



**DAILY PRELIMS NOTES**

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## Contents:

<b>DAILY PRELIMS NOTES</b> .....	1
<b>ARTS AND CULTURE</b> .....	11
<b>IMPORTANT INTERNATIONAL INSTITUTIONS:</b> .....	11
Indian Council of cultural relations (ICCR):.....	11
Arts and architecture: .....	12
Vijayanagar era temple at Lepakshi, Andhra Pradesh: .....	12
Ramna Kali Temple:.....	12
Manuscripts: .....	13
Churches and Convents of Goa:.....	13
Raigad Fort: .....	13
Chamber of Princes: .....	14
Chaitya Bhoomi:.....	14
Sangolli Rayanna:.....	14
Great legal traditions of ancient India: .....	15
<b>HISTORY</b> .....	16
<b>Personalities:</b> .....	16
Sri Aurobindo: .....	16
Sikh Gurus: .....	16
Subramaniya Bharathi: .....	18
Indian freedom struggle:.....	19
Science During Freedom Struggle:.....	19
Shiromani Akali Dal (SAD): .....	19
<b>Wars and battles:</b> .....	20
Tai Khamti Resistance:.....	20
Battle of Aberdeen:.....	20
Paika Rebellion: .....	21
Indo-Pak War of 1971: .....	22
Vijay Diwas 2021:.....	22
<b>GEOGRAPHY</b> .....	23
<b>Mapping:</b> .....	23
Golan Heights:.....	23
Ganga River: .....	23
Central Asian Nations: .....	24
Polavaram project: .....	25
Deucha Pachami coal block: .....	26



Russia–Ukraine Border Map: .....	26
Ken-Betwa Project: .....	26
Gujarat’s Little Rann of Kutch:.....	27
US-Mexico Border:.....	28
Chile Mapping:.....	28
Lake Chad:.....	29
Concepts: .....	30
Changing monsoon patterns over 30 years:.....	30
Tornadoes: .....	30
Cyclone Jawad: .....	32
Western Coast of India less vulnerable to Cyclones:.....	33
Cold Wave in Northwest India:.....	33
Glaciers: .....	34
<b>INDIAN POLITY AND GOVERNANCE:</b> .....	35
Judiciary: .....	35
Statutory Bail: .....	35
Personal Recognisance (PR) Bond: .....	35
Law Commission of India: .....	37
Foreigner’s Tribunals:.....	37
Pension for Judges:.....	38
Judicial review of Speaker’s decision:.....	38
Right to be Forgotten:.....	38
Legislature:.....	39
Right To Freedom of Religion:.....	39
Forest Rights Act (FRA):.....	39
The personal laws under Part III of the Indian Constitution:.....	40
Election Laws (Amendment) Bill, 2021:.....	41
Economically Weaker Sections (EWS):.....	42
<b>ARTICLE 141 - DOCTRINE OF PRECEDENT:</b> .....	43
Article 167 of the Constitution: .....	44
Article 3 of the Constitution:.....	44
Scrappage Policy for Thermal Plants:.....	44
Look out circular:.....	45
Consumer Protection (Jurisdiction of the District Commission, the State Commission and the National Commission) Rules, 2021:.....	45
The Dam Safety Bill, 2019:.....	46
How MPs’ questions are allowed and disallowed in parliament? .....	47



Protection of Plant Varieties and Farmers' Rights (PPV&FR) Act, 2001: .....	48
Supplementary Demands for Grants: .....	49
Citizenship (Amendment) Act, 2019:.....	50
Rajya Sabha marks Human Rights Day:.....	50
6th Schedule of Constitution: .....	51
Ladakh Autonomous Hill Development Councils: .....	51
Pre-Budget: .....	52
Speaker of Lok Sabha:.....	52
The Ordinance Raj:.....	53
Section 43D(5) of the Unlawful Activities Prevention Act (UAPA): .....	54
<b>Executive:</b> .....	55
President's Rule: .....	55
Governor as Chancellor of the Universities:.....	55
<b>Various offices and posts:</b> .....	56
Election Commission of India: .....	56
Model Code of Conduct: .....	56
<b>Governance:</b> .....	57
Char Dham Devasthanam Management Act: .....	57
DigiLocker: .....	58
Exemplar School Initiative: .....	58
Integrated Scheme for School Education (Samagra Shiksha):.....	59
National Family Benefit Scheme (NFBS):.....	59
Lateral Entry into the Civil Services:.....	59
Directorate of Revenue Intelligence (DRI): .....	59
Civil Registration System: .....	60
National Voters Service Portal (NVSP): .....	60
Institution of National Importance: .....	60
<b>ECONOMICS</b> .....	61
<b>Banking sector:</b> .....	61
RBI keeps the Repo Rates Unchanged: .....	61
Variable Reverse Repo Rate (VRRR): .....	62
Banking Reform Committees:.....	62
Scheduled Status of a Bank:.....	62
Inter Creditor Agreement:.....	63
<b>Taxation:</b> .....	64
GSTR-3B vs GSTR-1:.....	64



