ground vegetation.
- The large forest fires were reported from Similipal Tiger Reserve in Mayurbhanj district.

### About forest Fires:

- Forest fires are a regular phenomenon in our country often observed during summers.
- Severe fires occur in many forest types particularly dry deciduous forest, while evergreen, semi-evergreen and montane temperate forests are comparatively less prone (ISFR 2015).
- **More than 36% of the country's forest cover has been estimated to be prone to frequent forest fires.**
- Nearly 4% of the country's forest cover is extremely prone to fire, whereas 6% of forest cover is found to be very highly fire prone (ISFR 2019) .
- Precious forest resources including carbon locked in the biomass is lost due to forest fires every year, which adversely impact the flow of goods and services from forests.

### Positive Effects of Forest Fires:

- Fire frequencies **determine the overstorey of coniferous composition**, besides developing a natural space among the stands.
- Fire may also play a role in **recycling nutrients from the ground-layer vegetation and litter to the overstorey trees**, thereby counteracting the infertile substrates and arrested decay.
- Fires can help rid an ecosystem of invasive species that have not adapted to regular wildland fires.
- Helps in the evolution of forests (such as dry deciduous forests and savannahs).

### Negative Effects of Fire:

- Loss of valuable timber resources.
- Degradation of catchment areas.
- Loss of biodiversity and extinction of plants and animals.
- the economic stability of many communities that live in forests get affected.

### How to Mitigate Forest fires:

- Generally, the fire spreads only if there is continuous supply of fuel (Dry vegetation) along its path.
- The best way to control a forest fire is therefore, to prevent it from spreading, which can be done by **creating firebreaks in the shape of small clearings of ditches in the forests.**
- To adopt safe practices in areas near forests

viz. factories, coalmines, oil stores, chemical plants and even in household kitchens.

- To incorporate fire reducing and fire fighting techniques and equipment

### SOLAR WASTE

**In News:** Recently notified the E-Waste (Management) Rules 2022 features the management of solar photo-voltaic modules, panels, and cells.



### More on the Topic:

- As per the rules every manufacturer and producer of solar photo-voltaic modules or panels or cells in India shall comply with various requirements.
- The first requirement is that all manufacturer and producer of solar photo-voltaic modules or panels or cells shall **ensure registration on the portal setup by Indian Government.**
- The portal will be used to maintain an inventory of solar photo-voltaic modules or panels or cells waste generated up to the year 2034-2035.
- Manufacturers and producers of solar photo-voltaic modules or panels or cells shall file annual returns in the laid down form on the portal on or before the end of the year.
- Recyclers of solar photo-voltaic modules or panels or cells shall be **mandated for the recovery of material as laid down by the Central Pollution Control Board.**

### About Solar Waste:

- Solar wastes are the electronic waste generated by discarded solar panels. They are sold as scrap in the country.
- It can increase by at least four-five-fold by the next decade.

- While photovoltaics generate only about 3% of global electricity, they consume 40% of the world's tellurium, 15% of the world's silver, a substantial chunk of semiconductor-grade quartz and lesser but still significant amounts of indium, zinc, tin and gallium.
- The market value of raw materials recovered from solar panels could reach USD 450 million by 2030.
- International Renewable Energy Agency (IRENA) estimated that global PV waste will touch 78 million tonnes by 2050, with India expected to be one of the top five PV-waste creators.

#### Concerns Associated with Solar Panels:

- Solar panel waste is harmful to the environment as it contains toxic metals and minerals that may seep in the ground.
- It contains lead, cadmium and other toxic elements which are carcinogenic in nature.

### GLOBAL GREENHOUSE GAS MONITORING INFRASTRUCTURE

**In News:** The U.N.'s World Meteorological Organisation has come up with a new Global Greenhouse Gas Monitoring Infrastructure that aims to provide better ways of measuring planet-warming pollution and help inform policy choices.

#### More on the Topic:

- The WMO's new platform will integrate space-based and surface-based observing systems, and seek to clarify uncertainties about where greenhouse gas emissions end up.
- It should result in much faster and sharper data on how the planet's atmosphere is changing.
- The three major greenhouse gases are carbon dioxide, methane and nitrous oxide. Of those, CO<sub>2</sub> accounts for around 66% of the warming effect on the climate.
- The infrastructure will improve our understanding of the carbon cycle and provide critical and timely input to the UNFCCC processes.
- It will help humans understand climate change and to provide support to mitigation action taken by the Parties to the UNFCCC and the Paris Agreement.

### MILLETS

**In News:** Prime Minister Narendra has said millets can help tackle challenges of food security.



#### More on the Topic:

- Millets are group of small grained cereal food crops which are highly tolerant to drought and other extreme weather conditions and are grown with low chemical inputs such as fertilizers and pesticides.
- Most of millet crops are native of India and are popularly known as Nutri-cereals as they provide most of the nutrients required for normal functioning of human body.
- Millets are classified into Major Millets and Minor Millets based on their grain size.
- Pseudo millets are so called because they are not part of the Poaceae botanical family, to which 'true' grains belong, however they are nutritionally similar and used in similar ways to 'true' grains.

#### Importance of Millets:

- Ministry of Agriculture and Farmers Welfare has recognized the importance of Millets and declared Millets comprising of Sorghum (Jowar), Pearl Millet (Bajra), Finger Millet (Ragi/Mandua), Minor Millets i.e., Foxtail Millet (Kanngani/kakun), Proso Millet (Cheena), Kodo Millet (Kodo), Barnyard Millet (Sawa/Sanwa/Jhangora), Little Millet (Kutki), Brown top millet and two pseudo millets i.e., Buck-wheat (Kuttu), Amaranth (Chaulai) as "Nutri-Cereals" for production, consumption and trade point of view.



- Millets are gluten free and non- allergenic.
- Millet consumption decreases triglycerides and C- reactive protein, thereby preventing cardiovascular disease.
- They are called superfoods for having nutrients like protein, Vitamin-A, Iron and Iodine, antioxidants, etc.
- India accounts for 80% of Asia's production and 20% of global production.
- All millets are rich in dietary fibre.
- Dietary fibre has water absorbing and bulking property. It increases transit time of food in the gut which helps in reducing risk of inflammatory bowel disease and acts as detoxifying agent in the body.

#### Initiatives to Promote Millets:

- Millets notified as nutri-cereals and included under POSHAN Mission Abhiyan.
- United Nations General Assembly declared the year 2023 as International Year of Millets.
- National Year of Millets celebrated in 2018.

### PLASTIC ROCKS

**In News:** Brazilian researchers find 'terrifying' plastic rocks on remote island in the state of Espirito Santo, Brazil.



#### More on the Topic:

- Melted plastic has become intertwined with rocks on the island, which researchers say is evidence of humans' growing influence over the earth's geological cycles.
- Plastic was found in the rocks called plastiglomerates - a mixture of sedimentary granules and other debris held together by plastic.

### VILAYATI KIKAR

**In News:** Work is set to begin on 10 hectares of land in the Central Ridge to remove vilayati kikar, an invasive species, and restore the natural bio-diversity of the region in a pilot project.



#### More on the Topic:

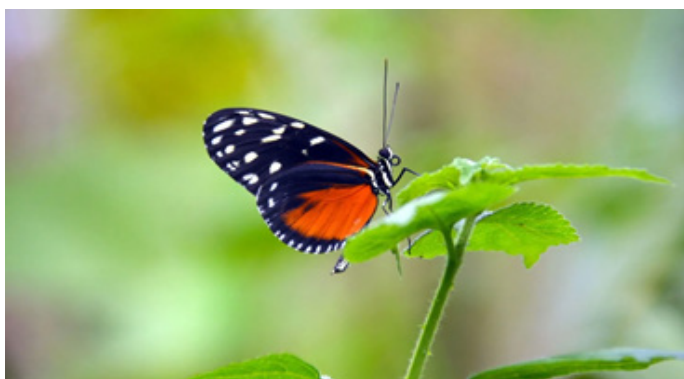
- Vilayati kikar (*Prosopis juliflora*) is an invasive tree species introduced under the British Empire in the 1930s (native to Mexico, South America and the Caribbean) as part of development of Delhi.
- The tree does not let other trees flourish in the area, because of its deep roots and it monopolises water and sunlight in the area.
- These trees can dry up underground aquifers through its deep-root system, going as far as 20 metres or more in search of water, significantly higher than around 5 metres that native shrubs and trees go.
- It has a thick canopy and does not allow sunlight to reach the floor of the area where they are planted.

#### About Invasive Species:

- Invasive alien species are plants, animals, pathogens and other organisms that are non-native to an ecosystem, and which may cause economic or environmental harm or adversely affect human health.
- They regenerate at an alarming speed and threaten to edge out the indigenous flora.

### BUTTERFLY ECOPARK IN TRIPURA

**In News:** A butterfly park in a village near the India-Bangladesh international border in South Tripura district is now attracting tourists from all over the country and Bangladesh.



#### More on the Topic:

- The park close to the Trishna Wildlife sanctuary is the first butterfly park of northeast.
- The park is dedicated to conserving and promoting the unique butterfly species found in the region.
- It was established in 2016 and hosts around 250 species of butterflies.
- **Significance of Butterflies:** Butterflies are key pollinators.
- Butterflies and moths are indicators of a healthy environment and healthy ecosystems.

### HORSESHOE CRAB

**In News:** Horseshoe crabs, medicinally priceless and one of oldest living creatures on the earth, appear to be disappearing from their familiar spawning grounds along Chandipur and Balaramgadi coast in Odisha's Balasore district.



#### More on the Topic:

- Scientists have urged Odisha government to immediately come up with a robust protection mechanism before the living fossil becomes extinct due to destructive fishing practices.
- The blood of Horseshoe crab is very important for preparation of rapid diagnostic reagent

### EXOSTOMA DHRITIAE

**In News:** New Catfish species discovered in Arunachal. The new species has been named 'Exostoma Dhritiae' after Dhriti Banerjee, the first woman director of the ZSI, as a mark of honour for her contributions to research on the fauna of the country.



#### More on the Topic:

- The new species was found in Siking stream, a tributary of Siang River in Upper Siang district of Arunachal Pradesh.
- It is a small fish found in streams in these hills and locally called 'Ngorang' by local tribals.
- Catfish represent one of the largest groups of freshwater fishes, with more than 2000 species.
- Most catfish are found in freshwater but a few are marine.
- Most species of catfish are nocturnal.
- Catfish are primarily benthic or bottom-dwellers.

### HANGUL/KASHMIRI STAG

**In News:** Recent Census have showed increased population of endangered Hangul at Dachigam National Park. Dachigam National Park is a national park located in Srinagar on the east side of Dal Lake.





### More on the Topic:

- It is a subspecies of the elk.
- It is a critically endangered animal found in the Indian state of Jammu & Kashmir.
- The Hangul has a brown reindeer type of look and has a small tail, it has a beige color on the below and inner legs at the rear end of the animal.
- The Kashmir Stag is currently it is being protected in the Dachigam National Park, Rajparian Wildlife Sanctuary, Sind Valley, Forest covered areas of Kishtwar and Bhaderwah, and neighboring areas of Aru.
- The society of Kashmir stag is matriarchal.
- According to the IUCN, there were only 240(approx.) Hangul left in 2019.
- The biggest challenges which have been identified by experts in the way of conservation and population growth of Hangul are habitat fragmentation, predation and very low fawn-female ratio.
- The Hangul is placed under Schedule I of the Indian Wildlife (Protection) Act, 1972 and the J&K Wildlife Protection Act, 1978.

### KEIBUL LAMJAO PARK

**In News:** Environment Ministry has advised the Manipur government to take up necessary steps for the conservation and protection of Loktak Lake and Keibul Lamjao National Park.



### More on the Topic:

- The Keibul Lamjao National Park is a national park in the Bishnupur district of the state of Manipur in Northeast India.
- It is the only floating national park in the world,

and an integral part of Loktak Lake.

- The national park is characterized by floating decomposed plant material locally called phumdi.
- It was created in 1966 as a wildlife sanctuary to preserve the natural habitat of the endangered Sangai/Brow antlered deer/Dancing Deer.
- In 1977, it was gazetted as national park
- It is the last natural habitat of the 'Sangai' (*Rucervus eldii eldii*), the dancing deer of Manipur.
- This is the last natural habitat of the brow-antlered deer (Sangai) the dancing deer of Manipur.

### BARDA WILDLIFE SANCTUARY

**In News:** The Gujarat government has planned to translocate 40 adult and sub-adult lions to the Barda Wildlife Sanctuary in the state.



### More on the Topic:

- As per the last count in 2020, there are 674 lions in the state and Gir has long been overflowing with the Lions..
- Experts have demanded translocation of lions in India for the past two decades as the big cats have been geographically isolated in Gir.
- A second home would protect the lion population from extinction in case of diseases like the Canine Distemper Virus leads to their deaths.
- The Supreme Court of India in 2013 had also ordered relocating some lions to Madhya Pradesh; however, 10 years later, the transfer has not yet happened.
- Carnivore populations restricted to single sites face various extinction threats from genetic and stochastic environmental factors.
- Catastrophes such as an epidemic, an unexpected decline in prey, natural calamities or retaliatory killings could result in their extinction when they are restricted to single populations.



## EURASIAN OTTER

**In News:** Presence of Eurasian otter proves that stretches of Neeru river stream still unpolluted.



### More on the Topic:

- The Eurasian otter classified as 'near threatened' on the IUCN Red List is regarded as a flagship species and indicator of high-quality aquatic habitats, its presence is encouraging for the health of the Neeru stream.
- Otters are mammals of the family Mustelidae consisting of 13 species. They are found in every continent except Australia and Antarctica.
- The Eurasian otter covers the largest range of any Palearctic mammal.
- The species is persecuted as a pest in countries such as India, China and Nepal, and its populations have declined due to hunting for food and pelt, habitat loss, pollution and climate change.

## SEA HORSE

**In News:** Extensive fishing off the Coromandel coast could be forcing the great seahorse to migrate laboriously toward Odisha.



### More on the Topic:

- There are 46 species of seahorses reported worldwide.
- The coastal ecosystems of India house

nine out of 12 species found in the Indo-Pacific, one of the hotspots of seahorse populations that are distributed across diverse ecosystems such as seagrass, mangroves, macroalgal beds, and coral reefs.

- These nine species are distributed along the coasts of eight States and five Union Territories from Gujarat to Odisha, apart from Lakshadweep and the Andaman and Nicobar Islands.
- The population of the great seahorse, which is among the eight species tagged 'vulnerable', is declining due to its over-exploitation for traditional Chinese medicines and as ornamental fish, combined with general destructive fishing and fisheries bycatch

## PROTECTION OF MARINE LIFE ON HIGH SEAS

**In News:** For the first time, United Nations members have agreed on a unified treaty to protect biodiversity in the high seas.



### More on the Topic:

- The U.N. Convention on the Law of the Sea came into force in 1994, before marine biodiversity was a well-established concept.
- An updated framework to protect marine life in the regions outside national boundary waters, known as the high seas, had been in discussions for more than 20 years, but previous efforts to reach an agreement had repeatedly stalled.

### Highlights from the Treaty:

- The treaty will create a new body to manage conservation of ocean life and establish marine protected areas in the high seas.
- It will help to achieve the U.N. Biodiversity Conference's recent pledge to protect 30% of the planet's waters, as well as its land, for conservation.

- The treaty also establishes ground rules for conducting **environmental impact assessments** for commercial activities in the oceans.
- It'll put limits on how much fishing can take place, exploration activities like deep sea mining etc.

### Significance of the Treaty:

- Several marine species including dolphins, whales, sea turtles and many fish make long annual migrations, crossing national borders and the high seas.
- Efforts to protect them, along with human communities that rely on fishing or tourism related to marine life, have long proven difficult for international governing bodies.
- This treaty will help to integrate together the different regional treaties to be able to address threats and concerns across species' ranges.
- That protection also helps coastal biodiversity and economies.
- The high seas have long suffered exploitation due to commercial fishing and mining, as well as pollution from chemicals and plastics.
- The new agreement acknowledges that the ocean is not a limitless resource, and it requires global cooperation to use the ocean sustainably.
- Only about 1% of high seas are currently protected.
- This will bring political will and changes in the governance by different countries.

### About High Seas:

- High seas begin at border of countries' EEZ, which extend up to 370km from coastlines.
- They comprise more than 60% of world's oceans and nearly half planet's surface.

## GLOBAL ALLIANCE FOR BIG CATS

**In News:** India has proposed to launch a mega global alliance under its leadership to protect big cats.

### More on the Topic:

- The proposed International Big Cat Alliance (IBCA) will work towards the protection and conservation of the seven major big cats – tiger, lion, leopard, snow leopard, puma,

jaguar and cheetah.

- Membership to the alliance will be open to 97 "range" countries, which contain the natural habitat of these big cats, as well as other interested nations, international organisations, etc.



### Objectives of the Project:

- Dissemination of information on benchmarked practices, capacity building, resources repository, research and development, awareness creation", etc., on the protection and conservation of big cats.
- Its major activities will include "advocacy, partnership, knowledge e-portal, capacity building, eco-tourism, partnerships between expert groups and finance tapping".

### Proposed Structure of the Organisation:

- The IBCA's governance structure will comprise a General Assembly consisting of all member countries, a council of at least seven but not more than 15 member countries elected by the General Assembly for a term of 5 years, and a Secretariat.
- Upon the recommendation of the Council, the General Assembly will appoint the IBCA Secretary General for a specific term.
- After the first five years, which will be supported by India's "total grant assistance" of \$100 million, the IBCA is expected to sustain itself through membership fees, and contributions from bilateral and multilateral institutions and the private sector.

### Significance of Big Cats:

- When big cats are thriving in the wild, it's an indicator that their ecosystems are also thriving.
- The loss of an apex predator like big cats can set off something called a "trophic cascade," in which the disrupted food chain sends the ecosystem spiraling out of control.



## CHANGTHANG WILDLIFE SANCTUARY

**In News:** Standing committee of National Board for Wildlife has approved setting up of a new Indian Air Force base in Changthang WS in Eastern Ladakh.



### More on the Topic:

- The Changthang Wildlife Sanctuary (or the Changthang Cold Desert Wildlife Sanctuary) is a high altitude wildlife sanctuary located in the Ladakhi adjunct of the Changthang plateau in the Leh District of the union territory of Ladakh.
- It is important as one of the few places in India with a population of the Kiang or Tibetan Wild Ass, as well as the rare Black-necked Crane.
- It covers lakes like Pangong Tso, Tso Moriri and Tso Kar.

## GREATER PANNA LANDSCAPE COUNCIL

**In News:** To ensure systematic and time bound implementation of the Greater Panna Landscape Management plan, the Greater Panna Landscape Council (GPLC) has been constituted under the chairmanship of Chief Secretary, Madhya Pradesh.



### More on the Topic:

- As part of the Ken-Betwa Link Project (KBLP) a comprehensive Integrated Landscape Management Plan (ILMP) has been prepared for the conservation of wildlife and biodiversity in Panna Tiger Reserve (PTR) & surrounding areas.
- Integrated Landscape Management refers to long term collaboration to achieve the objectives required from the landscape, such as agricultural production, the delivery of ecosystem services, cultural heritage and values, and rural livelihoods.
- The goal of the GPL and the council is to ensure a "win-win" situation for conservation through integration with the development process based on a balanced approach and considering the diverse stakes.

### The broad objectives are:

- to enable betterment of habitat, protection, and management for flagship species viz. Tiger, Vulture, and Gharial in the landscape;
- to consolidate the landscape for overall biodiversity conservation through spatial prioritisation and well-being of the forest dependent communities;
- to provide species-specific and site-specific monitoring strategies under the integrated landscape management in context with feedback loop and adaptive management options.

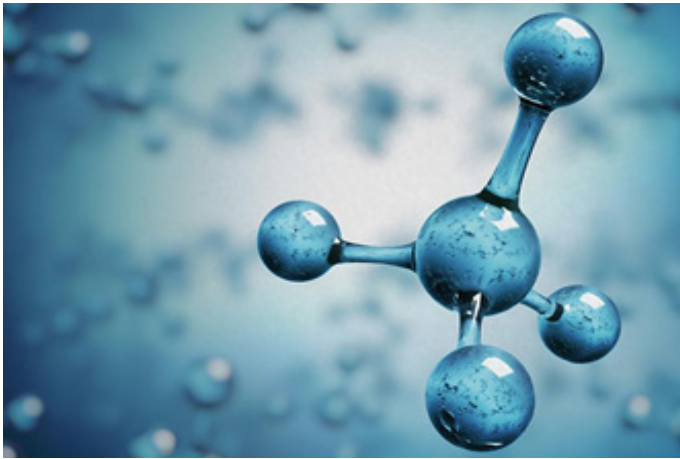
### About Ken-Betwa Link Project (KBLP)

- The Ken-Betwa Link Project (KBLP) is the river interlinking project that aims to transfer surplus water from the Ken River in Madhya Pradesh (MP) to Betwa in Uttar Pradesh (UP) to irrigate the drought-prone Bundelkhand region.
- Ken-Betwa Link Project (KBLP), the first interlinking of rivers project under National Perspective Plan (NPP) taken for implementation, would be a game-changer for the socio-economic prosperity of the Bundelkhand region, which faces recurrent drought situation.
- The project involves building a 77-metre tall and a 2-km wide Dhaudhan dam (to be built within Panna Tiger Reserve) and a 230-km canal.
- Ken-Betwa is one of the 30 river interlinking projects conceived across the country.



## GLOBAL METHANE TRACKER

**In News:** International Energy Agency's (IEA) has released annual Methane Global Tracker report.



### More on the Topic:

#### Highlights of the report:

- Fossil fuel companies emitted 120 million metric tonnes of methane into the atmosphere in 2022, only slightly below the record highs seen in 2019.
- 75% of methane emissions from the energy sector can be reduced with the help of cheap and readily available technology.
- The energy sector accounts for around 40% of the total average methane emissions from human activity, as oil and natural gas companies are known to release methane into the atmosphere when natural gas is flared or vented.
- Implementation of clean measures would cost less than three percent of the net income received by the oil and gas industry in 2022, but fossil fuel companies failed to take any substantial action regarding the issue of methane and green house gas emission.

#### About the Effects of Methane:

- Methane is the primary contributor to the formation of ground-level ozone, a hazardous air pollutant, and greenhouse gas, exposure to which causes 1 million premature deaths every year.
- Methane is also a powerful greenhouse gas. Over 20 years, it is 80 times more potent at warming than carbon dioxide.
- Agriculture is the predominant source of methane emissions.
- Livestock emissions from manure and gastroenteric releases account for roughly 32% of human-caused methane emissions.

## INDIAN WOLF

**In News:** In a first, the Gujarat Forest Department is set to shift 10 Indian grey wolves from conservation breeding centre to forested areas in north Gujarat and north Saurashtra.



### More on the Topic:

- The release of the captive-bred predators, the *Canis lupus pallipes* or the Indian peninsular wolf, is an attempt to check the population of wild herbivores, including blue bulls (nilgais), wild boars, etc., which have been causing significant crop damage in these parts.
- These regions has an existing population of wild wolves, but with their population dwindling, the relocation is a bid to boost their numbers.
- Indian wolf is a subspecies of grey wolf inhabiting semi-arid and arid areas extending from Indian subcontinent to Israel.
- IUCN conservation status: Least concern

## MALABAR TREE TOAD

**In News:** 'Checklist of Indian Amphibians (2023)' released by Zoological Survey of India have mentioned about Malabar tree toad.



### More on the Topic:

- They are found in Mollem National Park is located in Sanguem taluk in Goa close to the border with Karnataka.
- Malabar tree toad is also found in Mhadei Wildlife Sanctuary of Goa.
- The Malabar tree toad (*Pedostibes tuberculosus*), or warty Asian tree toad, is a species of toad found in forests along the Western Ghats of great Karnataka or Deccan.
- It is a small species and is found in wet tree hollows or leaf bases containing water.
- It is the only species in the monotypic genus *Pedostibes*, also known as Asian tree toads.

### DANGI COW

**In News:** Young cattle-rearers in the district have formed a forum to popularise the Dangi cow, a native indigenous breed from Nashik.



### More on the Topic:

- Dangi is an indigenous cattle breed of India.
- It originated in the hilly tracts of Dangs comprising the Nasik and Ahmednagar districts in the state of Maharashtra.
- Dangi cattle are known for sweet milk.
- The breed is medium to large in body size.
- They are a very good draught breed and known for their adaptability to heavy rainfall areas.
- The skin of this breed secretes an oil element that enables them to tolerate heavy rains.

### MAD COW DISEASE

**In News:** Brazil's beef exports to China will be halted after a case of mad cow disease was confirmed.

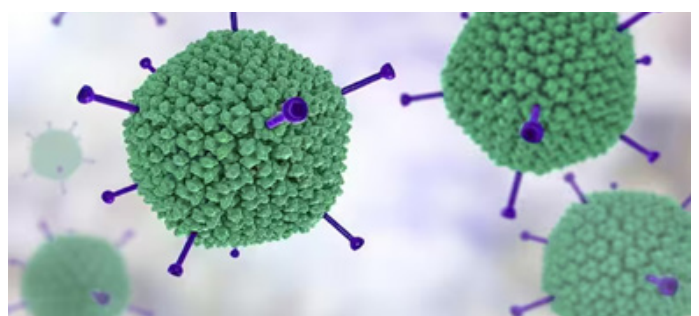


### More on the Topic:

- Mad cow disease is also known as bovine spongiform encephalopathy (BSE).
- It is a transmissible, slowly progressive, degenerative, and fatal disease which affects the central nervous system of adult cattle.
- The infectious agent that causes mad cow disease is an abnormal version of a protein normally found on cell surfaces, called a prion.
- When this protein gets altered, it destroys the nervous system tissue- the brain and spinal cord. Although, the reason for the same is still unknown.
- Strong evidence indicates that BSE has been transmitted to humans through the consumption of BSE-tainted beef and beef products, causing a human form of the disease known as variant Creutzfeldt-Jakob disease (vCJD), which is a rare, fatal brain disorder.
- Currently there is no vaccine against Mad cow disease.

### ADENOVIRUS INFECTION

**In News:** The West Bengal Government has reported 12 deaths in government hospitals due to Adenovirus infection.



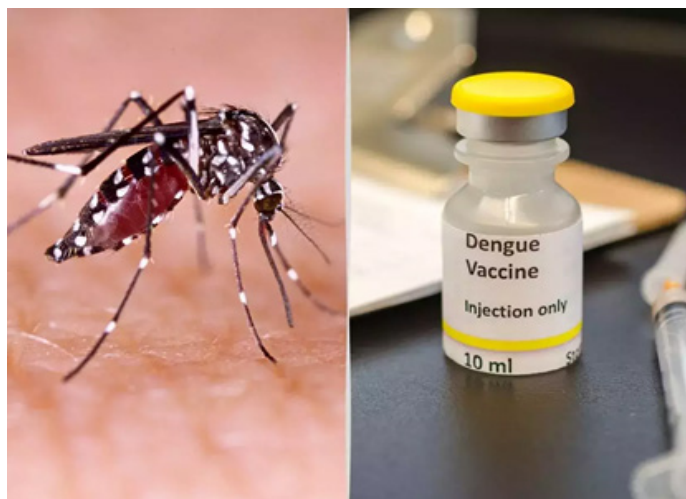


### More on the Topic:

- Adenoviruses are a group of common viruses that infect the lining of your eyes, airways and lungs, intestines, urinary tract, and nervous system.
- ADVs are **double-stranded linear DNA viruses** ranging from 70-90 nanometres in size.
- They're common causes of fever, coughs, sore throats, diarrhoea, and pink eye. Infections happen in children more often than in adults, but anyone can get them.

### INDIA'S FIRST DNA VACCINE AGAINST DENGUE

**In News:** In a significant development in DNA vaccination research, India's first and only DNA vaccine candidate for dengue has shown promising results.



### More on the Topic:

- The DNA vaccine candidate has been in development since 2019 by scientists from the National Centre for Biological Sciences (NCBS), Bengaluru, in collaboration with nine institutions in India, Africa and the US.
- The world's first DNA vaccine, **ZyCoV-D, developed by Ahmedabad-based pharmaceutical firm** was approved in 2021 for emergency use against COVID-19.
- Globally, DNA vaccines are being developed for diseases like tuberculosis and chikungunya. Some 19 DNA dengue vaccines are being evaluated, but yet to reach final clinical trials.

### About Vaccines:

- Vaccination consists of **stimulating the immune system with an infectious agent**, or components of an infectious agent, modified

in such a manner that no harm or disease is caused, but ensuring that **when the host is confronted with that infectious agent, the immune system can adequately neutralize it before it causes any ill effect.**

- For over a hundred years vaccination has been effected by one of two approaches: **either introducing specific antigens** against which the immune system reacts directly; or **introducing live attenuated infectious agents** that replicate within the host without causing disease synthesize the antigens that subsequently prime the immune system.

### About DNA Vaccines:

- Recently, a radically new approach to vaccination has been developed.
- It involves **the direct introduction into appropriate tissues of a plasmid containing the DNA sequence encoding the antigen(s)** against which an immune response is sought, and relies on the **in situ production of the target antigen.**
- The DNA is injected directly into the body's cells, where it instructs the cells to produce the antigen.
- The immune system then recognises the antigen as foreign and mounts an immune response against it, which helps to develop immunity to the pathogen.
- This approach offers a number of potential advantages over traditional approaches, including the stimulation of both B- and T-cell responses, improved vaccine stability, the absence of any infectious agent and the relative ease of large-scale manufacture.

### About Dengue:

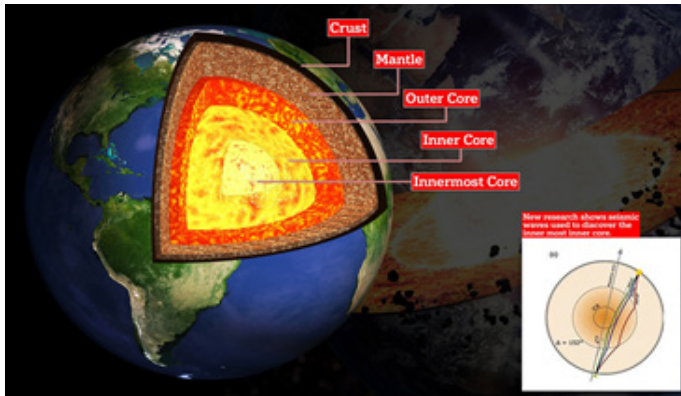
- Dengue viruses are spread to people through **the bite of an infected Aedes species (Ae. aegypti or Ae. albopictus) mosquito.**
- This mosquito also transmits chikungunya, yellow fever and Zika infection.
- There are **4 distinct, but closely related, serotypes** (separate groups within a species of microorganisms that all share a similar characteristic) of the virus that cause dengue (DEN-1, DEN-2, DEN-3 and DEN-4).
- Almost half of the world's population, about 4 billion people, lives in areas with a risk of dengue.



# GEOGRAPHY

## THE INNERMOST INNER CORE OF EARTH

In News: The researchers have confirmed the existence of a fifth new layer of the Earth called the innermost inner core of Earth.



### More on the Topic:

- The four known layers of the Earth include the crust, mantle, outer liquid and inner solid core.
- The fifth layer, the innermost inner core lies at the Earth's centre, within the inner core.
- The fifth layer is made of iron and nickel, the same materials that comprise the rest of the inner core.
- The difference between the two parts of the inner core could stem from how iron atoms are arranged to form a solid. Alternatively, the iron in the innermost inner core could have solidified and grown in a different direction than the rest of the inner core.
- The inner core as a whole was liquid in the early years of the Earth's existence, turning into a solid as the Earth cooled.

### About the Four Layers of the Earth:

- **The Crust:** The crust is the outermost layer of the earth making up 0.5-1.0% of the earth's volume and less than 1% of Earth's mass.
- It has two parts - thinner Oceanic Crust and thicker Continental Crust.
- The continental crust is composed of lighter (felsic) sodium potassium aluminium silicate rocks, like granite.
- The oceanic crust, on the other hand, is composed of dense (mafic) iron magnesium silicate igneous rocks, like basalt.
- **Mantle:** It forms about 83% of the earth's volume and holds 67% of the earth's mass.

- It is the Solid/plastic layer of earth. It is divided in two parts - Upper Mantle and Lower Mantle. Uppermost mantle and crust constitute lithosphere.
- **Outer core:** It surrounds the inner core, lies between 2900 km and 5100 km below the earth's surface.
- The outer core is composed of iron mixed with nickel (nife) and trace amounts of lighter elements.
- **Inner core:** The inner core extends from the centre of the earth to 5100 km below the earth's surface.
- The inner core is generally believed to be composed primarily of iron (80%) and some nickel (nife).

## WESTERN DISTURBANCE

In News: In March 2023, large parts of the country experienced hailstorms, accompanied by torrents of rain caused by multiple western disturbances (WD).



### More on the Topic:

- The reasons for this excessive storm activity throughout India were multiple weather systems being active over the country simultaneously. In March, six WDs affected India.
- One of the rain was caused by multiple weather systems such as troughs and cyclonic circulations (swirling winds in the middle and upper troposphere – the lowest layer of the atmosphere) associated with two consecutive WDs.
- A warming Arabian Sea could also be responsible for the intense storm activity and rain.
- The IMD also cited a strong subtropical westerly jet stream, a band of winds that circles the subtropical regions of the planet in the upper layers of the troposphere, as a

reason for the storm activity.

- This was aided by the incursion of moisture-laden winds from the Bay of Bengal and the lowering of the freezing level in the atmosphere, which helped in the formation of hail.

#### About Western Disturbances:

- Western disturbances are extra-tropical storms that originate in the Caspian or Mediterranean Sea, which is an area of low pressure & bring sudden showers(non-monsoonal), snow and fog to northwest India.
- The meaning of WD lies in its name.
- The disturbance travels from the "western" to the eastern direction.
- These travel eastwards on high-altitude westerly jet streams - massive ribbons of fast winds traversing the earth from west to east.
- Disturbance means an area of "disturbed" or reduced air pressure.
- Equilibrium exists in nature due to which the air in a region tries to normalise its pressure.
- WD brings winter and pre-monsoon rain and is important for the development of the Rabi crop in the Northern subcontinent.

#### MISSING CONTINENT OF ZEALANDIA

**In News:** The Scientists have discovered the 'missing' continent of 'Zealandia' over 300 years from initial reports of the landmass, with 1.89million square miles of former continent found deep underwater.



#### More on the Topic:

- So-called "Zealandia" was a continent that stretched 1.89million square miles in size and is the missing piece of former super-continent Gondwana.
- That super continent of old also included Eastern Australia and Western Antarctica, but Zealandia had "pulled away" from the other continents more than 550 million years ago, gradually sinking into the waters.
- The existence of Zealandia was first recorded in 1642 by Dutch businessman and sailor Abel Tasman.
- He was on a mission to find the "great Southern Continent" or Terra Australis.
- While Tasman failed to find this new land, he did encounter the local Māori when he landed on the Southern Island of New Zealand.
- Despite their hostility towards him, the Māori provided valuable information about the surrounding landmass, including the existence of a large landmass to the east. However, it would take nearly 400 years for scientists to agree on the existence of Zealandia.
- In 2017, geologists finally confirmed the existence of Zealandia.
- The name and concept for Zealandia was proposed by Bruce Luyendyk in 1995.

#### Present Status:

- Zealandia is now recognized as the world's eighth continent, but its unique characteristics make it stand out from the other continents on the planet.
- Every other continent is home to multiple countries, Zealandia has only three territories.
- Despite its underwater location, Zealandia is an important discovery that sheds light on the earth's geological history and the forces that shaped the planet as we know it today.
- Zealandia is divided into two regions by scientists, North Zealandia (or Western Province) and South Zealandia (or Eastern Province).
- These two features are separated by the Alpine Fault and Kermadec Trench and by the wedge-shaped Hikurangi Plateau, and they are moving separately to each other.

## ZOJI LA PASS

**In News:** Border Roads Organisation (BRO) reopened Zoji La on Srinagar-Kargil-Leh highway in record 68 days.



### More on the Topic:

- Zoji La used to normally close by October or November every year and reopen only by April-May, resulting in almost six-month closure time.
- With the renewed focus on infrastructural development and augmentation of connectivity to the northern borders in the recent years, there has been a strategic requirement of minimising the closure time of Zoji La during winters.
- Zoji La Pass is a high mountain pass at an elevation of 11,578 ft above sea level, located in Kargil district of Ladakh.
- It is the strategic link connecting Ladakh to Srinagar and the rest of India.

## AFRICA'S SPLITTING PLATES

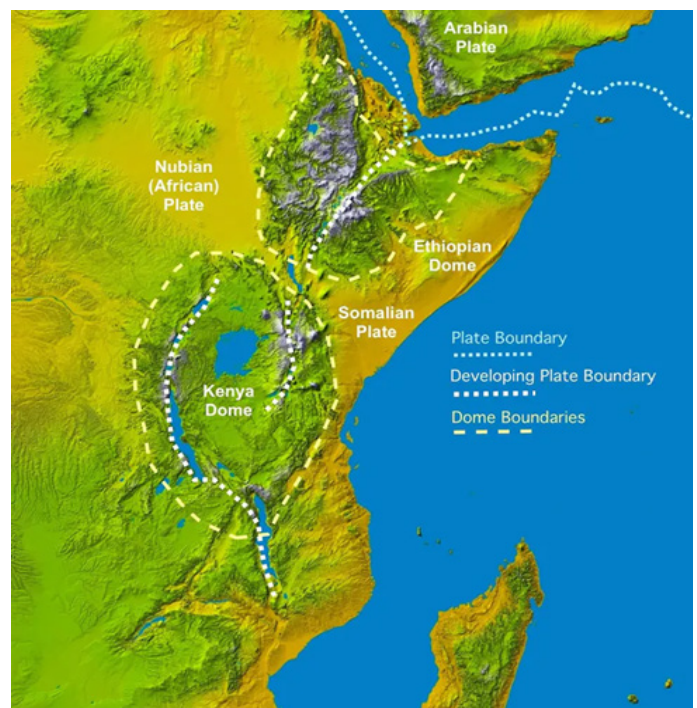
**In News:** Scientists have predicted that a new ocean would be created as Africa gradually splits into two separate parts.