Fuel Taxes: .....	64
Employment: .....	64
Gig Worker: .....	64
Informal Economy: .....	65
Self Help Group – Bank Linkage Programme (SHG-BLP): .....	65
Capital market: .....	66
‘NSE Prime’: .....	66
Derivative Trading: .....	66
Algorithmic trading: .....	67
Non-Convertible Debentures: .....	67
Stricter IPO Norms: .....	68
Electronic Gold Receipt’ (EGR) as Securities: .....	69
Investment: .....	70
Series G Funding: .....	70
Energy Efficiency: .....	70
Project Development Cells (PDCs): .....	71
Infrastructure: .....	72
Flex-Fuel Vehicles: .....	72
K-Rail SilverLine Project: .....	72
Government Owned Contractor Operated (GOCO) Model: .....	73
Open Acreage Licensing Policy: .....	73
Char Dham Highway Project: .....	73
Acts and regulations: .....	74
Specialty steel under producer linked incentive scheme: .....	74
<b>SPECIALTY STEEL: .....</b>	<b>75</b>
ESG Funds: .....	76
Unified License Agreement: .....	76
Three Decades of the Economic Reforms in India: .....	76
Central Bank Digital Currency (CBDC): .....	77
Debt Sustainability of States: .....	78
Lesser Duty Rule (LDR): .....	79
E-commerce at WTO: .....	79
Basic terms and concepts: .....	80
Rupee Depreciation: .....	80
Base Rate: .....	80
WPI Inflation: .....	81



Currency in Circulation (CiC): .....	82
Gross Fixed Capital Formation: .....	83
<b>INTERNATIONAL RELATIONS AND ORGANISATIONS</b> .....	84
Summits and conferences: .....	84
Global Gateway Plan: .....	84
International Maritime Boundary Line (IMBL): .....	84
Observer Status on Solar Alliance: .....	85
International organizations: .....	85
International Monetary Fund (IMF): .....	85
G20's Troika: .....	87
Bank for International Settlements (BIS): .....	87
Office of the United Nations High Commissioner for Human Rights (OHCHR): .....	87
WTO TRIPS: .....	88
World Gold Council (WGC): .....	88
Organisation of Islamic Cooperation (OIC): .....	89
World Economic Forum: .....	89
<b>SCIENCE AND TECHNOLOGY</b> .....	90
Computers and Information technology: .....	90
Pacific Light Cable Network: .....	90
Private Cryptocurrencies: .....	90
Omicron Cryptocurrency: .....	91
Superconducting Fault Current Limiter (SFCL): .....	91
Digital Histopathology: .....	92
5G Interfering with Aircraft: .....	92
Space and space technology: .....	93
Magnetars: .....	93
Chondrules in Meteorites: .....	94
Galaxy with no Dark Matter: .....	95
Differences between Webb and Hubble telescopes: .....	95
Dhawan-1: .....	96
Vertical Launch Short Range Surface to Air Missile (VL-SRSAM): .....	96
"Challenge" Feature Length Film: .....	97
James Webb Space Telescope: .....	97
NASA's new communications system LCRD: .....	98
Crypto as Securities of Special Class: .....	98
Basic concepts in science: .....	98



Shirodhara: .....	98
Olfactory Organ: .....	99
HIV Strains and Types: .....	99
Hydrogen sulphide suppresses HIV: .....	100
Assisted Reproductive Technology (ART) and Surrogacy: .....	100
Biomarker: .....	101
Chaperones in Biology: .....	102
High-Temperature Reactors for Green Hydrogen: .....	102
Neurocysticercosis (NCC): .....	103
Covid 19 and related news: .....	104
Protein-based Vaccines: .....	104
Blood Clots After Oxford Vaccine: .....	104
EU Regulators give Approval to Mix Vaccines: .....	105
WHO's latest report on Omicron variant: .....	105
'Booster' Dose: .....	105
Pandemic Waves: .....	108
S-gene Drop Out: .....	109
S-gene Target Failure (SGTF) Test: .....	109
Cellular Immunity: .....	109
Parvovirus: .....	110
Bird Flu: .....	110
<b>ENVIRONMENT AND ECOLOGY</b> .....	111
<b>Pollution:</b> .....	111
<b>Flying Squads:</b> .....	111
<b>Climate change mitigation and adaptation:</b> .....	112
<b>Article 6 of the Paris Agreement:</b> .....	112
<b>Climate Change-Related Discussions at the UN Security Council:</b> .....	113
<b>Nairobi Declaration:</b> .....	113
<b>Green Yodha program:</b> .....	114
<b>Climate Change in Arctic:</b> .....	114
<b>The Climate Action Tracker:</b> .....	114
<b>The Compensatory Afforestation Fund Management and Planning Authority (CAMPA):</b> .....	115
<b>Ban on Single-Use Plastic:</b> .....	115
<b>2020 heat record in Siberian town:</b> .....	116
<b>Sequester CO2 and produce Natural Gas:</b> .....	117
<b>Species in news:</b> .....	117



Lantana: .....	117
Kyhytysuka Sachicarum: .....	117
Chocolate Bordered Flitter: .....	118
Western Honey Bees: .....	118
Two plant species now extinct in wild: .....	118
Black Clam: .....	118
Gharials: .....	119
Ambergris, The Floating Gold: .....	119
Environment and bio diversity: .....	120
Mangroves: .....	120
Pulicat Lake: .....	121
Chillai Kalan: .....	122
Gadchiroli's first Jumbos: .....	122
Sacred Groves: .....	122
Orchids: .....	122
Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES): .....	123
Biological Diversity Act, 2002: .....	124
Tropical Savannah Ecosystems: .....	124
Hornbill Festival: .....	125
Energy Conservation Day: .....	126
Mapping of Fungal Networks: .....	126
Kasturirangan Committee on Western Ghats: .....	127
Exotic Animals: .....	128
Reforestation: .....	129
Coonoor Ghat: .....	130
Tiger reserves and national parks: .....	130
Pakke Tiger Reserve: .....	130
Buxa Tiger Reserve: .....	131
Parambikulam Tiger Reserve: .....	132
Kazhuveli Bird Sanctuary: .....	132
<b>REPORTS AND INDICES</b> .....	133
World Inequality Report: .....	133
Global Health Security Index 2021: .....	133
Logistics Performance Index: .....	134
World Press Freedom Index: .....	134
Healthcare Access and Quality (HAQ) index: .....	135