### More on the Topic:

- The division of the continent is connected to the East African Rift, a crack that stretches 56 kilometres and appeared in the desert of Ethiopia in 2005, triggering the formation of a new sea.
- This geological process will inevitably divide the continent, resulting in currently landlocked countries, such as Uganda and

Zambia, obtaining their own coastlines in due time, which would take five to 10 million years.

- As the Somali and Nubian tectonic plates continue to pull apart from each other, a smaller continent will be created from the rift, which will include present-day Somalia and parts of Kenya, Ethiopia, and Tanzania.
- The Gulf of Aden and the Red Sea will eventually flood into the Afar region in Ethiopia and the East African Rift Valley, leading to the formation of a new ocean.
- This new ocean will result in East Africa becoming a separate small continent with its own unique geographic and ecological characteristics.
- The three plates — the Nubian African Plate, Somalian African Plate and Arabian Plate — are separating at different speeds.
- The Arabian Plate is moving away from Africa at a rate of about an inch per year, while the two African plates are separating even slower, between half an inch to 0.2 inches per year, according to Macdonald.
- The necessary evacuation of people and the potential loss of lives will be an unfortunate cost of this natural phenomenon.



### What is rifting?

- The Earth's lithosphere, comprised of the crust and upper part of the mantle, is divided into several tectonic plates that are not stationary but rather move in relation to each other at varying speeds.



- Tectonic forces not only move the plates but also have the potential to cause them to rupture, resulting in the formation of a rift and potentially leading to the creation of new plate boundaries.
- Rifting refers to the geological process in which a single tectonic plate is split into two or more plates separated by divergent plate boundaries.
- This process leads to the emergence of a lowland region known as a rift valley, which can occur either on land or at the bottom of the ocean. These rift valleys occur due to the movement of Earth's tectonic plates.

### Challenges & consequences:

- Africa is the most impacted region when it comes to displacement, with a larger number of countries affected than any other continent or region.
- As the plates continue to split in the future, this phenomenon will result in the displacement of communities, settlements and various flora and fauna.
- These changes will impact their habitats due to climate change, resulting in environmental degradation. Rapid urbanisation and increased settlements will put pressure on natural resources, leading to a scarcity of water, energy and food.
- Uncontrolled waste disposal will also be a significant concern. Furthermore, some species will disappear, while others will become endangered due to habitat changes.
- While the process of rifting may often go unnoticed, the separation of the Nubian and Somali plates can result in the formation of new faults, fissures and cracks or the reactivation of pre-existing faults, leading to seismic activity.

## YELLOW RIVER

**In News:** According to a new study, the Chinese practice of building embankments is also responsible for the flooding upstream of the Loess Plateau which is surrounded by the Yellow river.

### More on the Topic:

- The Yellow River or Huang is the second-longest river in China, after the Yangtze River.
- It is known as the 'mother river' of Chinese civilisation.

- It is also been known as the 'River of Disaster' and 'China's sorrow' because of the devastating floods it has caused.



### Why it is flood Prone:

- Yellow river is the most sediment-laden river.
- Also known as Huang He, it originates in the province of Qinghai, flows through the Loess Plateau, where it takes sediment that gives its waters their characteristic yellow colour.
- The sediment or loess (a type of silt) from the plateau usually settles on the river bed and raises its height, making the river especially flood-prone in the lower reaches, on the North China Plain.

## MOUNT MERAPI

**In News:** Mount Merapi in Indonesia erupted with avalanches of searing gas clouds and lava.

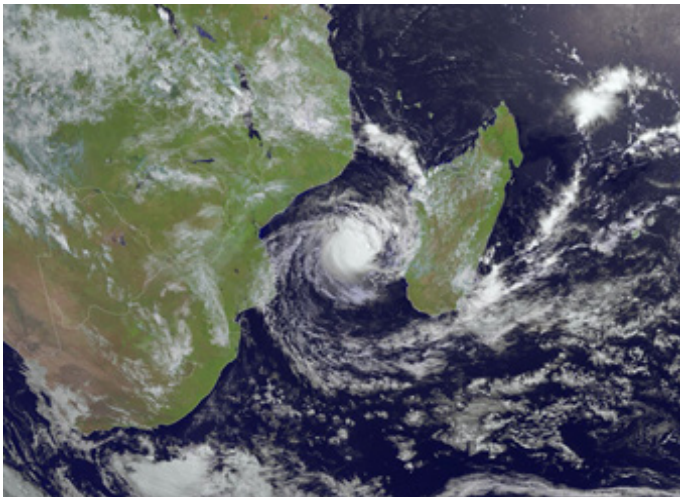


### More on the Topic:

- The eruption had blocked out the sun and blanketed several villages with falling ash. No casualties have been reported.
- Merapi is the most active of more than 120 active volcanoes in Indonesia.
- Merapi is the youngest in a group of volcanoes in southern Java. It is situated at a subduction zone, where the Indo-Australian Plate is subducting under the Sunda Plate.

## CYCLONE FREDDY

**In News:** Cyclone Freddy is now the longest-lived tropical cyclone on record.



### More on the Topic:

- It has been active for 32 days over the south Indian Ocean, having made two landfalls and is likely getting ready to make another.
- Freddy also holds the record for the maximum times a tropical cyclone has undergone rapid intensification at six.
- The second record hints at the role of global warming, specifically the heat in the oceans, in its record breaking streak.
- Cyclone Freddy has had a major impact on people in Madagascar and Mozambique due to the impact of its swift winds and also the accompanying rainfall.
- It has killed 21 people and displaced thousands of people causing a crisis in both countries which are regularly hit by tropical cyclones. And it is not over yet.

## KERMADEC ISLANDS

**In News:** A 6.9 magnitude earthquake strikes Kermadec Islands in New Zealand recently.

### More on the Topic:

- The Kermadec Islands are a subtropical island arc in the South Pacific Ocean 800–1,000 km northeast of New Zealand's North Island, and a similar distance southwest of Tonga.
- The islands are part of New Zealand.
- The climate of the islands is subtropical.

## DISASTER MANAGEMENT

### LANDFILL FIRE

**In News:** The Kochi landfill site around Brahma-puram that caught fire recently was a stark reminder that Indian cities need to be prepared for more such incidents as summer approaches.



### More on the Topic:

- India's municipalities have been collecting more than 95% of the waste generated in cities but the efficiency of waste-processing is 30-40% at best. Indian municipal solid waste consists of about 60% biodegradable material, 25% non-biodegradable material and 15% inert materials, like silt and stone.
- Municipalities are expected to process the wet and dry waste separately and to have the recovered by-products recycled.
- Unfortunately, the rate of processing in India's cities is far lower than the rate of waste generation, so unprocessed waste remains in open landfills for long periods.
- This openly disposed waste includes flammable material like low-quality plastics, which have a relatively higher calorific value of about 2,500-3,000 kcal/kg (compared to around 8,000 kcal/kg for coal), and rags and clothes.
- In summer, the biodegradable fraction composts much faster, increasing the temperature of the heap to beyond 70-80° C.
- Higher temperature + flammable material = a chance for the landfill to catch fire. Some fires have been known to go on for months.

### Way Ahead:

- There are two possible permanent solutions to manage landfill fires.
- One: Completely cap the material using soil and close landfills in a scientific manner. This

solution is unsuitable in the Indian context as the land can't be used again for other purposes.

- Closed landfills have specific standard operating procedures, including managing the methane emissions.
- **Two: Clear the piles of waste through bio-remediation** – i.e. excavate old waste and use automated sieving machines to segregate the flammable refuse-derived fuel (RDF), such as plastics, rags, clothes, etc., from bio-degradable material.
- The recovered RDF can be sent to cement kilns as fuel, while the bio-soil can be distributed to farmers to enrich soil. The inert fraction will have to be landfilled.

## NATIONAL PLATFORM FOR DISASTER RISK REDUCTION (NPDRR)

In News: Prime Minister will inaugurate 3rd Session of the National Platform for Disaster Risk Reduction (NPDRR).



### More on the Topic:

- The theme of the third Session of NPDRR is "Building Local Resilience in a Changing Climate".
- It is aligned with the 10-Point Agenda promulgated by the Prime Minister of India, to **build local capacities**, especially in the context of a rapidly changing disaster risk scenario in the wake of climate change.

## About National Platform for Disaster Risk Reduction:

- NPDRR is a multi-stakeholders National Platform which is characterized by a process, where all stakeholders get together to share knowledge, experiences, views and ideas, and discuss the latest developments and trends in disaster risk reduction (DRR).
- They also **identify gaps, make recommendations, and forge partnerships** to further accelerate disaster risk reduction efforts.

### Prime Minister's Ten Point Agenda on DRR:

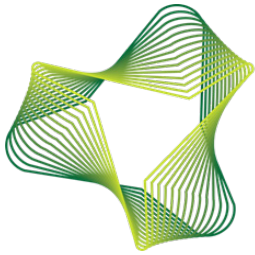
- All development sectors must imbibe the principles of disaster risk management
- Risk coverage must include all, starting from poor households to SMEs to multi-national corporations to nation states
- Women's leadership and greater involvement should be central to disaster risk management
- Invest in risk mapping globally to improve global understanding of Nature and disaster risks
- Leverage technology to enhance the efficiency of disaster risk management efforts
- Develop a network of universities to work on disaster-related issues
- Utilise the opportunities provided by social media and mobile technologies for disaster risk reduction
- Build on local capacity and initiative to enhance disaster risk reduction
- Make use of every opportunity to learn from disasters and, to achieve that, there must be studies on the lessons after every disaster
- Bring about greater cohesion in international response to disasters



# INTERNATIONAL RELATIONS

## NEW DEVELOPMENT BANK

**In News:** New Development Bank (NDB) on Friday announced that former Brazilian President Dilma Vana Rousseff has been elected as the new President of the Bank.



# New Development Bank

### More on the Topic:

- NDB also known as BRICS bank. It is a multilateral financial institution set up by the five BRICS countries including Brazil, Russia, India, China, South Africa.
- Present members are Brazil, Russia, India, China, South Africa, Bangladesh, United Arab Emirates and Egypt.
- It is headquartered at Shanghai, China.
- In 2018, the NDB received observer status in the United Nations General Assembly, establishing a firm basis for active and fruitful cooperation with the UN.
- It aims to mobilise resources for infrastructure and sustainable development projects in emerging markets and developing countries (EMDCs).

## DOHA PROGRAMME OF ACTION (DPOA)

**In News:** The Fifth United Nations Conference on the Least Developed Countries (LDC5) concluded with adoption of the 'Doha Political Declaration' by the world leaders.



### More on the Topic:

- The declaration made by the head of the states is a key outcome of the second part of LDC5 conference held under the theme "From Potential to Prosperity" at Qatar.
- With just under eight years left to achieve

the Sustainable Development Goals, the declaration focuses on implementing the Doha Programme of Action (DPoA) – the 10-year plan to put the world's 46 most vulnerable countries back on track to achieving the UN-mandated Sustainable Development Goals (SDG).

- DPoA (2022-2031) consisted of six key focus areas including eradicating poverty, leveraging the potential of science and technology to fight against multidimensional vulnerabilities and to achieve the SDGs, addressing climate change, environmental degradation, recovering from COVID-19 pandemic and building resilience against future shocks for risk-informed sustainable development.

## INTERNATIONAL CRIMINAL COURT

**In News:** The International Criminal Court has issued an arrest warrant for war crimes for President Vladimir Putin and a second Russian official.



### More on the Topic:

- The court informed that Putin bears individual criminal responsibility for the abduction and deportation of Ukrainian children since Russia's full-scale invasion began in February last year.
- The court also issued a warrant for Maria Lvova-Belova, Russia's commissioner for children's rights, who has been the public face of a Kremlin-sponsored program in which Ukrainian children and teenagers have been taken to Russia.

### About International Criminal Court:

- The International Criminal Court was created two decades ago as a standing body to investigate war crimes, genocide and crimes against humanity under a 1998 treaty known as the Rome Statute.

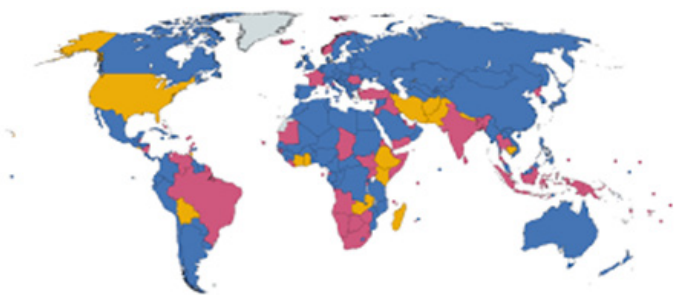
- Previously, the United Nations Security Council had established ad hoc tribunals to address atrocities in places such as the former Yugoslavia and Rwanda.
- The court is based in The Hague, a Dutch city that has long been a center for international law and justice.
- India is not a party to Rome Statute along with US and China.

#### Limitations of ICC:

- As a judicial institution, the ICC **does not have its own police force or enforcement body**; thus, it relies on cooperation with countries worldwide for support, particularly for making arrests, transferring arrested persons to the ICC detention centre in The Hague, freezing suspects' assets, and enforcing sentences.
- This **State cooperation is problematic** for several reasons. It means that the ICC acts inconsistently in its selection of cases, is prevented from taking on hard cases and loses legitimacy.
- There is **insufficient checks and balances** on the authority of the ICC prosecutor and judges.
- ICC has been accused of being a **tool of Western imperialism and biased** in favour of powerful countries against weak states.

## VIENNA CONVENTION

**In News:** Britain was reminded of its main obligations under the Vienna Convention by summoning Britain's top diplomat. After a group of people chanting pro-Khalistan slogans pulled down the Indian flag at the High Commission in London.



#### More on the Topic:

- The treaty being referred to by the MEA in this instance is the Vienna Convention on Diplomatic Relations (1961), which "provides a complete framework for the establishment, maintenance and termination of diplomatic relations on a basis of consent between independent sovereign States", as per an

introductory note on the treaty in UN's Audiovisual Library of International Law.

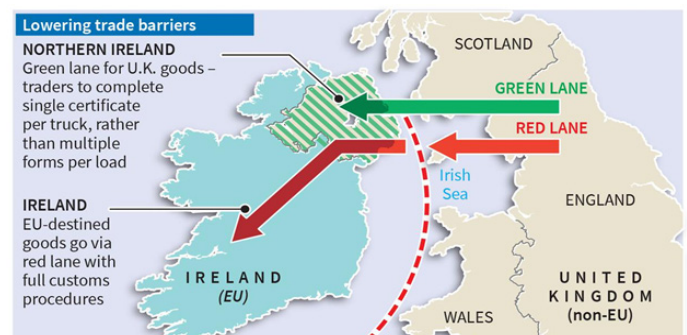
- Most notably, the **Convention codifies the longstanding custom of diplomatic immunity**, in which diplomatic missions are granted privileges that enable diplomats to perform their functions without fear of coercion or harassment by the host country.
- It affirms the concept of "inviolability" of a diplomatic mission, which has been one of the enduring cornerstones of international diplomacy.
- The Vienna Convention on Diplomatic Relations entered into force on April 24, 1964 and is nearly universally ratified, with Palau and South Sudan being the exceptions.

#### What does the Vienna Convention say about obligations of a "receiving State"?

- Article 22 of the Convention deals with obligations with regards to the premises of the Mission.
- Basically, the security of any High Commission or Embassy is the responsibility of the host nation. While diplomatic missions can also employ their own security, ultimately, the host nation is accountable for security.

## WINDSOR FRAMEWORK

**In News:** The Windsor framework seeks to address the disruptions to trade between Northern Ireland and the rest of the U.K. caused by the Northern Ireland Protocol.



#### More on the Topic:

- It is a deal reached by UK government with European Union on post-Brexit trade rules that will govern Northern Ireland.
- The frame work introduces a **green lane and red lane system** for goods that will stay in Northern Ireland and those that will go to EU respectively.
- Green lane goods will have fewer checks

and controls, including no customs checks or rules of origin. Red lane goods under the framework will be subject to full checks and controls to preserve the EU's single market.

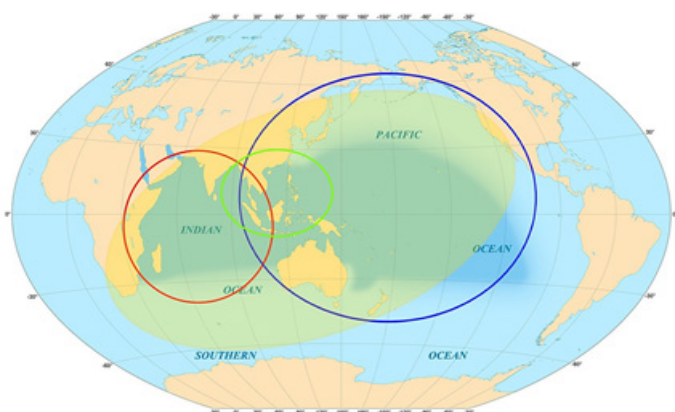
- In a bid to ease the impact on farmers, agri-food goods such as meat and dairy will have reduced checks and controls, and food retailers, including supermarkets, wholesalers, and caterers, will be able to move agri-food via the green lane.

#### **The Northern Ireland Protocol:**

- The Northern Ireland Protocol is a **trading arrangement, negotiated during Brexit talks.**
- It allows goods to be transported across the Irish land border without the need for checks.
- Before Brexit, it was easy to transport goods across this border because both sides followed the same EU rules.
- After the UK left, special trading arrangements were needed because Northern Ireland has a land border with the Republic of Ireland, which is part of the EU..

### **FREE AND OPEN INDO-PACIFIC**

**In News:** Japan's PM has unveiled the Japanese plan for a Free and Open Indo-Pacific (FOIP).



#### **More on the Topic:**

- The core principles of the FOIP include defending freedom and rule of law and respecting diversity, inclusiveness, and openness.
- Four pillars of FOIP has been announced.
- The first pillar, the principles for peace and rules for prosperity: It is the backbone of Japan's FOIP.
- It includes respect for sovereignty and territorial integrity and opposition to unilateral changes to the status quo by force.

- The second pillar consists of **Addressing challenges in an Indo-Pacific way.** This pillar emphasises cooperation to face increasing challenges to global commons such as climate and the environment, global health, and cyberspace in addition to dealing with the fundamental challenge of defending peace.
- The **multi-layered connectivity is the third pillar**, which is the core element of cooperation for FOIP. It is considered important for economic growth.
- Japan would focus on three regions. The first area is Southeast Asia. The second area is South Asia with special focus on Northeast India. He stated that Japan will promote the Bay of Bengal-Northeast India industrial value chain concept in cooperation with India and Bangladesh to foster the growth of the entire region. The third area is the Pacific Islands region.
- The fourth pillar is "extending efforts for security and safe use of the sea to the air."
- The aim is to **free the oceans from the growing geopolitical risks.** States should clarify their claims based on international law, no use of force or coercion, and settlement of disputes by peaceful means.

#### **About FIOP:**

- FOIP plan was announced by Japan's Prime Minister visit to India.
- FOIP is an initiative aimed at curbing China's growing assertiveness in Indo-Pacific region.
- Japan's concept of FOIP is akin to India's concept of Indo-Pacific Oceans Initiative (IPOI).

### **QUAD FOREIGN MINISTERS MEET**

**In News:** The Quad grouping's foreign ministers meeting was held recently.





## More on the Topic:

### Highlights of the Meeting:

- The ministers reiterated the principles of freedom, rule of law, sovereignty and territorial integrity, peaceful settlement of disputes without resorting to threat or use of force and freedom of navigation and overflight.
- Quad working group on counter-terrorism was established, which will explore co-operation amongst the Quad, and with Indo-Pacific partners, to counter new and emerging forms of terrorism, radicalisation to violence and violent extremism.
- The QUAD countries seek to support the region through practical cooperation on contemporary challenges such as health security, climate change and the clean energy transition, critical and emerging technologies, infrastructure and connectivity.
- The progress of Quad Humanitarian Assistance and Disaster Relief (HADR) Partnership for the Indo-Pacific has been evaluated.
- It also talked about addressing the debt crisis through sustainable, transparent and fair lending and financing practices.

### About QUAD:

- Known as the 'Quadrilateral Security Dialogue' (QSD), the Quad is an informal strategic forum comprising four nations, namely -- United States of America (USA), India, Australia and Japan.
- One of the primary objectives of the Quad is to work for a free, open, prosperous and inclusive Indo-Pacific region.
- The group met for the first time in 2007 on the sidelines of the Association of Southeast Asian Nations (Asean). It is considered an alliance of maritime democracies.

### Significance of QUAD for India:

- It is believed that the forum strategically counters China's economic and military rise.
- Interestingly, if Chinese hostilities rise on the borders, India can take the support of the other Quad nations to counter the nation.
- In addition, India can even take the help of its naval front and conduct strategic explorations in the Indo-Pacific region. QUAD provides India with a powerful platform to advance East Asia's interests and further strengthen its Act East policy.

- QUAD also will supplement India's defence capabilities especially in maritime domain.

## MCMAHON LINE

**In News:** Two United States Senators, have introduced a bipartisan resolution in the upper chamber of Congress reiterating that the US recognises the McMahon Line as the international boundary between China and India in Arunachal Pradesh.



### More on the Topic:

- The McMahon Line serves as the **de facto boundary between China and India in the Eastern Sector.**
- It specifically represents the boundary between Arunachal Pradesh and Tibet, from Bhutan in the west to Myanmar in the east.
- China has historically disputed the boundary and claims the state of Arunachal Pradesh as part of the Tibetan Autonomous Region (TAR).

### About the circumstances it was drawn:

- The McMahon Line was drawn during the Simla Convention of 1914, officially described as the Convention Between Great Britain, China, and Tibet.
- The McMahon Line delimited the respective spheres of influence of Tibet and British India in the eastern Himalayan region in what is today India's Northeast and northern Myanmar. The border in this region was undefined prior to the signing of the convention.
- After the first Anglo-Burmese War (1824-26), the British gained almost complete control over the Assam Valley.
- By the time the 20th century dawned, Chinese influence over Tibet had significantly waned and the British were wary about Tibet falling into the Russian sphere of influence. In an effort to preclude Russian influence, the British led an expedition into Tibet and signed the Convention of Lhasa in 1904.

- At the same time, alarmed at Britain's growing influence in the region, China, at the fag end of Qing rule, also invaded, taking control of the southeastern Kham region.
- Notably, the Chinese campaign encroached upon the tribal regions north of the Assam Valley, pushing British officials to advocate extending British jurisdiction into the tribal territory.

#### About the Shimla Convention:

- The convention attempted to settle the question of Tibet's sovereignty and avoid further territorial disputes in the region.
- The treaty divided the Buddhist region into "Outer Tibet" and "Inner Tibet" – the former would "remain in the hands of the Tibetan Government at Lhasa under Chinese suzerainty", though China was not allowed to interfere in its affairs.
- The latter would be under the direct jurisdiction of the newly formed Republic of China.
- The latter of these newly decided boundaries would later be called the McMahon Line after McMahon, the chief British negotiator.
- Arguing that Tibet had no independent authority to enter into international agreements China did not sign the agreement.

#### What has the status of the McMahon line been since 1914?

- While there were disputes regarding the McMahon line from the very beginning, after the communists took power in 1949, they pulled China out of all international agreements and the so-called "unequal treaties" that had been imposed on it during its "century of humiliation", and demanded a renegotiation of all its borders.
- During the 1962 Sino-Indian War, China was able to quickly overpower India and make deep inroads into Indian territory across the McMahon Line.
- However, its forces retreated to pre-war positions after the unilateral ceasefire was announced on November 21.

### INDIA-BANGLADESH FRIENDSHIP PIPELINE

**In News:** PM Narendra Modi and Bangladesh Prime Minister Sheikh Hasina jointly inaugurated the India-Bangladesh Friendship Pipeline.



#### More on the Topic:

- IBFP is the first cross border energy pipeline between India and Bangladesh with a capacity to transport 1 Million Metric Ton Per Annum (MMTPA) of High-Speed Diesel (HSD) to Bangladesh.
- Enhanced connectivity with Bangladesh will further strengthen people to people linkages between two sides.
- It is the second cross-border energy pipeline between India and its neighbours.
- In 2019, India-Nepal opened South Asia's first cross-border oil pipeline i.e., Motihari (Bohar)-Amlekhgunj (Nepal) oil pipeline.

#### About India's Energy Diplomacy:

- India in recent years has started to recognise energy as a crucial tool for bolstering its relationship with its neighbours.
- Quietly, India is setting up a web of energy relationships in the extended neighbourhood covering Myanmar in the east to the Gulf in the west.
- India has started to move beyond just physical connectivity and started to recognise energy as a tool of connectivity.
- India is accomplishing this by leveraging its position both as a large consumption centre and a major source of petro-products and expertise.
- In a significant boost for energy diplomacy, Kazakhstan has offered ONGC Videsh Ltd (OVL), a stake in a medium-sized Abai oil block in the Caspian Sea.
- Other Examples: India has Development Hydel Projects in Afghanistan, Nepal and Bhutan. E.g., Afghan-India Friendship Dam (Salma Dam) in Afghanistan.
- Development of Non-Renewable and other Renewable Energy power plants. E.g., Coal-fired Maitri power plant in Nepal and 100 MW

Solar power plant in Sri Lanka.

## INDIA-US COMMERCIAL DIALOGUE

**In News:** India and the United States of America held the 5th Ministerial level meeting of the bilateral Commercial Dialogue.



### More on the Topic:

- MoU was signed to establish Semiconductor supply chain and innovation partnership. It will enhance India's Semiconductor Mission & US's CHIPS and Science Act.
- A new working group on Talent, Innovation and Inclusive Growth was launched.
- Both the governments agreed to work together in Global Biofuels Alliance and also in hydrogen technologies.
- U.S.-India Energy Industry Network (EIN) for facilitating U.S. industry involvement in the Clean EDGE Asia initiative (U.S. government's initiative for clean energy markets throughout Indo-Pacific) will be a focus area.
- US's Clean Energy and Environmental Technology Business Development Mission will visit India in 2024.

### Significance of the Dialogue:

- It will enhance ongoing efforts to strengthen the U.S.-India Comprehensive Global Strategic Partnership,
- develop inclusive and fair trade and investment policies, and
- leverage the interests of the private sector in pursuing new market opportunities that advance prosperity in both countries.

### India-US Trade and Economic Relations:

- The US was India's largest export destination and the second largest trading partner in 2020-21.
- India's exports to the US in 2020-21 were valued at \$51.62 billion and imports at \$28.88 billion, resulting in a trade deficit of about \$23 billion for the US.

- The top traded goods include pearls and precious stones, pharmaceuticals, machinery, electronics, clothing, vehicles, chemicals and fish products, optical, photo, medical apparatus and aluminium.
- India and the US have set up a **bilateral Investment Initiative in 2014**, with a special focus on facilitating FDI, portfolio investment, capital market development and financing of infrastructure.
- **US-India Infrastructure Collaboration Platform** has also been set up to deploy cutting edge U.S technologies to meet India's infrastructure needs.

## AUSTRALIA INDIA EDUCATION QUALIFICATION RECOGNITION MECHANISM

**In News:** Australian Prime Minister announced an 'Australia-India education qualification recognition mechanism' while on his visit to India.



### More on the Topic:

- The new mechanism will mean that degrees obtained in Australia will now be recognised in India, and, vice-versa, degrees obtained in India will be recognised in Australia.
- This agreement is expected to make it easier for Indians to go to Australia for both education and work, and vice-versa.
- However, this move will not apply to professional qualifications just yet.
- Professional registrations of engineering, medicine and law graduates will remain outside the ambit of this agreement.

### About 'Maitri' scholarship?

- A new scholarship was also announced for Indian students studying in Australia.
- The 'Maitri' scholarships will provide financial assistance to Indian students in Australia for as long as four years.
- The scholarships are part of the wider Maitri



(friendship) programme that seeks to boost cultural, educational and community ties between Australia and India."

## INDIA ITALY RELATIONS

**In News:** India and Italy has elevated ties to strategic partnership at the conclusion of recent bilateral dialogue.



### More on the Topic:

- The new strategic partnership is aimed at converging political, economic and strategic interests.
- Earlier, India and Italy adopted the 2020-24 Action Plan for an enhanced partnership and has entered Strategic Partnership in Energy Transition.

### Recent Developments:

- Both nations agreed to deepen defence cooperation through co-development and co-production in India with regular exercises and training courses between armed forces.
- The two countries also concluded a Declaration of Intent (DOI) on migration and mobility. It will usher in the new era of mutual cooperation in many fields, especially education.
- Italy joined Science, Technology and Academic Cooperation Pillar of Indo Pacific Oceans' Initiative (IPOI).
- Launched in 2019 by India at East Asia Summit, IPOI is an open global initiative to manage, conserve, sustain and secure maritime domain.
- To this end partnerships based on the principle of free trade and sustainable use of maritime resources are stressed.
- IPOI has 7 Pillars.

### About Indo Italy Relations:

- Italy is India's fifth largest trading partner in the EU after Germany, Belgium, and The Netherlands. The balance of trade has been in India's favour since 1988.
- India invited Italy to partner in 'Make in India' and 'Aatmanirbhar Bharat Abhiyan' with a focus on the areas of renewable energy, green hydrogen, IT, telecom, and space etc.
- India-Italy Strategic Partnership on Energy Transition announced in 2021
- Italy has recently joined the International Solar Alliance (ISA) reiterating its commitment to green energy and further development of India-Italy relations.
- Italy, which is a member of the EU, may prove to be a valuable partner for India in post-Brexit Europe and a good platform for Indian businesses to operate from.

## MILITARY EXERCISES

**In News:** There are number of Military exercises concluded recently.

### More on the Topic: Bold Kurukshetra:

- The Singapore Army and Indian Army participated in the 13th edition of Exercise Bold Kurukshetra, a bilateral armour exercise at Jodhpur Military Station, India.
- Exercise Bold Kurukshetra is conducted under the ambit of the bilateral arrangement for the joint Army Training and exercises between the Singapore Army and the Indian Army.

### Exercise La Perouse – 2023:

- The exercise was conducted in the Indian Ocean Region, and was aimed at enhancing maritime domain awareness and optimising maritime coordination amongst the participating navies in the Indo-Pacific Region.
- In addition to Indian Naval ships, the exercise witnessed participation of the Royal Australian Navy, French Navy, Japanese Maritime Self Defence Force along with the UK Navy and United States Navy.

### Maritime Partnership Exercise (MPX):

- It is a naval exercise conducted with multiple friendly countries like Japan, France etc

## Exercise Sea Dragon 23:

- It is a coordinated multi-lateral Anti-Submarine Warfare (ASW) exercise with participation of Navy from India, US, Japan, Canada and Republic of Korea.

## COLOMBO SECURITY CONCLAVE (CSC)

**In News:** The Fifth National Security Advisor meeting of the Colombo Security Conclave (CSC) welcomed Mauritius as its fourth member while encouraging Bangladesh and Seychelles to join as member states.

**COLOMBO SECURITY CONCLAVE (CSC)**

Regional security grouping initially formed in 2011 as a trilateral Indian Ocean maritime security grouping of India, Sri Lanka and the Maldives

MEMBERS	OBSERVERS
India	Bangladesh
Sri Lanka	Seychelles
Maldives	
Mauritius	

Flags of India, Sri Lanka, Maldives, Mauritius, Bangladesh, and Seychelles.

### More on the Topic:

- CSC was founded as a trilateral security framework between India, Sri Lanka and the Maldives with four pillars of security co-operation, covering marine safety and security, human trafficking, counter-terrorism, and cyber security.
- Later Mauritius joined as fourth member and Bangladesh & Seychelles participate as observer countries.
- 'CSC Focused Operation' was aimed at keeping the vital part of the Indian Ocean safe and secure for commercial shipping, international trade and conduct of legitimate maritime activities.

## BIMSTEC ENERGY CENTRE

**In News:** The central government has hosted the first meeting of the governing board of BIMSTEC Energy Centre (BEC) recently.



### More on the Topic:

- Considering the current energy scenario in the BIMSTEC region, the meeting recommended addition of the cyber security, green hydrogen, and energy transition areas under the specialised wings of BEC.

### About BIMSTEC Energy Centre:

- India hosted the first meeting of Governing Board of BIMSTEC Energy Centre on February 27, 2023.
- BIMSTEC Energy Centre is situated in Bengaluru, India.
- BIMSTEC Energy Centre (BEC) is one of the 2 centres of BIMSTEC.
- The other being - BIMSTEC Centre on Weather and Climate.
- The establishment of BIMSTEC Energy Centre (BEC) was envisaged during the First BIMSTEC Energy Ministerial Meeting held in New Delhi in 2005.
- It Aims - To coordinate, facilitate, and strengthen cooperation in the energy sector in the BIMSTEC region by promoting experience sharing and capacity building.

### About BIMSTEC Grouping:

- The Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) is a multilateral regional organisation established with the aim of accelerating shared growth and cooperation between littoral and adjacent countries in the Bay of Bengal region.
- It has a total of seven member countries- five from South Asia, including Bangladesh, Bhutan, India, Nepal, and Sri Lanka, and two from South-east Asia, including Myanmar and Thailand.
- It was founded as BIST-EC, in June 1997, with the adoption of the Bangkok Declaration,

with Bangladesh, India, Sri Lanka and Thailand as members.

- It became BIMST-EC (Bangladesh, India, Myanmar, Sri Lanka and Thailand Economic Cooperation) with the entry of Myanmar in late 1997, And eventually, it was named in its current form, when Nepal and Bhutan became members in 2004.
- The aim of setting up the regional grouping **was not to create a new region for cooperation but to revive the connectivity and common interests of the members of the Bay of Bengal region.**

#### **Significance of BIMSTEC?**

- The BIMSTEC region hosts 22% of the world population.
- For India, BIMSTEC aligns with its 'Act East' policy for greater regional cooperation in southeast Asia.
- It could also be seen as aligning with India's larger goal to gain trade and security prominence in the Indian Ocean region and to cater to the concept of the 'Indo-Pacific' region, a major focus of Quad countries.
- The progress of SAARC has stalled over the years due to Indo-Pak relations and what experts call Pakistan's obstructionist approach to the organisation.
- BIMSTEC emerged as an alternative platform for cooperation.
- BIMSTEC is important owing to the **land and maritime trade potential** of the member countries.

#### **EXERCISE COBRA WARRIOR**

**In News:** The Cobra Warrior Exercise is to be held at Waddington Air Force Base in the UK.



#### **More on the Topic:**

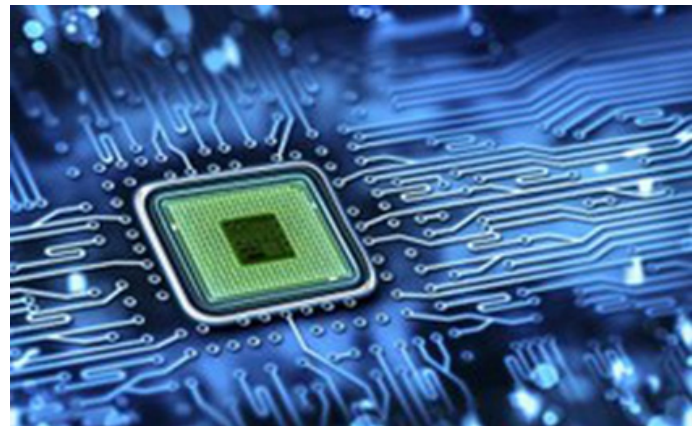
- It is a multinational exercise. Countries like Singapore, Finland, the USA, South Africa,

and Sweden will participate in the exercise.

- India is also participating in the exercise.
- The exercise aims to participate in fighter aircraft engagements and learn from the best practices of various Air Forces.
- The IAF will be participating in the exercise with five Mirage 2000 fighters, two C-17 Globemaster III and an IL-78 mid-air refueller aircraft.

#### **FAB 4 SEMICONDUCTOR ALLIANCE**

**In News:** U.S.-led Fab 4 semiconductor alliance has held its first meeting.



#### **More on the Topic:**

- The "Chip 4" or "Fab 4" alliance includes four of the world's top producers of semiconductors: the U.S., Japan, Taiwan, and Korea.
- It represents more than 70% of the value of the global semiconductor industry.
- It was first proposed by the US in March 2022 as part of wider plans aimed at enhancing the "security" and "resilience" of semiconductor supply chains, including by reducing the world's reliance on chips made in China.
- It is intended to cooperate on policy implementation that would support sustainable semiconductor manufacturing in the member states' home countries.

#### **BLACK SEA GRAIN DEAL**

**In News:** Russia has agreed to 60-Day Black Sea Grain Deal Extension.





## More on the Topic:

- The Initiative on the Safe Transportation of Grain and Foodstuffs from Ukrainian ports, also called the Black Sea Grain Initiative, is an agreement between Russia and Ukraine made with Turkey and the United Nations during the 2022 at the onset of Russia Ukraine conflict.
- Deal was to provide for a safe maritime humanitarian corridor for Ukrainian exports (particularly for food grains and fertilizer including ammonia) from three of its key ports, namely, Chornomorsk, Odesa and Yuzhny/Pivdennyi on Black Sea.

## MULTI-PARTY INTERIM APPEAL ARBITRATION ARRANGEMENT

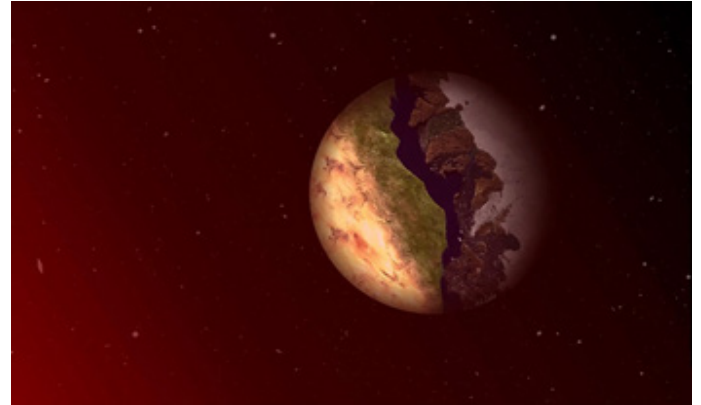
**In News:** The EU has welcomed Japan's decision to join the multi-party interim appeal arbitration arrangement (MPIA).

## More on the Topic:

- The MPIA is an alternative, stop-gap system for resolving WTO disputes, anchored in the WTO Agreement, set up by the EU and key formed WTO dispute settlement system.
- It was set up in 2020.
- Including Japan, 26 WTO members currently participate in the MPIA.
- It is open to all World Trade Organization (WTO) members.
- India is not a member.