Gender Inequality in Global Earnings: .....	135
Health Index: .....	135
<b>DEFENCE AND SECURITY</b> .....	136
Defense technology: .....	136
Pralay Quasi-Ballistic Missile: .....	136
Medium Altitude Long Endurance (MALE) Unmanned Aerial Vehicle (UAV): .....	137
Agni-P Missile: .....	137
India's Missile Capability: .....	137
Log4Shell: .....	139
Security:.....	139
Phishing: .....	139
Assam Rifles: .....	140
Armed Forces (Special Powers) Act (AFSPA): .....	141
Delhi Police Model:.....	142
Collective Strength Initiative: .....	142
Chief of the Defence Staff (CDS):.....	143
Cyber Crisis Management Plan: .....	143
Chiefs of Staff Committee (COSC): .....	143
No line of succession for CDS:.....	144
Rapid Action Battalion: .....	144
<b>GOVERNMENT SCHEMES</b> .....	145
Pradhan Mantri Gramin Digital Saksharta Abhiyan (PMGDISHA):.....	145
Perform, Achieve and Trade (PAT) Scheme: .....	146
Pradhan Mantri Ujjwala Yojana (PMUY): .....	147
Smart Cities Mission (SCM): .....	147
Beti Bachao Beti Padhao Scheme: .....	148
Pradhan Mantri Krishi Sinchayee Yojana: .....	148
Marriage Age of Women from 18 to 21: .....	149
Shyama Prasad Mukherjee Rurban Mission: .....	150
Baby Friendly Hospital Initiative:.....	150
MCA 21:.....	151
Rural Entrepreneurship Awareness Development Yojana (READY): .....	152
Ryuthu bandhu scheme: .....	152
SMILE (Support for Marginalised Individuals for Livelihood and Enterprise):.....	153
Electric Vehicles: .....	153
<b>NATIONAL ORGANISATIONS</b> .....	155



Indian Broadcasting and Digital Foundation (IBDF): .....	155
Wildlife Crime Control Bureau: .....	156
<b>TRIBES IN NEWS:</b> .....	156
Greater Tipraland: .....	156
Kurumba Community: .....	157
Sumi Naga tribe:.....	157
Chakma-Hajong: .....	157
Konyak tribe: .....	158
GI tag sought for Apatani textile product: .....	158
<b>MISCELLANEOUS</b> .....	159
White Revolution:.....	159
Agro climatic zones in India: .....	159
Agro-climatic regions by the erstwhile Planning Commission: .....	160
Total Solar Eclipse:.....	160
Millets: .....	161
Limiting Antibiotics Use in Crops:.....	162
Maitri Divas: .....	162
Asafoetida: .....	163
Green-Ag project:.....	163
Mosquitoes and Climate Change:.....	163
Fertility Rate Decline in India:.....	164
Life Expectancy: .....	164
Indigenous breeds of Cattle: .....	164
Sahitya Akademi Award:.....	165
Covid Graded Response Action Plan (GRAP):.....	165

**IMPORTANT INTERNATIONAL INSTITUTIONS:****Indian Council of cultural relations (ICCR):**

Context – The Indian Council for Cultural Relations (ICCR) has requested Minister for Civil Aviation to make it mandatory for the country's airlines and airports to play Indian music

Concept –

- The Indian Council for Cultural Relations (ICCR) was **founded in 1950 by Maulana Abul Kalam Azad**. It completed 70 years in 2020.
- It is an **autonomous organisation** of the Government of India, involved in India's external cultural relations i.e., **cultural diplomacy**.
- Its **objectives** are:
  1. to actively participate in the formulation and implementation of policies and programmes pertaining to India's external cultural relations.
  2. to foster and strengthen cultural relations and mutual understanding between India and other countries,
  3. to promote cultural exchanges with other countries and people, and to develop relations with nations.
- It is **running 36 cultural centres in different countries** with the promotion of Indian culture and projecting India as a hub for higher education.
- It **instituted several awards** for foreign nationals as a way to promote India's culture abroad:
  1. Distinguished Indologist Award
  2. World Sanskrit Award
  3. Distinguished Alumni Award – Citation and Plaque
  4. Gisela Bonn Award

**UNESCO Intangible Cultural Heritages in India**

Context – Durga Puja gets intangible cultural heritage tag

Concept –

- This coveted list is made up of those intangible heritage elements that help demonstrate diversity of cultural heritage and raise awareness about its importance.
- The list was established in 2008 when the Convention for Safeguarding of the Intangible Cultural Heritage came into effect.
- This list also encompasses living expressions and traditions. Intangible cultural heritage means the skills, knowledge, expressions, representations, practices – as well as the artifacts, objects, instruments, and cultural spaces associated with them that various groups, communities and in certain cases individuals recognize as a part of their cultural heritage.
- This list is published by the Intergovernmental Committee for the Safeguarding of Intangible Cultural Heritage. Its members are elected by State parties meeting in the United Nations General Assembly.