## TERMINATOR ZONE

**In News:** Scientists have opinions that extra-terrestrial life may exist on far-off exoplanets within a special region known as "terminator zone".

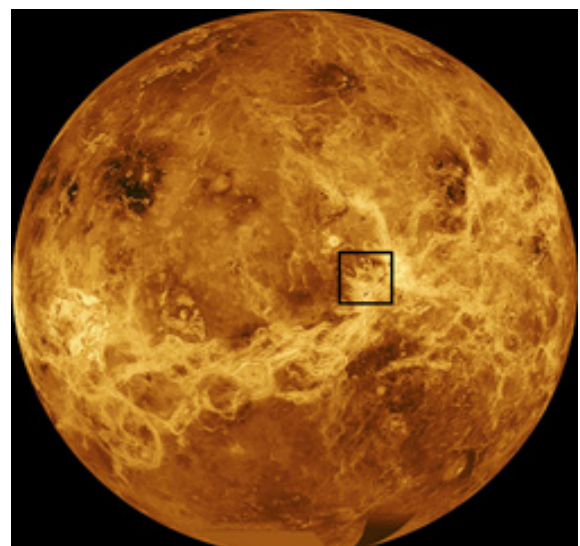


## More on the Topic:

- Terminator zones is a ring on planets that have one side that is always facing its star and one side that is always dark.
- These zones are areas that are not too hot or too cold, and are therefore more likely to harbor liquid water, a key ingredient for life as we know it.
- Terminator is the dividing line between day and night sides of planet.

## VENUS

**In News:** A new analysis of archival radar images taken around three decades ago has found direct geological evidence of recent volcanic activity on the surface of Venus for the first time.



### More on the Topic:

- As volcanoes act like windows to provide information about a planet's interior, the new findings take scientists a step further to understand the geological conditions of not just Venus but also other exoplanets.
- Apart from this, the findings give us a glimpse of what more is to come regarding Venus as in the next decade, three new Venus missions would be launched, including the **European EnVision orbiter** and **NASA's DAVINCI and VERITAS missions**.

### About Venus:

- Venus is the second planet from the Sun.
- It is sometimes called Earth's "sister" or "twin" planet as it is almost as large and has a similar composition.
- As an interior planet to Earth, Venus appears in Earth's sky never far from the Sun, either as morning star or evening star.

## IRRADIATION OF ONIONS WITH GAMMA RAYS

**In News:** The Centre is planning to irradiate onions with Gamma rays before sending them into cold storage on a pilot basis.



  
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### Food Irradiation

Food irradiation technology is one of the most effective methods to minimize the abysmal effects of chemical preservation. Food irradiation means exposing the raw foods to controlled doses of gamma radiation which kill microbes and pathogenic organisms.

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### More on the Topic:

- Post-harvest losses of onion in India are significant. Onion noticeably gets rotted and starts sprouting even in cold storage.
- Irradiation prevents sprouting and thus brings down post-harvest losses which are patently 25%. It could be brought down to

10-12% by providing irradiation.

### About Food irradiation:

- Food irradiation involves **controlled application of energy from ionizing radiations** such as **gamma rays, electrons and X-rays** for food preservation.
- Irradiation works by disrupting the biological processes that lead to decay.
- Gamma ray, X-ray or electrons do not induce any radioactivity in food.
- Gamma ray irradiation is an **effective form of preservation that extends the shelf life of the crops and reduces spoilage**.
- The process also benefits the consumer by **reducing the risk of illnesses caused by food borne diseases**.

### Benefit of Food Irradiation:

- **Enhances Food Safety:** Irradiation techniques are used to reduce risks related to foodborne illnesses that are caused by microorganisms such as Salmonella. Food irradiation can kill pathogens and can be used to sterilise the food of the patients with an impaired immune system such as those suffering from AIDS or undergoing chemotherapy.
- **Extended Shelf Life:** Apart from eliminating food pathogens, Food irradiation can also help extend the shelf life of food items by destroying the inactive organisms that cause spoilage and decomposition.
- **No Chemical Residue:** The WHO and the US Department of Agriculture believe that technology is safe to use on food and does not produce any toxic substances.
- **Minor Nutrient Loss:** While many claims that irradiation can affect the nutritional value of food, studies show that it helps preserve nutrients better than the common food preservative techniques such as boiling and freezing.
- **Properly Labelled:** Foods that have been irradiated come with a label, a Radura label that allows consumers to choose between buying or avoiding irradiated items.

## BAMBOO CRASH BARRIER

**In News:** In a significant push to the bamboo sector, NHAI has installed a crash barrier made of bamboo on the Vani-Warora highway in Maharashtra.



#### More on the Topic:

- The Bamboo Crash Barrier has undergone rigorous testing at various government-run institutions such as the National Automotive Test Tracks (NATRAX) and was rated as Class 1 during the Fire Rating Test conducted at the Central Building Research Institute (CBRI).
- The recycling value of the bamboo barrier is 50-70%, whereas that of steel barriers is 30-50%.
- The bamboo species used in the making of this barrier is Bambusa Balcooa, which has been treated with creosote oil and coated with recycled High-Density Polyethylene (HDPE).

### ENZYME LACCASE

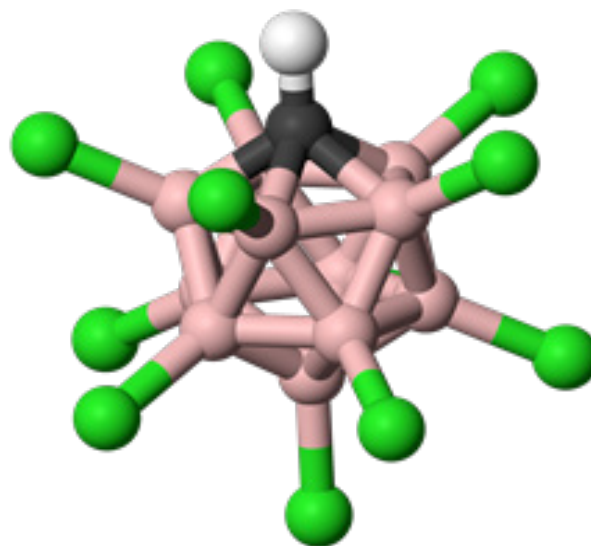
**In News:** Fungi generated enzyme Laccase shows potential in degrading industrial dye effluents.

#### More on the Topic:

- An enzyme called laccase generated by a group of fungi has been found capable of degrading a variety of hazardous organic dye molecules that are regularly drained into water bodies after dyeing clothes in the textile industry.
- This observed characteristic which the scientists termed substrate promiscuity can have deep implication in designing enzyme-coated cassettes for treating heavily dye-polluted water through a natural solution to make the environment greener.

### LEWIS SUPER ACIDS

**In News:** Researchers at Germany have reported being able to make a unique class of catalysts – used in chemistry to accelerate reactions – called “Lewis super-acids”.



#### More on the Topic:

- These can be used to break strong chemical bonds and speed up reactions.
- A Lewis acid is any substance, such as a Hydrogen ion ( $H^+$ ) that can accept a pair of nonbonding electrons.
- In other words, a Lewis acid is an electron-pair acceptor.
- A Lewis base is any substance, such as the  $OH^-$  ion, that can donate a pair of nonbonding electrons. A Lewis base is therefore an electron-pair donor.
- Because Lewis acids add electron pairs, they are often used to speed up chemical reactions.
- Lewis superacids are stronger than antimony pentafluoride -- the strongest Lewis acid -- and can break even the toughest bonds.
- Breaking strong, chemical bonds requires highly reactive substances.

#### Significance:

- Being able to make these super acids, enables non-biodegradable fluorinated hydrocarbons, similar to Teflon, and possibly even climate-damaging greenhouse gases, such as sulphur hexafluoride, to be converted back into sustainable chemicals.

### INDIAAI ECOSYSTEM

**In News:** Meity has formed a task force to draft roadmap for IndiaAI ecosystem.








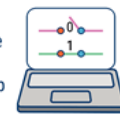




### More on the Topic:

- INDIAai (The National AI Portal of India), a joint venture by MEITY, NEGD and NASSCOM, has been set up to prepare the nation for an AI future.
- It is the single central knowledge hub on artificial intelligence and allied fields for aspiring entrepreneurs, students, professionals, academics, and everyone else.
- The portal focuses on creating and nurturing a unified AI ecosystem for driving excellence and leadership in India's AI journey, to foster economic growth and improve lives through it.
- IndiaAI platform will focus on promoting Indian Startups, Research and Innovation.
- AI is expected to add USD 967 billion to the Indian economy by 2035.

## QUANTUM COMPUTING

**In News:** Google claims to have made a significant breakthrough in an important subfield known as quantum error correction in a paper published recently.

Quantum Computing	Vs.	Classical Computing
 <p>Calculates with qubits, which can represent 0 and 1 at the same time</p>		 <p>Calculates with transistors, which can represent either 0 or 1</p>
 <p>Power increases exponentially in proportion to the number of qubits</p>		 <p>Power increases in a 1:1 relationship with the number of transistors</p>
 <p>Quantum computers have high error rates and need to be kept ultracold</p>		 <p>Classical computers have low error rates and can operate at room temp</p>
 <p>Well suited for tasks like optimization problems, data analysis, and simulations</p>		 <p>Most everyday processing is best handled by classical computers</p>

### More on the Topic:

- Quantum bits, or qubits, can store information in more than two ways (it can be both 1 and 0 at the same time).
- This means that larger amounts of data can be processed in a given amount of time.
- One of the many drawbacks is that the physical manifestation of a qubit requires extremely cold temperatures-just above 0 degrees Kelvin-and is vulnerable to even minor interference, such as light.
- They're also prone to errors, which is a major issue in computing.

### Significance What is the significance of Google Breakthrough:

- Google has found a way to reduce these errors.
- The strategy is straightforward. Scientists store information across many physical qubits rather than relying on individual ones, and then view this collection as a single one (called a logical qubit).
- Google hypothesized that clumping a greater number of physical qubits together to form a single logical qubit would reduce the error rate.
- For an understanding it is something like Considering storing your photos on 49 hard drives to ensure that a single hard drive is error-free.
- The new breakthrough provides the broader scientific community with a foundation from which to advance related fields such as materials science, mathematics, and electrical engineering, all of which will be required to make an actual quantum computer a reality.

## DIRECTED ENERGY WEAPONS

**In News:** Indian Air Force Chief has mentioned about Directed Energy Weapons.

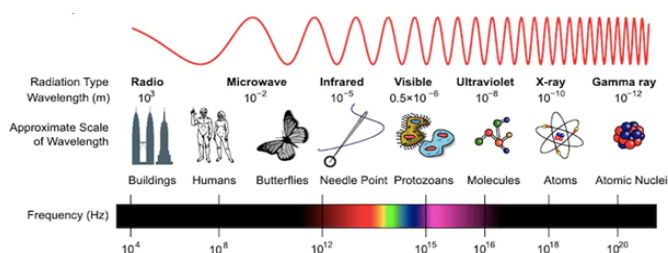


### More on the Topic:

- It is an umbrella term covering technologies that produce a beam of concentrated electromagnetic energy or atomic or subatomic particles.
- They damage its target with highly focused energy without a solid projectile, including lasers, microwaves, particle beams, and sound beams.
- Potential applications of this technology include weapons that target personnel, missiles, vehicles, and optical devices.
- These weapons have advantages such as Speed of light engagement, Stealth-like performance, Precision targeting etc.

### RADIO INTERFERENCE FROM SATELLITES

**In News:** Radio interference from satellites is threatening astronomical studies.



### More on the Topic:

- Radio waves are the longest wavelength emissions on the electromagnetic spectrum, meaning that the distance between two peaks of the wave is relatively far apart.
- Radio telescopes collect radio waves in wavelengths from millimeter to meter wavelengths.

### About Radio Spectrum Pollution:

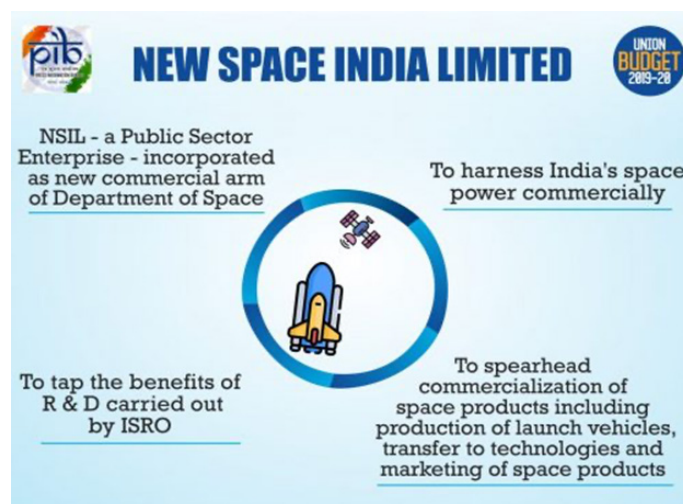
- Radio Spectrum Pollution occurs when there is interference caused by multiple signals occupying the same frequency range.
- Radio signals arriving on Earth from astronomical objects are extremely weak and easily masked by man-made interference.
- This interference can disrupt the transmission and reception of signals, leading to poor or lost communication, and can interfere with astronomical observations.
- It can also potentially cause safety hazards in critical industries like aviation and emergency services.

### Suggested Solution:

- One of the suggested solutions is to create a facility where astronomers and engineers can test new technologies to prevent radio interference from blocking out the night sky.
- A radio quiet zone is a region where ground-based transmitters, like cellphone towers, are required to lower their power levels so as not to affect sensitive radio equipment.
- Existing laws do not protect these zones from satellite transmitters, which can have devastating effects.

### NEWSPACE INDIA LTD (NSIL) AND SSLV LAUNCHES

**In News:** NewSpace India Ltd (NSIL), the commercial arm of the Indian Space Research Organisation (ISRO) will target 10 commercial launches using its Small Satellite Launch Vehicle (SSLV).



### More on the Topic:

- The SSLV is the first lightweight homegrown rocket to have successfully reached the low earth orbit (LEO) of around 700 kilometres above the Earth's surface.
- It has 3 stages configured with three Solid Propulsion Stages and liquid propulsion-based Velocity Trimming Module (VTM) as a terminal stage.
- A light rocket has a capacity of about 500kg in terms of payload, or the satellites that it can carry to space.
- Larger rockets such as ISRO's Polar Satellite Launch Vehicle (PSLV) typically have up to 2,000kg payload capacity.
- While larger rockets can carry more satellites into orbit, they usually require a large customer

to book the majority of the rocket's payload capacity, and can hence perform fewer missions per year.

- The SSLV, however, can tap a growing demand for smaller satellite launches from private firms to undertake more missions.
- Small rockets like the SSLV target nano- and micro-satellites, which weigh less than 10kg and 100kg respectively, (Its capacity is 10 to 500 kg mass) to a 500 km Low Earth Orbit) and offer on-demand launch services without requiring their makers to wait for a larger company to book bulk of the capacity.
- India's share in global space economy of \$360 billion can be increased to over 10% with SSLV (currently around 2%).

#### About NSIL:

- NewSpace India Limited is a Public Sector Undertaking of Government of India and commercial arm of Indian Space Research Organisation.
- It was established on 6 March 2019 under the administrative control of Department of Space and the Company Act 2013.
- Headquarters: Bengaluru

#### INS ANDROHT

In News: Anti-Submarine Craft INS Androth has been launched recently.



#### More on the Topic:

- The INS Androth is second in a series of eight Anti-Submarine Warfare Shallow Water Craft (ASW SWC).
- The Anti-Submarine Warfare Shallow Water Craft corvettes are a class of anti-submarine warfare vessels currently being built for the Indian Navy, by Cochin Shipyard and Garden Reach Shipbuilders & Engineers
- Their primary role is to conduct anti-submarine

operations in coastal waters, low intensity maritime operations and mine laying operations.

#### BIO-COMPUTERS

In News: Scientists at Johns Hopkins University (JHU) recently outlined a plan for a potentially revolutionary new area of research called "organoid intelligence", which aims to create "biocomputers".



#### More on the Topic:

- "Organoid intelligence" intends brain cultures grown in the lab are coupled to real-world sensors and input/output devices.
- The scientists expect the technology to harness the processing power of the brain and understand the biological basis of human cognition, learning, and various neurological disorders.

#### The premise of this technology:

- Understanding how the human brain works has been a difficult challenge. Traditionally, researchers have used rat brains to investigate various human neurological disorders.
- While rats provide a simpler and more accessible system to study the brain, there are several differences in structure and function and obvious differences in the cognitive capacities of rodents and humans.
- In a quest to develop systems that are more relevant to humans, scientists are building 3D cultures of brain tissue in the lab, also called brain organoids.
- These "mini-brains" (with a size of up to 4 mm) are built using human stem cells and capture many structural and functional features of a developing human brain.
- Researchers are now using them to study human brain development and test drugs to see how they respond.



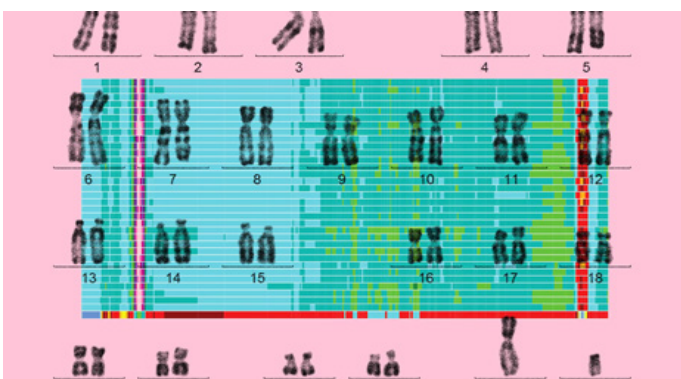
- However, the human brain also requires various sensory inputs (touch, smell, vision, etc.) to develop into the complex organ it is, and brain organoids developed in the lab aren't sophisticated enough.
- The organoids currently also don't have blood circulation, which limits how they can grow.

### What is the new 'bio-computer'?

- The new research will combine brain organoids with modern computing methods to create "bio-computers".
- They have announced plans to couple the organoids with machine learning by growing the organoids inside flexible structures affixed with multiple electrodes (similar to the ones used to take EEG readings from the brain).
- These structures will be able to record the firing patterns of the neurons and also deliver electrical stimuli, to mimic sensory stimuli.
- The response pattern of the neurons and their effect on human behaviour or biology will then be analysed by machine-learning techniques.
- They could also help decode the pathology of and drug development for devastating neurodevelopmental and degenerative diseases such as Parkinson's disease and microcephaly.

## PERSONAL GENOMIC MAPING

In News: Reliance may soon offer affordable personal genomic mapping (PGM) to Indians.



### More on the Topic:

- All the genetic information of an organism is called its genome.
- Its genomic sequence is the complete list of the nucleotides (which together make DNA) present in its haploid set of chromosomes—humans, most commonly, have 46 chromosomes (22 pairs of autosomes, or non-sex

chromosomes) and two sex chromosomes (XY in males and XX in females).