**UNESCO Intangible Cultural Heritages in India**

India, known for its heritage and cultural diversity, has 13 cultural heritages in UNESCO's intangible cultural heritage list.

**About Durga Puja -**

- Durga Puja, also known as Durgotsava or Sharodotsava, is an annual Hindu festival originating in the Indian subcontinent which reveres and pays homage to the Hindu goddess Durga and is also celebrated because of Durga's victory over Mahishasur.
- Durga Puja is a five-day festival which begins on the fifth night of the nine-day Navratri festival and ends on the tenth day, which is Dashami. During this time, people collectively worship and invoke Goddess Durga, who is regarded as the feminine energy of the cosmos, also known as 'Shakti'.
- Though originating in West Bengal, which has the largest Bengali community in the country, the festival is celebrated in many other parts of India, and also the world.
- The festival is observed in the Indian calendar month of Ashwin, which corresponds to September–October in the Gregorian calendar.
- It is a classic fusion of religion and culture.
- Durga puja is an important festival in the Shaktism tradition of Hinduism.



**Arts and architecture:****Vijayanagar era temple at Lepakshi, Andhra Pradesh:**

Concept –

- Built in the 16th century, the golden age of the Vijayanagar empire, the Lepakshi temple in Anantapur district of Andhra Pradesh boasts impressive sculptures and exquisite murals portraying stylised versions of scenes from Hindu lore on its ceilings.
- Vijayanagar empire ruled the Deccan from 1336 to 1646.
- While the sprawling architectural marvel that is Hampi, Vijayanagar's capital, is known for its exceptional town planning, excellently executed temples and exquisite sculptures, the Lepakshi temple's salience lies in the elaborate and detailed paintings on its ceiling panels.
- The place where this temple is located is the place where Jatayu (the Vulture that stopped Ravana while abducting Sita to Lanka) died. This place has got the name when Rama told Jatayu - Le Pakshi - Get up Bird when Jatayu was dying.
- But this temple is not a Rama Temple but is a Veerabhadra Temple. Veerabhadra was born from Lord Shiva's hair - Jadamudi.
- Built in the 16th century, the architectural features of the temple are in the Vijayanagara style with the profusion of carvings and paintings on almost every exposed surface of the temple.
- It contains idols of Ganesha, Veerabhadra, Shiva, Bhadrakali, Vishnu and Lakshmi.
- There is a very large Nandi (bull), about 200 meters away from the temple which is carved from a single block of stone, which is said to be one of the largest of its type in the world is one of the main attractions in Lepakshi.
- The temple is of the Vijayanagara architectural style.

**Visva-Bharati University:**

Context – 23 December 2021 marked the 100th anniversary of the Visva-Bharati university set up by Nobel laureate Rabindranath Tagore

Concept –

- It is a public central university and an Institution of National Importance located in Shantiniketan, West Bengal, India.
- It was founded by Rabindranath Tagore who called it Visva-Bharati, which means the communion of the world with India.
- Until independence it was a college. Soon after independence, the institution was given the status of a central university in 1951 by an act of the Parliament.
- At Visva-Bharati, if a course demanded by a student is not available, then the university will design a course and bring teachers for that course.
- Rabindranath Tagore believed in open-air education and had reservations about any teaching done within four walls.

**Ramna Kali Temple:**

Context – The Ramna Kali temple, Dhaka landmark rebuilt from the ruins

Concept –

- President Ram Nath Kovind inaugurated the reconstructed Ramna Kali temple in Ramna, a part of the Bangladeshi capital Dhaka where the landmark Suhrawardy Udyan (the former Ramna Race Course) is located.
- It was a temple in Dhaka begun in the time of the Mughal Empire. It was also known as the "Ramna Kalibari". The temple is dedicated to the Hindu Goddess Kali.
- The temple was destroyed on March 27, 1971 by the Pakistani Army during the Bangladesh Liberation War. It was the site of a massacre of mostly Hindu people.
  - The temple was totally destroyed by the Pakistani Army's operation code named 'Operation Searchlight' in 1971, targeting the resistance movement in the country.
- In the 17th century, Dhaka was a provincial capital of the Mughal Empire, and a key trading centre. The history of Ramna can be traced back to the early 1600s, when it was occupied by high officials of the Mughals. After Dhaka passed under British rule in 1858, a race course and boulevard were built at Ramna.
- It is said that it was built by a certain Haricharan Giri who was a mahant in the temple, but we cannot be sure. It was not a very large temple, and was fairly ordinary in terms of its architecture.
- However, it is the second oldest Hindu temple in Bangladesh, the Dhakeshwari Temple being the oldest.
- Days before the temple was razed, Bangabandhu Sheikh Mujibur Rahman had delivered his historic March 7, 1971 speech at the Ramna Race Course maidan, in which he exhorted Bengalis.

**Architecture**

- The architectural design of the temple changed over the centuries in which it stood.



- In front of the temple was a large dighi (pool) which was a popular place for worshipers and visitors to swim.
- The temple has a tall shikhara (tower).
- Next to the temple was the Ma Anandamoyee Ashram, a place of worship with a residential complex and facilities for washing.
- The Ma Durga Mandir and the Radha Krishna Mandir are present in the area of the Ramna Kali Mandir. Others are planned.