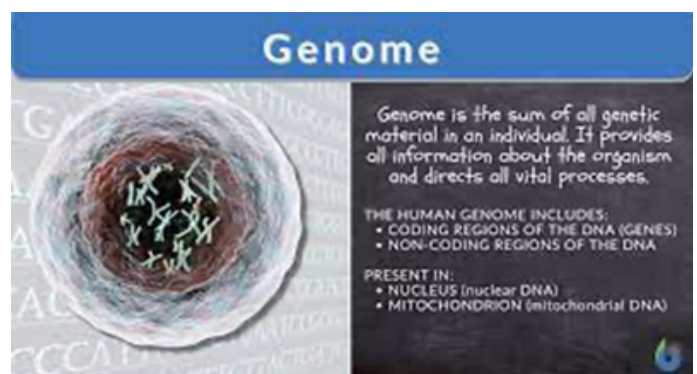
- The set comprising one chromosome from each of the 22 autosomal pairs along with XX/XY is called the haploid set.
- Most nucleotide sequences within a species are identical, but it is the variance that gives rise to genomic diversity.
- Genome mapping is locating a specific gene to a particular region of a chromosome and determining the location of and relative distances between genes on chromosome.
- The Human Genome Project gave us a 'reference' human genome, but with developments in sequencing technology, and falling costs, it is now possible to map every individual's genome—opening the doors to personal genomic mapping.

### Significance:

- PGM will help an individual identify and assess the genes that are implicated in a disease that she currently suffers from as well as diseases that she is predisposed to because of her genes.
- This can play a big role in healthcare choices, especially relating to precision medicine.

## GENOME

In News: A genome of a human from the Ice Age refuge located in southern Spain was recovered recently.



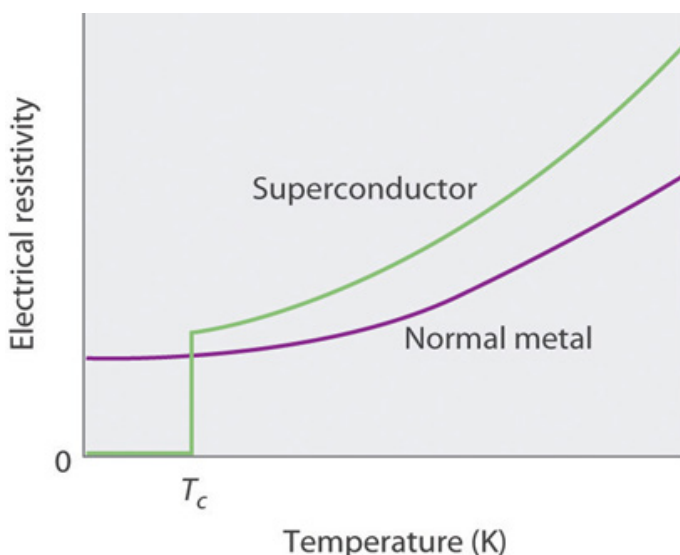
### More on the Topic:

- It is considered as the oldest human genome (23000 year old) discovered till now.
- A genome refers to all of the genetic material in an organism, and the human genome is mostly the same in all people, but a very small part of the DNA does vary between one individual and another.

- Every organism's genetic code is contained in its **Deoxyribose Nucleic Acid (DNA)**, the building blocks of life.
- The discovery that DNA is structured as a "double helix" by James Watson and Francis Crick in 1953, started the quest for understanding how genes dictate life, its traits, and what causes diseases.
- Each genome contains **all of the information needed to build and maintain that organism**.
- In humans, a copy of the entire genome contains **more than 3 billion DNA base pairs**.

## SUPER CONDUCTOR

**In News:** A team of physicists from New York claimed that they have invented a material which could conduct electricity without resistance at 21 degrees Celsius around just 10,000 atmospheres of pressure.



### More on the Topic:

- If confirmed by other researchers, this would be a huge breakthrough in creating devices that don't waste energy on heat when producing a current.
- The super conductivity was demonstrated by rare earth metal called lutetium combined with hydrogen and nitrogen.

### About Super Conductors:

- Superconductors are materials that can **conduct electric currents without any loss** when they are cooled below a critical temperature (referred to as  $T_c$ ).
- They also expel magnetic fields as they transition to the superconducting state (Meissner effect).

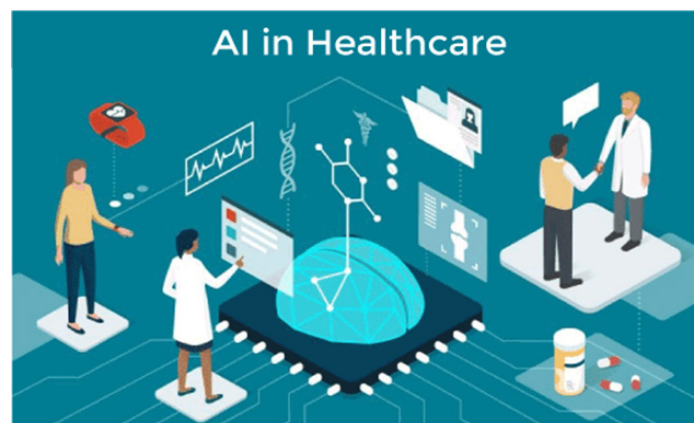
- Superconductivity is important because, usually, when electricity flows through wires – it's met with friction. This resistance results in energy being lost as heat.
- Researchers identified that there were some materials that lost this resistance under extreme cold and high pressure.
- In these extreme conditions, the quantum behaviors of electrons inside superconductors strengthen to allow them to form what are known as **Cooper pairs**, allowing them to travel through the material with perfect efficiency.

### Practical Utility of Super conductivity:

- Ideally this could one day be used to create more efficient computers;
- Faster, frictionless maglev trains;
- Superior X-ray technology; and
- Even more powerful nuclear fusion reactors.

## ICMR GUIDELINES FOR ARTIFICIAL INTELLIGENCE USE IN THE HEALTH SECTOR

**In News:** Recognising importance of AI in health care Indian Council of Medical Research (ICMR) has released Ethical Guidelines for AI in Healthcare and Biomedical Research to "guide effective yet safe development, deployment and adoption of AI-based technologies".



### More on the Topic:

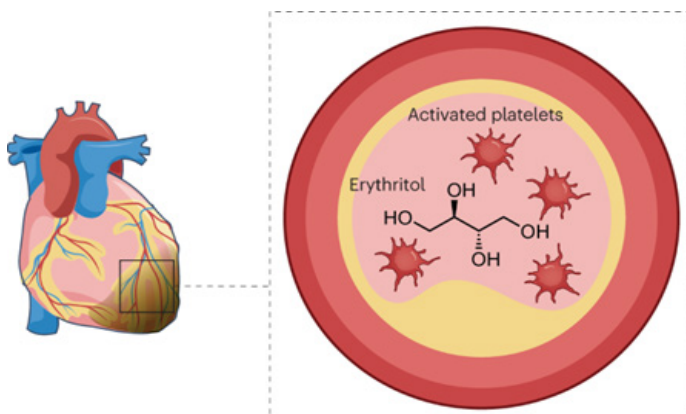
- It outlined 10 key patient-centric ethical principles for AI application in the health sector for all stakeholders involved.
- These are **accountability and liability, autonomy, data privacy, collaboration, risk minimisation and safety, accessibility and equity, optimisation of data quality, non-discrimination and fairness, validity and trustworthiness**.

## Importance of the Guidelines:

- The autonomy principle ensures human oversight of the functioning and performance of the AI system.
- Before initiating any process, it is also **critical to attain consent of the patient who must also be informed of the physical, psychological and social risks involved.**
- The safety and risk minimisation principle is aimed at preventing “unintended or deliberate misuse”, anonymised data delinked from global technology to avoid cyber attacks, and a favourable benefit-risk assessment by an ethical committee among a host of other areas.
- The accountability and liability principle underlines the importance of regular internal and external audits to ensure optimum functioning of AI systems which must be made available to the public. The accessibility, equity and inclusiveness principle acknowledges that the deployment of AI technology assumes widespread availability of appropriate infrastructure and thus aims to bridge the digital divide.

## ERYTHRITOL

**In News:** A new research by Cleveland Clinic has shown that Erythritol, a popular artificial sweetener, is associated with an increased risk of heart attack and stroke.



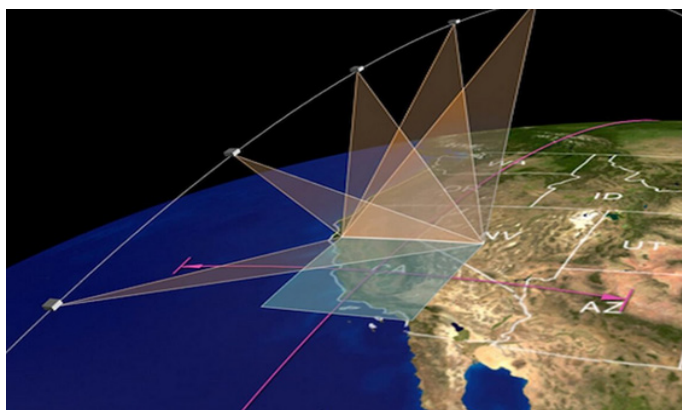
### More on the Topic:

- Erythritol activates platelets, the blood cells which cause clots when they clump together. Such clusters block blood flow in different parts of the body.
- Unlike traditional sugars, it has no calories and does not raise blood sugar levels.
- It is also believed to have a lower glycemic index than other sweeteners, meaning it may not have as strong an impact on insulin levels.

- Erythritol is 60–70% as sweet as sucrose (table sugar).
- Since its presence or levels are not revealed on packages of processed foods, it is far safer to consume natural foods and avoid using sugar substitutes.

## MULTI-ANGLE IMAGER FOR AEROSOLS MISSIONS

**In News:** NASA announced that it is partnering with the Italian Space Agency ASI to build and launch MAIA, or the Multi-Angle Imager for Aerosols missions.



### More on the Topic:

- The joint mission between the two national space agencies will investigate the health impacts of air pollution in the world's most populated cities.
- According to NASA, MAIA is the first mission by the agency whose primary goal is to benefit societal health.
- Epidemiologists and public health researchers will be directly working on the development of a satellite mission.
- The MAIA observatory, which is set to launch before the end of 2024 will consist of the PLATiNO-2 satellite, which will be provided by ASI, and a science instrument that will be built at NASA's Jet Propulsion Laboratory (JPL).
- The MAIA mission will collect and analyse data from the observatory, sensors on the ground and atmospheric models.

### How MAIA will Function:

- The science instrument built by JPL will host a “pointable spectropolarimetric camera,” which captures images from multiple angles in the ultraviolet, visible, near-infrared and shortwave infrared portions of the electro-



magnetic spectrum.

- Using this data, the MAIA science team will explore the size, geographic distribution, composition and abundance of airborne particles.
- They will also investigate how these factors relate with the patterns and prevalence of health problems stemming from poor air quality.
- MAIA will focus on 11 primary target areas that include major urban centres across the world: Los Angeles and New Delhi.

## CONTROLLED RE-ENTRY EXPERIMENT OF DECOMMISSIONED MT-1 SATELLITE

**In News:** The controlled re-entry experiment for the decommissioned Megha-Tropiques-1 (MT-1) was carried out successfully recently.



### More on the Topic:

- The satellite was launched on October 12, 2011, as a collaborative effort between ISRO and the French space agency CNES for carrying out tropical weather and climate studies.
- It is confirmed that the satellite has re-entered the Earth's atmosphere and would have disintegrated over the Pacific Ocean.
- The entire sequence of events was carried out from the Mission Operations Complex in ISTRAC.
- UN/IADC (Inter-Agency Space Debris Co-ordination Committee) space debris mitigation guidelines recommend deorbiting a LEO (Low Earth Orbit) object at its End Of Life through controlled re-entry to a safe impact zone.

### About Space Debris:

- Space debris encompasses both natural (meteoroid) and artificial (man-made) particles.
- Much of the debris is in LEO, though some

debris can be found in geostationary orbit.

- LEO is normally at an altitude of less than 1000 km but could be as low as 160 km above Earth.
- ISRO has taken up proactive measures to improve the compliance level with the internationally accepted guidelines on space debris mitigation.

### Impacts of Space Debris:

- space junk doesn't pose a huge risk to our exploration efforts. The biggest danger it poses is to other satellites in orbit.
- These satellites have to move out of the way of all this incoming space junk to make sure they don't get hit and potentially damaged or destroyed.
- In total, across all satellites, hundreds of collision avoidance manoeuvres are performed every year, including by the International Space Station (ISS), where astronauts live.

### About Kessler syndrome?

- If there was too much space junk in orbit, it could result in a chain reaction where more and more objects collide and create new space junk in the process, to the point where Earth's orbit became unusable. It is known as Kessler syndrome

## LIGHT COMBAT AIRCRAFT TEJAS

**In News:** The maiden flight test of the Power Take Off (PTO) shaft was conducted on Light Combat Aircraft (LCA) Tejas in Bengaluru.



### More on the Topic:

- The PTO shaft, a critical component in the aircraft, will support the requirements of future fighter aircraft and their variants and offers competitive cost and reduced time of availability.

- With this successful test, the DRDO has achieved a greater technological feat by employing **complex high-speed rotor technology**, which only a few countries have achieved.
- The PTO shaft was **designed with a unique, innovative patented Frequency Spanning Technique**, which enables it to negotiate different operating engine speeds.
- LCA Tejas is all weather, single engine, light-weight, highly agile, 4.5 generation, multi-role supersonic fighter aircraft.
- Tejas has many advanced features like Beyond Visual Range Missile capabilities, Air-to-Air Refuelling and Air-to-Ground weapons.
- It is equipped with a **state-of-the-art satellite-aided inertial navigation system**.

## HUBBLE SPACE TELESCOPE

**In News:** NASA/ESA Hubble Space Telescope has captured an image of a “jellyfish galaxy” with trailing tentacles of stars.



### More on the Topic:

- As jellyfish galaxies move through intergalactic space, **gas is slowly stripped away forming trails that resemble tendrils** illuminated by clumps of star formation.
- These blue tendrils are visible below the core of this galaxy, giving it a jellyfish-like appearance.
- This particular jellyfish galaxy – known as JO201 – lies in the constellation Cetus, which is named after a sea monster from ancient Greek mythology. T

### About Hubble Telescope:

- The Hubble Space Telescope is a space telescope that was launched into low Earth orbit in 1990 and remains in operation.

- It is said to be the “most significant advance in astronomy since Galileo's telescope.”
- It is a part of NASA's Great Observatories Program - a family of four space-based observatories, each observing the Universe in a different kind of light.
- The other missions in the program include the visible-light Spitzer Space Telescope, Compton Gamma-Ray Observatory (CGRO), and the Chandra X-Ray Observatory (CXO).

## ALMA TELESCOPE

**In News:** Fully functional since 2013, ALMA has helped astronomers make groundbreaking discoveries, including that of starburst galaxies and the dust formation inside supernova 1987A.



### More on the Topic:

- The Atacama Large Millimetre/submillimetre Array (ALMA) – a radio telescope comprising 66 antennas located in the Atacama Desert of northern Chile.
- ALMA is a **state-of-the-art telescope that studies celestial objects at millimetre and submillimetre wavelengths** – they can penetrate through dust clouds and help astronomers examine dim and distant galaxies and stars out there.
- It also has extraordinary sensitivity, which allows it to detect even extremely faint radio signals.
- The telescope consists of 66 high-precision antennas, spread over a distance of up to 16 km.

### Why is ALMA located in Chile's Atacama Desert?

- ALMA is situated at an altitude of 16,570 feet (5,050 metres) above sea level on the Chajnantor plateau in Chile's Atacama Desert as the millimetre and submillimetre waves observed by it are very susceptible to atmospheric water vapour absorption on Earth.

- Moreover, the desert is the driest place in the world, meaning most of the nights here are clear of clouds and free of light-distorting moisture making it a perfect location for examining the universe.

#### Notable discoveries made by ALMA:

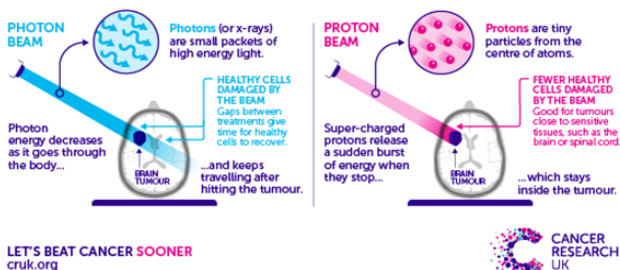
- Astronomers have discovered starburst galaxies earlier in the Universe's history than they were previously thought to have existed.
- Provided detailed images of the protoplanetary disc surrounding HL Tauri – a very young T Tauri star in the constellation Taurus, approximately 450 light years from Earth.
- Phenomenon known as Einstein ring, which occurs when light from a galaxy or star passes by a massive object en route to the Earth, in extraordinary detail.

#### PROTON BEAM THERAPY

In News: Cancer patients in India face twin challenges when it comes to accessing proton beam therapy (PBT): there are not enough facilities offering the treatment, and the cost can run into tens of lakhs of rupees.

#### PHOTON AND PROTON RADIOTHERAPY WHAT'S THE DIFFERENCE?

Radiotherapy targets tumours with a beam of energy which damages DNA and kills cancer cells.



#### More on the Topic:

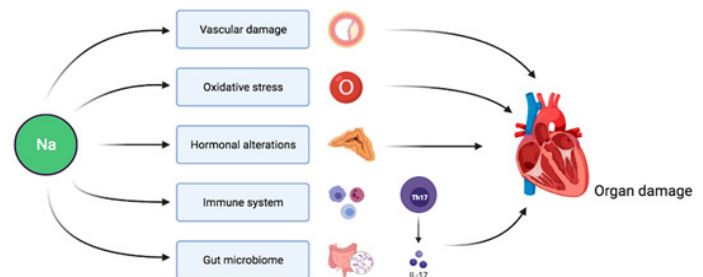
- The PBT is considered a viable alternative to radiation for treating solid tumours, especially for head and neck cancers.
- Unlike radiation which uses X-rays, PBT uses protons to tackle cancer.
- A proton is a positively charged elementary particle that is a fundamental constituent of all atomic nuclei.
- PBT is typically delivered via a large, complex machine called a cyclotron, which accelerates protons to high speeds and delivers them to the tumour site.
- While radiation can prove toxic to the whole body, protons can destroy cancer cells

precisely by targeting tumours, thus saving adjoining organs.

- This has proved useful in the cases of young women whose ovaries and reproductive function could be salvaged through the therapy.

#### SODIUM INTAKE TARGET

In News: WHO Global Report on Sodium Intake Reduction has been released recently.



#### More on the Topic:

- The world is off-track to achieve its global target of reducing sodium intake by 30% in the next two years (by 2025).
- Reducing salt intake has been identified as one of the most cost-effective measures countries can take to improve population health outcomes.
- Key salt reduction measures will generate an extra year of healthy life for a cost that falls below the average annual income or gross domestic product per person.
- Reduction of sodium is also an important component of action to achieve the Sustainable Development Goal target of reducing deaths from non-communicable disease.

#### Why Sodium Reduction is Significant:

- Sodium is an essential nutrient and is needed by the body in relatively small amounts (provided that substantial sweating does not occur) to maintain a balance of body fluids and keep muscles and nerves running smoothly.
- But more Sodium is not healthy.
- Salt intake of less than 5 grams per day for adults helps to reduce blood pressure and risk of cardiovascular disease, stroke and coronary heart attack.
- The principal benefit of lowering salt intake is a corresponding reduction in high blood pressure.