**Manuscripts:**

Context – We need to make an effort to bring Indian manuscripts back – Rajya Sabha MP

Concept –

- A manuscript is a handwritten composition on paper, bark, cloth, metal, palm leaf or any other material dating back at least seventy-five years that has significant scientific, historical or aesthetic value.
- Lithographs and printed volumes are not manuscripts.
- Manuscripts are found in hundreds of different languages and scripts. Often, one language is written in a number of different scripts. For example, Sanskrit is written in Oriya script, Grantha script, Devanagari script and many other scripts.
- Manuscripts are distinct from historical records such as epigraphs on rocks, firmans, revenue records which provide direct information on events or processes in history. Manuscripts have knowledge content.

**Manuscripts in India**

- India's manuscripts have for centuries captured the imagination of the world.
- As early as the seventh century Chinese traveller Hiuen Tsang took back hundreds of manuscripts from India.
- Later in the late eighteenth century, the Nawab of Awadh gifted a superb illuminated manuscript of the Padshahnama to King George III of England. Today, it is considered one of the finest pieces in the Royal Collection.
- National Museum is a treasure for Manuscripts and ancient written records.
- The replica of Girnar Rock Edict is placed in the prime place to view and know the creative genius of Indian scribes.
- The major, minor rock edicts and pillar edicts of Ashoka found across India are in the languages of Bramhi, Prakrit, Greek and Kharoshti, which are earliest written documents.

**The National Mission for Manuscripts**

- The Ministry of Tourism and Culture, Government of India, established the National Mission for Manuscripts in February 2003 as an ambitious project with the specific objectives of locating, documenting, conserving and disseminating the knowledge content of India's manuscripts.
- India possesses an estimate of five million manuscripts, probably the largest collection in the world.
- The National Mission for Manuscripts revived the New Catalogus Catalogorum programme in 2003 with Madras University.

**Churches and Convents of Goa:**

Context – ongoing citizens' movement against an allegedly illegal bungalow in a precinct that is home to several heritage monuments, including the popular Basilica of Bom Jesus.

Concept –

- Churches and convents of Old Goa is the name given by UNESCO to a set of religious monuments located in **Goa Velha (or Old Goa)**, in the state of Goa, India, which were declared a **World Heritage Site** in 1986.
- Goa was the **capital of Portuguese India and Asia**. The city of Old Goa was **founded in the fifteenth century by the Sultanate of Muslim rulers of Bijapur** as a port on the **banks of the Mandovi river**.
- The village was **taken in 1510 by Afonso de Albuquerque**, the first Portuguese Viceroy.
- At its peak it was said to have been a city of over 200,000 inhabitants and was known by the title '**Rome of the East**', specifically for its splendid and innumerable collection of Cathedrals and churches.
- The churches and convents of Goa, the former capital of the Portuguese Indies – particularly the **Church of Bom Jesus**, which contains the **tomb of St Francis-Xavier** – illustrate the evangelization of Asia.
- These monuments were influential in spreading forms of **Manueline, Mannerist and Baroque art** in all the countries of Asia where missions were established.

**Raigad Fort:**

Context – President Ram Nath Kovind is beginning his four-day visit (December 6-9) to Maharashtra on Monday by visiting the Raigad Fort where he will pay tribute to Chhatrapati Shivaji Maharaj.



Concept –

- Raigad is a hill fort situated about 25 km from Mahad in the Raigad district and stands 2,851 feet above the sea level.
- The British Gazette states the fort was known to early Europeans as the **Gibraltar of the East**.
- Its decisive feature is a mile and a half flat top which has adequate room for buildings.

**When was it built?**

- The fort, which was earlier called Rairi, was the **seat of the Maratha clan Shirke** in the 12th century.
- The fort changed hands a number of times from the dynasty of Bahaminis to the Nizamshahis and then the Adilshahis.
- In 1956, **Chhatrapati Shivaji captured it from the More's of Javli** who were under the suzerainty of the **Adilshahi Sultanate**.
  - The fort not only helped Shivaji challenge the supremacy of the Adilshahi dynasty but also opened up the routes towards Konkan for the extension of his power.

**Significance of the fort in Shivaji's life**

- In 1662, Shivaji formally changed the fort's name to Raigad and added a number of structures to it.
- By 1664, the fort had emerged as the seat of Shivaji's government.
- As the Marathas under the leadership of Shivaji gained strength in their struggle against the Mughals, the announcement of a sovereign, independent state was made.
- Chhatrapati Shivaji is the tallest and the most revered icon in Maharashtra.

**Chamber of Princes:**

Context – Suspended MPs have been protesting in front of the statue of Mahatma Gandhi inside the Parliament complex.

Concept –

- The Chamber of Princes (Narendra Mandal) was an institution established in 1920 by a royal proclamation of King-Emperor George V to provide a forum in which the rulers of the princely states of India could voice their needs and aspirations to the colonial government of British India. It survived until the end of the British Raj in 1947.
- The Chamber had an advisory and consultative role. It was represented by 120 princes out of 565 in all.
- In all its years of existence, only the rulers of Bikaner, Patiala, Nawanagar and Bhopal were chosen as chancellors of the Chamber of Princes.
- The Chamber of Princes usually met only once a year, with the Viceroy of India presiding, but it appointed a Standing Committee which met more often.
- The full Chamber elected from its princely ranks a permanent officer styled the Chancellor, who chaired the Standing Committee.
- The chamber convened at the Parliament House. Today the hall is used as the parliament's library.