## H3N2 OUTBREAK

**In News:** The Indian Council of Medical Research (ICMR) have confirmed the outbreak of Influenza A H3N2, a subtype of a virus that causes flu.



### More on the Topic:

- There are four types of seasonal influenza viruses, types A, B, C and D. Influenza A and B viruses circulate and cause seasonal epidemics of disease.
- The current flu is caused by Influenza A from H3N2 strain.
- The virus derives from types of protein strains of the influenza A virus – hemagglutinin (HA) and neuraminidase (NA).
- The patient suffers with high grade fever for 4 to 5 days along with sore throat for 7 to 10 days.
- This is often followed by productive cough producing sputum which last for 2-3 weeks. In these cases the patient has to be given either inhalation or oral steroids to recover.
- It is a threat to elderly patients with co-morbid heart conditions if they suffer from this virus and could lead to heart failure.
- The most effective way to prevent the disease is vaccination. Injected inactivated influenza vaccines are most commonly used throughout the world.

## REPORTS AND INDICES

### PARLIAMENTARY STANDING COMMITTEE REPORT ON WATER RESOURCES

**In News:** According to the report tabled by the Parliamentary Standing Committee on Water Resources, Groundwater levels in Delhi, Ghaziabad, Faridabad, and 20 other cities dipped by more than 20 metres from 2017 to 2020.

#### Basic need **unmet**

While seven States in the country have 100% tap water coverage in schools, three have abysmally low coverage of less than 15%

**States with 100% tap-water coverage**

State
Andhra Pradesh
Goa
Tamil Nadu
Haryana
Himachal Pradesh
Telangana
Punjab



#### Least coverage

State	% of schools with tap water supply
Uttar Pradesh	7.93
West Bengal	10.89
Jharkhand	12.99

### More on the Topic:

- While Haryana's Faridabad has become 100 per cent dependent on groundwater use, cities including Ghaziabad in Uttar Pradesh are "on the verge of becoming totally dependent on it".
- Delhi, Jaipur and Hyderabad are among the major cities severely affected by the issue of water contamination.

### India Ground Water Statistics:

- According to the latest report of the Central Ground Water Board (CGWB), about 14% of India's 7,089 groundwater assessment units across states have been categorised as over-exploited, while another four per cent fall in the critical category.
- An "over-exploited" category indicates groundwater extraction exceeding the annually replenishable groundwater recharge, while the "critical" category is one where the stage of groundwater extraction is between 90-100 per cent. The overall stage of groundwater extraction in the country is 60.08 per cent.
- The stage of groundwater extraction is very high, more than 100 per cent, in the states and union territories of Haryana, Punjab, Rajasthan, Dadra and Nagar Haveli and

## Daman and Diu.

- The overall stage of groundwater extraction has marginally decreased from 61.6% to 60.08% comparing in 2020 to 2022.

### Reasons for the Depletion:

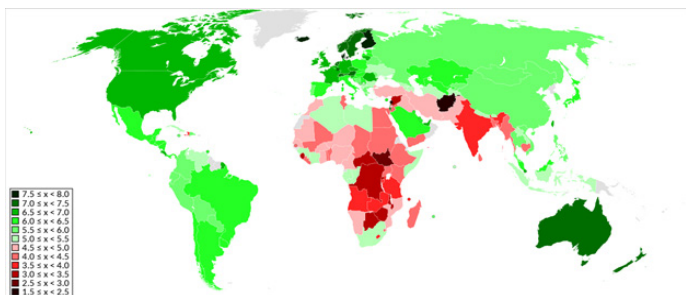
- Unregulated usage of Groundwater through subsidised electricity and cultivation of high water intensive crops is one of the important reasons for water exploitation.
- Inadequate funds and lack of functional autonomy to National Water Mission is sighted as another major reason.
- The Ministry of Housing and Urban Affairs (MoHUA) stated that that increasing population, urbanisation and concretisation are some of the reasons behind the groundwater depletion in these cities.

### Recommendations:

- All the States should enact Groundwater Legislation based on the Model bill proposed by the Ministry of Jal Sakti.
- Introduce community participation in ground water management.
- Centre should provide assistance to the States through various schemes/programmes for managing Groundwater.
- India Easement Act, 1882 should be amended. It provides the landowner the right to utilise the water underground and treat it as a community resource.

## WORLD HAPPINESS REPORT

In News: UN Sustainable Development Solutions Network has released World Happiness Report.



### More on the Topic:

- The reports measure global happiness on several standards which include national and international aspects.
- The report speaks for countries' level of happiness based on the responses of a

nationally representative sample of people about the levels of satisfaction in life these days.

- The countries are ranked on the basis of healthy life expectancy, GDP per capita, social support, low corruption, generosity in a community where people look after each other, and freedom to make key life decisions.

### Highlights from the Report:

- Finland tops the ranking for the sixth year in a row with a score of 7.8 and other Norwegian countries like Denmark, Iceland are ranked second and third.
- In the list of top 10, other countries are Israel, Netherlands, Sweden, Norway, Switzerland, Luxembourg and New Zealand.
- Despite improvement in India's ranking in the report is still very low and many small neighbours of India are ranked above.
- India has been ranked at the 126th place among 146 countries.
- India ranked below neighbours China, Nepal, Sri Lanka and Bangladesh.
- Out of the 137 countries, Taliban-ruled Afghanistan has ranked last and is most unhappy according to the report.
- Other regions at the bottom of the list include Lebanon, Zimbabwe, the Democratic Republic of Congo, etc.
- The report adds that these countries have high-level of corruption and low life expectancy.

### UN Sustainable Development Solutions Network:

- It was launched in 2012 under UN Secretary General; it mobilizes global scientific and technological expertise to promote practical solutions for sustainable development, including implementation of Sustainable Development Goals (SDGs) and Paris Climate Agreement.

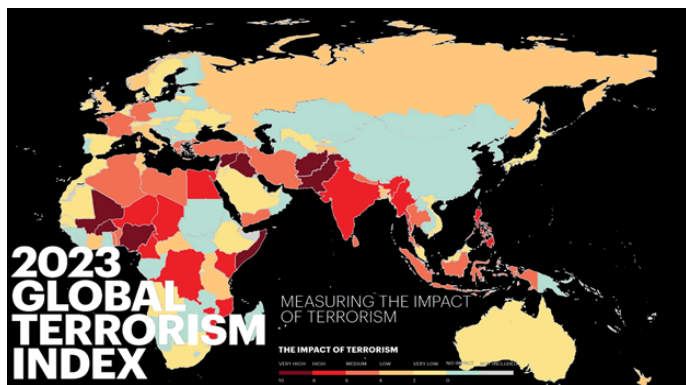
## ANNUAL GLOBAL TERRORISM INDEX (GTI)

In News: Annual Global Terrorism Index (GTI) was released by the Australia-based Institute for Economics and Peace (IEP).

### More on the Topic:

- South Asia remains the region with the worst average GTI score.
- Deadliest terrorist groups in the world in 2022: Islamic State (IS); Al-Shabaab; Balochistan

Liberation Army (BLA), and Jamaat Nusrat Al-Islam wal Muslimeen (JNIM)



- Climate change is helping terrorist groups to raise funds, propagandize and recruit people.
- India was among the 25 worst terror-hit countries but also among 56 of the 120 nations surveyed with no respondents selecting war and terror as the biggest threat to their daily safety.
- The GTI score of India, which was listed among countries with a "high" impact of terrorism and ranked 13th, was 7.175 compared to 8.822 of Afghanistan which topped the index.
- The calculation of the score considered deaths, incidents, hostages, and injuries from terrorism, weighted over a five-year period.

## WOMEN AND MEN IN INDIA 2022

In News: Women and Men in India 2022 report were published recently.

## URBAN AREAS WERE MUCH WORSE THAN RURAL

States/UTs with less than 1,000 females per males



National Family Health Survey (2019-21)

### More on the Topic:

- It was published by Ministry of Statistics and

## Programme Implementation (MoSPI).

- The sex ratio at birth: went up by three points to 907 in 2018-20 from 904 in 2017-19.
- But women are still largely left out of the labour force, restricting their scope of financial independence.
- India's Labour Force Participation Rate: defined as the percentage of persons in the labour force in the population – for those above 15 years of age has been on the rise since 2017-2018. However, women are severely lagging behind men.
- The average wage earned per day by casual labourers in work: men in rural areas earn more than women in urban areas.
- The mean age for marriage has improved marginally up from 22.1 years in 2017 to 22.7 years in 2020.
- Other indicators like infant mortality rate and under-five mortality rate have also been on the downward trend.

## Population Trends:

- The population growth, already on a downward trend from 2.2% in 1971 to 1.1% in 2021, is projected to fall further to 0.58% in 2036.
- India's age and sex structure: as per which the population under 15 years of age is expected to decline and the population above 60 years is expected to increase by 2036.
- The age-specific fertility rate: defined in the report as the number of live births in a specific age group of women per thousand female individuals of that age group – for the 20-24 years and 25-29 years age group between 2016 and 2020 reduced from 135.4 and 166.0 to 113.6 and 139.6 respectively.

## GLOBAL MALNUTRITION CRISIS

In News: UNICEF has released the report A Global Nutrition Crisis In Adolescent Girls And Women.





### More on the Topic:

- South Asia and sub-Saharan Africa are home to 68% of adolescent girls and women who are underweight.
- Some 60% of adolescent girls and women are anaemic.
- No region is on track to meet 2030 global targets to reduce anaemia in adolescent girls and women by half and low birthweight in new-borns by 30%.
- Gender gap in food insecurity more than doubled between 2019 and 2021.

### Impact of Malnutrition:

- The scale and consequences of undernutrition, micronutrient deficiencies and anaemia in adolescent girls and women are being overlooked and under-recognised by families, society, governments, development and humanitarian communities, research and academia, media and the private sector.

### Key Recommendations:

- Governments and their development and humanitarian partners national and international must take the lead in accelerating progress for ensuring nutrition for adolescent girls and women.
- Expand access to social protection programmes (including cash transfers and vouchers) for the most vulnerable adolescent girls and women.
- Introduce/expand food fortification programmes.
- Eliminate discriminatory gender and social norms such as child marriage and the inequitable sharing of food, household resources etc.

## GLOBAL EDUCATION MONITORING REPORT

In News: UNESCO has published Global Education Monitoring Report.



United Nations  
Educational, Scientific and  
Cultural Organization



Global  
Education  
Monitoring  
Report

### More on the Topic:

#### Key Highlights:

- Only 20% of countries have legislation on sex education, while 39% have a national policy.
- Sex education is compulsory in primary schools in 68% of countries.
- While 76% of countries have this type of system in secondary schools.
- Subjects such as gender roles, sex and domestic abuse are taught in more than six out of ten countries.
- One of the two countries recognizes the concept of consensus. In two-thirds of the countries, contraceptive issues are included in the school curriculum.
- Budget allocation towards sexuality education is rare, even in countries that have recorded the most progress in this area.
- Only a few countries collect data to track progress on how well sexuality education is taught and learned in school

#### Comprehensive sexuality education (CSE):

- Comprehensive sexuality education (CSE) is a curriculum-based process of teaching and learning about the cognitive, emotional, physical, and social aspects of sexuality.
- It aims to equip children and young people with knowledge, skills, attitudes, and values that will empower them to realize their health, well-being, and dignity; develop respectful social and sexual relationships; consider how their choices affect their wellbeing and that of others; and understand and ensure the protection of their rights throughout their lives.

## WORLD BANK'S WOMEN, BUSINESS AND THE LAW 2023 REPORT

In News: The World Bank has published its Women, Business and the Law 2023 report recently.

### More on the Topic:

- The report assesses the countries over several indicators such as Mobility, Workplace, Pay, Marriage, Parenthood, Entrepreneurship, Assets, Pension etc.
- The report has presented an Index on life cycle working women through these indicators.
- A total of 190 countries were assessed.

- A score of 100 on the Index means that women are on an equal standing with men on all the eight indicators being measured.
- Globally women enjoy only 77% of the legal rights that men do.
- At the current pace, it would take at least 50 years to approach legal gender equality everywhere.
- Out of the 190 economies covered in the Index, only 14 scored a perfect 100: Belgium, Canada, Denmark, France, Germany, Greece, Iceland, Ireland, Latvia, Luxemburg, The Netherlands, Portugal, Spain and Sweden.



#### India's Performance:

- India has scored 74.4 in World Bank index on life cycle of working women.
- India scored higher than the 63.7 average for the South Asian region, though lower than Nepal which had the region's highest score of 80.6.

#### Where India Lags Behind:

- India lags behind when it comes to laws affecting women's pay, laws affecting women's work after having children, constraints on women starting and running a business, gender differences in property and inheritance, and laws affecting the size of a woman's pension.

#### Recommendations:

- India should consider reforms to **improve legal equality for women**, the report noted that one of the lowest scores for India comes from the indicator assessing laws affecting women's pay.
- To improve on the Pay indicator, India may wish to consider **mandating equal remuneration for work of equal value**, allowing women to work at night in the same way as men, and allowing women to work in an industrial job in the same way as men.

#### CLEAN ENERGY TRANSITION REPORT

In News: Institute for Energy Economics and Financial Analysis (IEEFA) and Ember has published a report on Clean Energy Transition.

INDIA'S CLIMATE TARGETS: EXISTING AND NEW			
Target (for 2030)	Existing: First NDC (2015)	New: Updated NDC (2022)	Progress
Emission intensity reduction	33-35 per cent from 2005 levels	45 per cent from 2005 levels	24 per cent reduction achieved in 2016 itself. Estimated to have reached 30 per cent
Share of non-fossil fuels in installed electricity capacity	40 per cent	50 per cent	41.5 per cent achieved by the end of June this year
Carbon sink	Creation of 2.5 to 3 billion tonnes of additional sink through afforestation	Same as earlier	Not clear.

#### More on the Topic:

- The report has analysed a total of 16 Indian states which account for 90% of the country's annual power consumption.
- The report has measured the performance of these states in terms of four dimensions, i.e. decarbonisation, performance of the power system, readiness of the power ecosystem, and policies and political commitments.
- To measure the performance of the state, the report has formulated a States' Electricity Transition (SET) scoring system to measure the performance of these states.
- Karnataka and Gujarat have made maximum progress towards clean electricity transition.
- Karnataka is the only state among the 16 analysed that scored well across all four dimensions of clean electricity transition.
- States like West Bengal, Bihar and UP are lagging far behind in the field.

#### Recommendations:

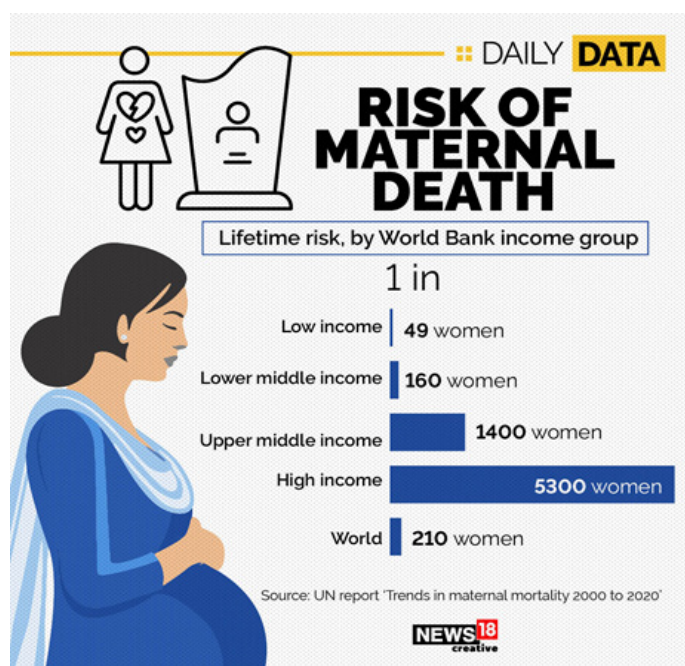
- Rajasthan and Tamil Nadu needs to improve their power system readiness. Whereas,

Bihar, Uttar Pradesh and West Bengal need to work more for the clean electricity generation.

- States need to explore **multi-dimensional efforts for effective and sustainable transition to clean electricity**.
- There is a need for **enhanced green market mechanisms** participation through more favourable policies like green energy open access and banking of power.
- **Higher data transparency and availability of data** will help in tracking progress of the report and enable government to take corrective actions.
- Introduce of private sector participation to **increase competition in the sector** in addition to infusion of more capital and management expertise.
- Develop a holistic approach for handling solar panel, battery and electric vehicle waste.

## TRENDS IN MATERNAL MORTALITY 2000 TO 2020

In News: WHO, UNICEF, UNFPA, World Bank Group and UNDESA/Population Division Government has collaborated to publish Trends in maternal mortality 2000 to 2020 report.



### More on the Topic:

### Highlights of the Report:

- Every day in 2020, approximately 800 women died from preventable causes related to pregnancy and childbirth - meaning that a

woman dies around every two minutes.

- 70% (202,000) of the MM took place in sub-Saharan Africa.
- Sustainable Development Goal (SDG) target 3.1 is to reduce maternal mortality to less than 70 maternal deaths per 100 000 live births by 2030.

### India's Maternal Mortality Statistics:

- India has improved its maternal mortality ratio (MMR) – number of deaths per 100,000 live births – to 97 deaths per lakh in 2018-2020 from 103 deaths per lakh in 2017-2019.
- This is a considerable improvement from the 130 deaths per lakh in 2014-2016.
- Assam continues to have the highest MMR (195) but has improved its own performance over the years.
- Kerala continues to remain the best performer, with a low MMR of 19% lakh live births.
- Among the better-performing states with an MMR lower than 100, barring Kerala, are Maharashtra (33), Telangana (43), Andhra Pradesh (45) and Gujarat (57).
- India's maternal mortality rate is six, while poor-performing states include Madhya Pradesh (15.3), Uttar Pradesh (14.3), Assam (12.1), Bihar (11) and Chhattisgarh (9.9).
- India's performance on the maternal mortality front has been improving consistently as the country achieves its national target of reducing MMR to below 100.
- But it still lags behind the UN-mandated Sustainable Development Goals target of an MMR equivalent to 70 deaths per 100,000 live births. The country has eight years to meet this benchmark by 2030.

### Government Initiatives related with Maternal Mortality:

- Janani Suraksha Yojana under the National Health Mission to link cash assistance to institutional deliveries.
- The Pradhan Mantri Surakshit Matritva Abhiyan (PMSMA) provides a fixed day for assured, comprehensive and quality antenatal care free of cost to pregnant women on 9th of every month.
- Pradhan Mantri Matru Vandana Yojana, Poshan Abhiyan and LaQshya Guidelines.



## GLOBAL INTERNET SHUT-OFFS: REPORT

**In News:** As per a report by Access Now and the KeptlOn coalition, India enforced as many as 84 internet shutdowns last year and was on top of the list of nations that ordered internet shutdowns for the fifth year in a row.



### More on the Topic:

- The shutdowns were ordered on various accounts including protests, conflict, school exams, and elections.
- Since 2016, India has accounted for approximately 58% of all documented shutdowns globally.
- Jammu and Kashmir has the highest number of internet shutdowns followed by Rajasthan and West Bengal.
- Currently, internet shutdown orders are governed under the Temporary Suspension of Telecom Services (Public Emergency or Public Safety) Rules, 2017.
- 2017 Rules provide for temporary shutdown of telecom services in a region on grounds of public emergency (up to 15 days at once)
- The rules framed by the DoT say temporary suspensions can be "due to public emergency or public safety", and gives senior bureaucrats from the Home Ministry at the central and state levels the power to order shutdowns.