**Chaitya Bhoomi:**

Context – In the wake of COVID-19 pandemic and the Omicron variant, the Maharashtra Government has issued guidelines appealing to people not to crowd at Chaitya Bhoomi to pay respects to Dr. Babasaheb Ambedkar on his death anniversary.

Concept –

- It is a Buddhist chaitya and the cremation place of B. R. Ambedkar, the chief architect of the Indian Constitution.
- It is situated besides Dadar Chowpatty (beach), Mumbai.
- Chaitya Bhoomi is a revered place of pilgrimage for Ambedkar's followers, who visit in millions annually on his death anniversary (Mahaparinirvan Diwas) on 6 December.
  - Ambedkar's death anniversary (December 6th) is observed as Mahaparinirvan Din.
- Chaitya Bhoomi hosts a memorial to Ambedkar and has been graded an A-class tourism and pilgrimage site by the Government of Maharashtra.
- The main entrance gate of the Chaitya Bhoomi is replica of the Gate of the Stupa of Sanchi while inside a replica of Ashoka Pillar is made.

**Sangolli Rayanna:**

Context – Prohibitory orders have been clamped on Belagavi till Monday morning after a statue of Sangolli Rayanna, a 19th century icon who fought against the British, was vandalised.

Concept –



- He was an Indian military Shetsanadi (Sainik) and warrior in the Kittur princely state of the Karnataka.
- He was the Shetsanadi of the Kingdom of Kittur ruled at the time by Rani Chennamma and fought the British East India Company till his death.
- Sangolli Rayanna also participated in the 1824 rebellion and was arrested by the British, who released him later.
- He mobilised local people and started a guerilla type war against the British.
- The British troops could not defeat him in open battle. Hence, by treachery, he was caught in April 1831 and tried by the British and sentenced to death.

### Great legal traditions of ancient India:

#### CONTEXT

Recently, Supreme Court judges have expressed the need to 'Indianise' the legal system.

#### DETAILS ABOUT THE GREAT LEGAL TRADITIONS OF ANCIENT INDIA

1. **MANU** - Manu is considered a law giver in the Hindu tradition. Manu Smriti is one of the 18 Smritis. Manu Smriti is one of the oldest and probably the most important of the smritis which contain the laws (conduct in life) that need to be followed in various orders of life and by persons of various tendencies (varnas). It is also known as **Manava-dharma-shastra** ("The Dharma Text of Manu")

The law of Manu is still being cited in support of the oppression of women as in Sabrimala Case recently.

##### About Manusmriti –

- The Manu-smriti prescribes to Hindus their dharma—i.e., that set of obligations incumbent on each as a member of one of the four social classes (varnas) and engaged in one of the four stages of life (ashramas)
  - It contains 12 chapters of stanzas, which total 2,694. It deals with cosmogony; the definition of the dharma; the sacraments (samskaras); initiation (upanayana) and the study of the Vedas (the sacred texts of Hinduism); marriage, hospitality, funeral rites, dietary restrictions, pollution, and means of purification; the conduct of women and wives; and the law of kings.
2. **KAUTILYA** – HE was an adviser and a Prime Minister to the first Maurya Emperor Chandragupta (c. 340-293 B.C.E.), and architect of his rise to power. He is also called Vishnugupta. Chanakya is the author of the Arthashastra, an encyclopedic work on political economy and government.

Kautilya identified seven factors which affected a government's ability to accomplish these ends: **the qualities of the king, his ministers, his provinces, his city, his treasure, his army, and his allies.**

In describing an ideal government, Kautilya articulated contemporary assumptions of political and economic theory, providing historical information about the political circumstances of the time.

Two additional works are attributed to Chanakya: Nitishastra, a treatise on the ideal way of life, and Chanakya Niti, a compilation of his nitis, or policies.

3. **KATYAYANA** – He was was a Sanskrit grammarian, mathematician and Vedic priest who lived in ancient India. He is known for two works:
  - a. The Vārttikakāra, an elaboration on Pāṇini grammar. Along with the Mahābhāṣya of Patañjali, this text became a core part of the Vyākaraṇa (grammar) canon. This was one of the six Vedangas, and constituted compulsory education for students in the following twelve centuries.
  - b. He also composed one of the later Śulbasūtras, a series of nine texts on the geometry of altar constructions, dealing with rectangles, right-sided triangles, rhombuses, etc.
4. **NARADMUNI** – Naradmuni gave the famous Naradsmriti, a part of the Dharmaśāstras, an Indian literary tradition that serves as a collection of legal maxims relating to the topic of dharma. The Nāradaśmṛiti is the only Dharmaśāstra text to not cover areas such as righteous conduct and penance.
5. **YAJNAVALKYA** – He is a Hindu Vedic sage figuring in the Brihadaranyaka Upanishad. Yajnavalkya proposes and debates metaphysical questions about the nature of existence, consciousness and impermanence, and expounds the epistemic doctrine of neti neti ("not this, not this") to discover the universal Self and Ātman.

Texts attributed to him include the **Yajnavalkya Smriti, Yoga Yajnavalkya** and some texts of the **Vedanta school**. He is also mentioned in various **Brahmanas and Aranyakas**.



## HISTORY

### Personalities:

#### **Sri Aurobindo:**

Context – Prime Minister Narendra Modi is heading an extensive 53-member committee that has been set up to mark the 150th birth anniversary of spiritual leader Sri Aurobindo.

Concept –

- He was an Indian social political and spiritual philosopher, yoga guru, maharishi, poet, revolutionary leader and Indian nationalist ideologue.
- He was also a journalist, editing newspapers such as **Bande Mataram**.
- Aurobindo studied for the Indian Civil Service at King's College, Cambridge, England.
- After returning to India he took up various civil service works under the Maharaja of the **Princely state of Baroda** and became increasingly involved in nationalist politics in the Indian National Congress and the nascent revolutionary movement in Bengal with the **Anushilan Samiti**.
  - In 1892, he held various administrative posts in Baroda (Vadodara) and Calcutta (Kolkata).
- He was arrested in the aftermath of a number of bombings linked to his organization in a public trial where he faced charges of treason for **Alipore Conspiracy**.
  - During his stay in the jail, he had mystical and spiritual experiences, after which he moved to Pondicherry, leaving politics for spiritual work.
- At Pondicherry, Sri Aurobindo developed a spiritual practice he called **Integral Yoga**. He believed in a spiritual realisation that not only liberated but transformed human nature, enabling a divine life on earth.
- In 1926, with the help of his spiritual collaborator, **Mirra Alfassa** (referred to as "The Mother"), **Sri Aurobindo Ashram** was founded.
- His main literary works are
  - **The Life Divine**, which deals with the philosophical aspect of Integral Yoga;
  - **Synthesis of Yoga**, which deals with the principles and methods of Integral Yoga;
  - **Savitri: A Legend and a Symbol**, an epic poem.
  - Bhagavad Gita and Its Message
  - The Future Evolution of Man
  - Rebirth and Karma
  - Hour of God

#### **Sikh Gurus:**

Context – Unity is collective responsibility: PM Modi recalls role of Sikh gurus

Concept –





## The Ten Gurus in Sikhism

The Ten Sikh Gurus – Lineage Chart		
The First Master	Guru Nanak	(1469 to 1539)
The Second Master	Guru Angad	(1504 to 1552)
The Third Master	Guru Amar Das	(1479 to 1574)
The Fourth Master	Guru Ram Das	(1534 to 1581)
The Fifth Master	Guru Arjan	(1563 to 1606)
The Sixth Master	Guru Hargobind	(1595 to 1644)
The Seventh Master	Guru Har Rai	(1630 to 1661)
The Eighth Master	Guru Harkishan	(1656 to 1664)
The Ninth Master	Guru Tegh Bahadur	(1621 to 1675)
The Tenth Master	Guru Gobind Singh	(1666 to 1708)

**1. Guru Nanak Dev - Guru from 1469 to 1539**

- Guru Nanak Dev, first of the 10 gurus, founded the Sikh faith, introducing the concept of one God.
- He started the institution of **Guru Ka Langar**. Langar is the term in the Sikh religion refers to the common kitchen where food is served to everyone without any discrimination.
- He emphasized the equality of women and rejected the path of renunciation and he rejected the authority of the Vedas.
- He was the contemporary of Mughal emperor - **Babur**.

**2. Guru Angad Dev - Guru from 1539 to 1552**

- Guru Angad Dev, second of the 10 gurus, invented and introduced the Gurmukhi (written form of Punjabi) script.
- He compiled the writings of Nanak Dev in Guru Granth Sahib in **Gurmukhi Script**.
- Popularized and expanded the institution of Guru ka Langar which was started by Guru Nanak Dev.

**3. Guru Amardas Sahib - Guru from 1552 to 1574**

- Guru Amardas introduced the **Anand Karaj** marriage ceremony for the Sikhs, replacing the Hindu form.
- He established Manji & Piri system of religious missions for men and women respectively.
- He strengthened the tradition of Guru Ka Langar.
- He also completely abolished amongst the Sikhs, the custom of Sati and purdah system.
- He was the contemporary of Mughal emperor - Akbar.

**4. Guru Ram Das - Guru from 1574 to 1581**

- Guru Ram Das, fourth of the 10 gurus, founded the **city of Amritsar**.
- He started the construction of the famous Golden Temple at Amritsar, the holy city of the Sikhs.
- He requested the Muslim Sufi, Mian Mir to lay the cornerstone of the Harmandir Sahib.

**5. Guru Arjan Dev - Guru from 1581 to 1606**

- He compiled the **Adi Granth**, the scriptures of the Sikhs.
- He completed construction of Sri Darbar Sahib also known as Golden Temple in Amritsar.
- He founded the town of Tarn Taran Sahib near Goindwal Sahib.
- He became the **first great martyr in Sikh history** when Emperor **Jahangir ordered his execution**. Thus, he was hailed as Shaheedan-de-Sartaj (The crown of martyrs).

**6. Guru Har Gobind Sahib - Guru from 1606 to 1644**

- He was the son of Guru Arjan Dev and was known as a "soldier saint".
- He organised a small army and became the **first Guru to take up arms** to defend the faith.
- He waged wars against Mughal rulers Jahangir and Shah Jahan.

**7. Guru Har Rai Sahib - Guru from 1644 to 1661**

- Though he was a man of peace, he never disbanded the armed sikh warriors who were earlier maintained by Guru Har Gobind.



- He gave shelter to Dara Shikoh, the eldest son of Mughal Ruler Shah Jahan, who was later persecuted by Aurangzeb.
- He cautiously avoided conflict with Emperor Aurangzeb and devoted his efforts to missionary work.