### How do governments justify shutting down the Internet?

- Governments say misinformation and rumours can lead to deterioration in law and order in an area, so curbing the flow of information helps maintain peace among communities in times of crisis.

### Counter View Points:

- In the absence of information sources like news outlets, rumours can actually end up spreading even more.
- Also, important services such as those related

to payments, banking, and educational access, all get cut in an instant, resulting in disruptions at multiple levels and economic losses.

### Related Judgements:

- Internet shutdowns can be for a temporary period but not for an indefinite period.
- Government is to publish all orders imposing restrictions under Section 144.
- SC ruled that "**freedom of speech and expression and the freedom to practice any profession or carry on any trade, business or occupation over the medium of Internet enjoys constitutional protection under Article 19 (1) (a) and Article 19 (1) (g)**".
- "Restriction upon such fundamental rights should be in consonance with the mandate under Article 19 (2) and (6) of the Constitution, inclusive of the test of proportionality".
- In December 2019, the Gauhati High Court had directed the Assam government to restore the Internet in the state after reviewing the suspension orders.
- Kerala High Court's judgement in **Faheema Shirin v/s State of Kerala**, where the right to internet access was recognized as a fundamental right forming a part of the right to privacy and the right to education under Article 21 of the constitution.

### Parliament's Standing Committee on Communications and Information Technology Recommendations:

- Define the terms like 'public emergency' to avoid their usage without due cause.
- Certain apps or websites could be banned, such as WhatsApp, where the possibility of rumours being widely circulated is high, while other Internet services could remain available to users.
- All governments should document the reasons, time, alternatives considered, decision-making authorities, and the rules under which the shutdowns were imposed and release the documents for public scrutiny.

# INTERNAL SECURITY

## SUSPENSION OF OPERATIONS (SOO) AGREEMENT

In News: Manipur government has decided to withdraw from the Suspension of Operations (SoO) agreement with two hill-based tribal militant groups, alleging they were "influencing agitation among forest encroachers".



### More on the Topic:

- While the Naga movement is the country's longest-running insurgency, underground Kuki groups, too, have fought the Indian government for an 'independent Kuki homeland', spread across Manipur.
- The Kuki insurgency gained momentum after ethnic clashes with the Nagas of Manipur in the early 1990s, with the Kuki arming themselves against Naga aggression.
- While the two tribes have shared a hostile relationship since colonial times, things came to a head in the 1990s when the Naga-Kuki clashes took place.
- Land that the Kukis claim to be their "homeland" in the Manipur hills overlaps with the imagined Naga homeland of Greater Nagaland or Nagalim.

### About the Suspension of Operations pact:

- There are nearly 30 Kuki insurgent groups in Manipur, of which 25 are under tripartite Suspension of Operations (SoO) with the Government of India and the state.
- As many as 17 are under the umbrella group Kuki National Organisation (KNO), and eight are under the United People's Front (UPF).
- The SoO pact was signed in August, 2008,

with the primary objective of initiating political dialogue. Talks are ongoing under former special secretary of the Research and Analysis Wing (RAW), as the interlocutor.

- The Kuki outfits who were initially demanding a separate Kuki state have come down to a 'Kukiland territorial council', which would have financial and administrative powers independent of the Manipur Assembly and government.

### The terms of the SoO pact:

- While the period of the Suspension of Operation agreement is one year, it is extendable according to the progress of its implementation.
- To oversee the effective implementation of the SoO pact, a committee called the Joint Monitoring Group (JMG), with representatives from all the signatories, has been formed.
- The important terms under the pact are that security forces, including state and central forces, are not to launch any operations, nor can the underground groups.
- The signatories of UPF and KNO shall abide by the Constitution of India, the laws of the land and the territorial integrity of Manipur. They are prohibited from committing all kinds of atrocities, extortion, among others.
- The militant cadres are to be confined in designated camps identified by the Government. Arms are deposited in a safe room under a double-locking system. The groups are given arms only to guard their camps and protect their leaders.
- As a rehabilitation package, the UG cadres living in the designated camps are given a monthly stipend of Rs 5000. Financial assistance is also being provided to maintain the designated camps.

### What Lies Ahead:

- There are chances that the outfits may restart their operations.
- The revocation of the SoO agreement has now raised questions about the government's intent to resolve the issue at the earliest.
- Central Government is expected to respond to the scenario soon.

## SAME SEX MARRIAGE

**In News:** The Supreme Court referred a batch of over 20 petitions seeking legal recognition of marriages within the LGBT community to a five-judge constitution bench.

### More on the Topic:

- In India, same-sex relations were not recognised up until 2018 recently, when **Article 377 was read down by the Supreme Court of India in Navtej Johar v. Union of India (2018)**, after which homosexuality has been decriminalised.
- But still, the marital union between same-sex couples is not recognised by law in India and consequently, they are not entitled to any spousal privileges, those being adoption rights, inheritance rights, etc

### The Arguments In Favour of Same Sex Marriage:

- **Articles 15, and 16 of the Indian Constitution** prohibits discrimination based on gender, but these rights are often violated in society.
- Person with Same-sex marriage is denied from property, insurance, and family rights.
- Under **Article 19 1 (a)**, the person has the right to freedom of sexual expression.
- **Article 21 of the Constitution** guarantees the right to life and personal liberty to all individuals.
- The Supreme Court has interpreted this provision to include the right to live with dignity, which includes the right to make choices about one's sexuality and gender identity.
- Many times, physical or mental violence is used by conservative elements of the society on same-sex couples.
- Thus same-sex marriage will become an enabler of fundamental rights, social rights, family rights of the person.
- The Supreme Court has recognized the right to privacy as a fundamental right under the Constitution.
- This includes the right to make choices about one's sexual orientation and gender identity without fear of discrimination or harassment.

## Arguments against Same Sex Marriage by Central Government:

- In India, marriage is not considered to be a sexual necessity but a sacrament that is indicative of the sanctity of marriage.
- The concept of marriage in Indian society is based on a husband, a wife, and a child, which cannot be compared with a gay family.
- The power of amendment in the Special Marriage Act-1954 or Hindu Marriage Act-1955 is vested in the legislature and not in the higher judiciary.
- The legislature should be the body to consider the status of recognising same sex marriages while balancing the social morality and independence of the individual.

### Way Ahead:

- At least 29 countries in the world have legalised same-sex marriage.
- It is time that India thinks beyond the binary and reviews its existing legal architecture in order to legalise marriages irrespective of gender identity and sexual orientation.
- It is also necessary to strike a balance between a rapidly changing society and individual rights.
- There is need to balance progressive society and individual rights.

## THE MIGRANT WORKER ISSUE

**In News:** The recent case of alleged assault on migrant workers in Tamil Nadu has once again brought attention to migrant workers and the problems they face.

### More on the Topic:

#### Who are Migrant Workers?

- They are casual and unskilled workers who move about systematically from one region to another offering their services on a temporary, usually seasonal, basis. They leave their hometown and go to a big city for work.

#### Reasons for migration of workers:

- Mostly we see seasonal migration of workers, an **overwhelming 120 million people or more are estimated to migrate from rural areas to urban labour markets, industries and farms.**
- One of the main reasons of migration is shortage of rainfall or excess rainfall.



# ANCIENT, MODERN INDIA AND ART & CULTURE

- Mostly they are from regions that face frequent shortages of rainfall or suffer floods, or where population densities are high in relation to land.
- Areas facing unresolved social or political conflicts also become prone to high out migration.
- Poverty, lack of local options and the availability of work elsewhere become the trigger and the pull for rural migration respectively.

## Challenges Faced By Migrant Workers of India:

- Low wages
- Physical and sexual exploitation
- Safety and security problems
- Exploitative labour arrangements that forces them to work in low-end, low-value, hazardous work.
- Lack of social security and health benefits
- Inadequate coordination among states on a formal exchange of information
- Lack of data makes it difficult to track labourers during times of crisis

## Way Ahead:

- The government should make **better use of Pradhan Mantri Jan-Dhan Yojana to include migrant workers**. Bank accounts opened under the scheme ensure access to savings and deposit accounts, remittances, credit, insurance and pensions.
- A mobile application for the **self-registration of migrant labour workers** – containing their personal information, Aadhar number, place of residence and place of work – is a proposed framework for capturing much-needed data of migrant workers.
- The **M Pesa mobile payment model** prevalent in African countries provides an example of how mobile platforms can be used to transfer funds to vulnerable communities. A user-friendly money transactions application based on the Unified Payments Interface – a real-time payment system developed by the National Payments Corporation of India – could be easily designed in India.
- Kerala has set up facilitation centres (maintain data) for migrant workers whom the state refers to as “guest workers”. This could be followed by other states.

## GANDHAMARDAN HILL RANGE OF ODISHA

**In News:** Odisha government has declared the Gandhamardan Hill Range in Bargarh and Balangir district as a Biodiversity Heritage Site (BHS).

### More on the Topic:

- This hill is well known for medicinal plants.
- Hosts two historical monuments, **Nrusinghanath Temple located on northern slope and Harishankar Temple situated on southern slope.**
- Hiuen Tsang had described the hill shrine as a **Buddhist heritage site named Parimalagiri.**
- There is a Bauxite reserve which is planned for exploration by the state government through a private venture.
- Lord Hanuman is believed to reside here and in the Piduru Mountains in Sri Lanka.

## KHANDAGIRI AND UDAYGIRI CAVES

**In News:** The Archaeological Survey of India (ASI) has warned that Khandagiri and Udaygiri caves are eroding and the speed of deterioration has been rapid in the last 10 years.



### More on the Topic:

- The quality of sandstone used in Khandagiri and Udaygiri caves is also of very poor quality and fragile in nature, making it even more susceptible to weathering.

### Reasons for the rapid deterioration:

- High pollution levels, climate change and green cover depletion.
- CO2 emission from vehicles, high footfall of tourists.
- Unregulated constructions around the monuments.

- Sandstone used in the caves is of very poor quality and fragile.

#### About Khandagiri and Udaygiri caves:

- Udayagiri and Khandagiri Caves, formerly called Kattaka Caves or Cuttack caves, are partly natural and partly artificial caves of archaeological, historical and religious importance near the city of Bhubaneswar in Odisha, India.
- They are one of the earliest groups of Jain rock-cut architecture in Eastern India.
- It was built by King Kharavela of Meghavahana dynasty around 2nd century BC.
- Udayagiri has 18 caves whereas Khandagiri has 15 caves. Each of the caves has inscriptions either in Brahmi script or Devanagari script.
- Hathigumpha Inscription is a seventeen line inscription in Prakrit language incised in Brahmi script in a cavern called Hathigumpha in Udayagiri hills, inscribed by Jain king Kharavela.

#### INDIA'S GEOHERITAGE SITES OF JHAMARKOTRA AND ZAWAR

In News: Jhamakotra and Jawar are important geoheritage sites of India.



#### More on the Topic:

- Jhamarkotra is a stromatolite fossil park. It hosts stromatolites dating back 1.8 billion years, exhibiting a variety of textures and sizes.
- A stromatolite is a layered sedimentary rock created by microorganisms.
- As such, stromatolite fossils preserve records of cyanobacteria, commonly known as blue-green algae – the earliest life on the planet.
- Jhamarkotra's fossils are phosphate-rich because the trapped sediments were mainly

phosphate minerals. These fossils are part of the reason why the region is a thriving mining hub today.

- Zawar, the world's oldest known zinc-smelting site. It is of archaeological and metallurgic importance.
- The landscape around Zawar bears numerous traces of zinc mining and smelting operations in ancient times.
- The discovery here of earthen retorts—brija-shaped, long-necked vessels—is particularly significant: their presence here suggests Zawar had a unique zinc-smelting legacy.

#### What is geoheritage?

- Geodiversity is the variety of rocks, fossils, minerals, and natural processes that shape our landscapes while geoheritage refers to sites that offer insights into the evolution of the earth and can be used for research, reference, and awareness.
- The Geological Survey of India has recognised a number of geoheritage sites around the country, but there are more that deserve the recognition, yet haven't.

#### BUMCHU BUDDHIST FESTIVAL

In News: Bumchu Festival was celebrated in Tashiding Monastery, located in Sikkim.



#### More on the Topic:

- Bumchu, the Tashiding holy water vase ritual, is a unique and important occasion that draws travellers from all over the world.
- Bumchu means "pot of sacred water" in Tibetan. The vase is opened during the event, and water inside is thought to have healing qualities shared among the worshippers.



- The Tashiding Monastery is one of the most sacred Buddhist pilgrimage sites, located on a hilltop overlooking the Rangeet River in Sikkim.

## MUNDAKA UPANISHAD

**In News:** The Vice President of India has released a book on Mundaka Upanishad written by parliamentarian Dr. Karan Singh.



### More on the Topic:

- The Mundaka Upanishad is an ancient Sanskrit Vedic text, embedded inside Atharva Veda.
- It is a Mukhya Upanishad, and is listed as number 5 in the Muktika canon of 108 Upanishads of Hinduism.
- It is among the most widely translated Upanishads.
- This Upanishad is a poetic verse style Upanishad, with 64 verses, written in the form of mantras.
- India's National Motto 'Satyameva Jayate' has been taken from Mundaka Upanishad.
- The word Upanishad means to sit down near someone and denotes a student sitting near his guru to learn.
- Upanishads contain information regarding the philosophical principles and concepts of Hinduism, including karma, brahman etc.
- There are 13 Upanishads which are most well known or most important – Katha, Kena, Isa, Mundaka, Prasna, Taittiriya, Chhandogya, Brihadaranyaka, Mandukya, Aitareya, Kaushitaki, Svetasvatara and Maitrayani.
- All the 4 Vedas are compositions of different texts. Upanishads are in the last section of any Vedas.

## GATEWAY OF INDIA

**In News:** Mumbai's Iconic Gateway Of India Awaits Restoration After Archaeology Dept Finds Cracks In Facade.



### More on the Topic:

- The Gateway of India is an arch-monument built in the early 20th century in the city of Mumbai.
- It was erected to commemorate the landing of King-Emperor George V, the first British monarch to visit India in 1911.
- It was later used as a symbolic ceremonial entrance to India for Viceroy and the new Governors of Bombay.
- The architecture style is Indo-Saracenic style.

## ANCIENT CITY OF SISUPALGARH

**In News:** Land mafia has damaged a portion of the wall of the fortified ancient city of Sisupalgarh.





### More on the Topic:

- It is a majestic archaeological heritage that has survived over 2,600 years, on the outskirts of Bhubaneswar.
- Sisupalgarh, believed to have been built around the 7th to 6th century BCE, served as the capital of the **Kalinga kingdom**, and was an important centre of trade and commerce during ancient times.
- The urban centre had an area of 1.2 km by 1 km, and it was surrounded by a moat.
- **Moat is a deep and wide trench** around the rampart of a fortified place (such as a castle) that is usually filled with water.
- The water management system of the city was unique.
- The fortification was carried out in the 4th to 3rd century BCE, when **King Kharavela took up the repair of the city 2,100 years ago.**
- It is the only fortified site in India having eight gateways.

## PERSONALITIES IN NEWS

### SAYAJIRAO GAEKWAD III

**In News:** Home Minister has mentioned that Central government has modelled the New Education Policy (NEP) to include the “visions” of Maharaja Sayajirao Gaekwad III, among other leaders.

### More on the Topic:

- Maharaja (Sayajirao III) had emphasised **female education, eradicated purdah system, made a separate law for divorce, brought in the revolutionary widow remarriage rules and changed education policies** to ensure employment opportunities.
- He had made primary education free and compulsory in his state.
- He patronized **Dr. B.R. Ambedkar, Dadabhai Naoroji and Sri Aurobindo Ghosh.**
- He was the Maharaja of Baroda State from 1875 to 1939, and is remembered for reforming much of his state during his rule.
- He belonged to the **royal Gaekwad dynasty of the Marathas** which ruled parts of present-day Gujarat.

### SANT SEVALAL MAHARAJ

**In News:** The Central government has started the year-long commemoration of the 284th birth anniversary of Sant Sevalal Maharaj.

### More on the Topic:

- He was a spiritual and religious leader of the Banjara community.
- Sant Sevalal Maharaj was born in 1739, at Surgondankoppa in Karnataka's Shivamogga district.
- He had dedicated his life to **serving tribal forest dwellers and nomadic tribes.**
- He worked tirelessly to **dispel and eradicate myths and superstitions prevalent in the tribal communities**, including the Banjaras.
- He has brought about reforms in their way of life.
- Sant Sevalal Maharaj is believed to have mastery in **Ayurveda and Naturopathy.**

## Practice Questions



1) Which of the following statement/s are true?

1. Agriculture is the predominant source of methane emissions.
  2. Methane is the primary contributor to the formation of ground-level ozone.
- (a) 1 only (b) 2 only  
(c) Both 1 and 2 (d) Neither 1 nor 2

2) Which of the following statement/s are true?

1. The Ken-Betwa Link Project (KBLP) aims to transfer surplus water from the Betwa River to Ken River
  2. It aims to irrigate the drought-prone Bundelkhand region.
- (a) 1 only (b) 2 only  
(c) Both 1 and 2 (d) Neither 1 nor 2



3) Which of the following countries is not a member of The "Chip 4" or "Fab 4" alliance?

- (a) Japan (b) USA  
(c) Taiwan (d) China

4) Methane Global Tracker is associated with?

- (a) United Nations Environment Program  
(b) International Energy Agency  
(c) World Bank  
(d) None of the above



5) Article 324 of the Indian constitution is associated with?

- (a) Governor (b) Election Commission  
(c) Centre State Relations (d) Panchayati Raj

6) BIMSTEC Energy Centre is located at?

- (a) Delhi (b) Bangalore  
(c) Gurgaon (d) Mumbai





- 7) Which of the following statement/s are true?
1. Yellow river is the most sediment-laden river.
  2. The sediments are the reason behind yellow color of the river.
- (a) 1 only (b) 2 only  
(c) Both 1 and 2 (d) Neither 1 nor 2

8) SAMARTH scheme is associated with?

- (a) Geology  
(b) Textile Industry  
(c) Women and Child Development  
(d) Palaeontology



9) Hangul could be found in its natural habitat at?

- (a) Jammu and Kashmir (b) Arunachal Pradesh  
(c) Tamil Nadu (d) Gujarat

10) Changthang Wildlife Sanctuary is located at?

- (a) Ladakh (b) Arunachal Pradesh  
(c) Laksha Dweep (d) Pudhuchery



## Mains Questions

1. What are the potential benefits and drawbacks of the Digital India Bill in achieving the government's goals of promoting digitalization, privacy protection, and cybersecurity in the country?
2. What are the implications of placing cryptocurrency under the Prevention of Money Laundering Act (PMLA), and how effective would this measure be in curbing illicit activities such as money laundering and terrorist financing?

1. c 2. b 3. d 4. b 5. b

6. b 7. c 8. b 9. a 10. a





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Office : RV Training Academy, No. 18, 2nd Floor, BBMP Building Kanakpura  
Road, Tata Silk Farm, Jayanagar, Bengaluru, Karnataka - 560028



080-26765004  
+91-9108119970



rvta@rvei.edu.in