#### 8. Guru Har Krishan Sahib - Guru from 1661 to 1664

- Guru Har Krishan was the youngest of the Gurus. He was installed as Guru at the age of five.
- He was contemporary of Aurangzeb and summoned to Delhi by him under framed charges of anti-Islamic blasphemy.

#### 9. Guru Tegh Bahadur Sahib - Guru from 1665 to 1675

- He established the town of Anandpur.
- He opposed the forced conversion of the Hindu Kashmiri Pandits by Mughal ruler Aurangzeb and he was consequently persecuted for this.

#### 10. Guru Gobind Singh Sahib - Guru from 1675 to 1708

- He became Guru after the martyrdom of his father Guru Tegh Bahadur.
- He created the **Khalsa** in 1699, changing the Sikhs into a saint-soldier order for protecting themselves.
- **Last Sikh Guru in human form** and he passed the Guruship of the Sikhs to the Guru Granth Sahib.
- He established the five symbols of Sikhism:
  - Kangha (comb),
  - Kesh (long hair),
  - Kada (iron bracelet),
  - Kachcha (underwear) and
  - Kirpan (sword or dagger).

#### Guru Granth Sahib

- Guru Granth Sahib (also known as the Adi Granth) is the **scripture of the Sikhs**.
- The Granth was written in Gurmukhi script and it contains the actual words and verses as uttered by the Sikh Gurus.
- It is considered the Supreme Spiritual Authority and **Head of the Sikh religion, rather than any living person**.

#### **Subramaniya Bharathi:**

Context – Call to give national-level award to poet Subramania Bharathi

Concept –

- He was a Tamil writer, poet, journalist, Indian independence activist, social reformer and polyglot.
- Popularly known as "Mahakavi Bharathi" ("Great Poet Bharathi"), he was a pioneer of modern Tamil poetry and is considered one of the greatest Tamil literary figures of all time.
- His numerous works included fiery songs kindling patriotism during the Indian Independence movement.
- He fought for the emancipation of women, against child marriage, stood for reforming Brahminism and religion.
- He was also in solidarity with Dalits and Muslims.
- After 1904, he joined the Tamil daily newspaper Swadesamitran. This exposure to political affairs led to his involvement in the extremist wing of the Indian National Congress (INC) party.
- Bharathi had the weekly newspaper named 'India' printed in red paper. It was the first paper in Tamil Nadu to publish political cartoons.
- He also published and edited a few other journals like "Vijaya".
- Attended the annual sessions of INC and discussed national issues with extremist leaders like Bipin Chandra Pal, B.G. Tilak and V.V.S. Iyer.
- His participation and activities in Benaras Session (1905) and Surat Session (1907) of the INC impressed many national leaders for his patriotic fervour.
- Published the sensational "Sudesa Geethangal" in 1908.
- Bharati's reaction to the Russian Revolutions of 1917, in a poem entitled "Pudiya Russia" ("The New Russia"), offers a fascinating example of the poet's political philosophy.
- Important Works: Kanṇan pāṭṭu (1917; Songs to Krishna), Panchali sapatham (1912; Panchali's Vow), Kuyil pāṭṭu (1912; Kuyil's Song), Pudiya Russia and Gnanaratham (Chariot of Wisdom).
- Many of his English works were collected in Agni and Other Poems and Translations and Essays and Other Prose Fragments (1937).



## Indian freedom struggle:

### Science During Freedom Struggle:

Context – Indian scientists helped India in gaining Independence, sustained it for 75 years: Jitendra Singh

Concept –

- **Mahatma Gandhi** was one of the greatest scientific strategists who, through his weapon of Non-Violence, waged scientific battle against British subjugation and aggression.
- Bapu and many of his contemporaries had also adopted psychological techniques to put the British adversaries on the defensive.
- **Sir Jagadish Chandra Bose** was an eminent biologist, physicist, botanist and an early writer of science fiction.
- "**Vision of 'Self-reliance'** during the colonial era encouraged Indian scientists and patriots to establish their own scientific institutions and industries.
- Dr Mahendralal Sircar established the **Indian Association for the Cultivation of Science** in 1876.
- Acharya PC Ray established **The Bengal Chemical and Pharmaceutical Works** in 1901 which was the foundation stone of indigenous industry in our country.

### Sir Asutosh Mookerjee

- Sir Asutosh Mookerjee (29 June 1864 – 25 May 1924) is considered to be the harbinger of modern science in India.
- He was the first Indian to initiate research in modern science, first Indian to publish a paper in a Journal and was arguably, the most illustrious figure in Indian education.
- He was the second Indian Vice Chancellor (VC) of the Calcutta University and occupied the post for ten years.
- He was the founder of the Science College of Calcutta University.
- He was president of the first session of the Indian Science Congress (1914) and the main architect of science education and research, in modern India.

### Shiromani Akali Dal (SAD):

Context – SAD turns 100

Concept –

- SAD was conceived in December 1920, a year after the Jallianwala Bagh massacre.
- SAD was formed as a volunteer group on December 14, 1920 to free gurdwaras from the control of mahants (priests) appointed by the British government, a month after the formation of Shiromani Gurdwara Parbandhak Committee (SGPC) on November 15.
- The Akali Dal launched a peaceful struggle that lasted four years and resulted in the death of 4,000 protesters, who were attacked both by mahants and by the British administration.
- The morcha finally led to the enactment of the Sikh Gurdwaras Act 1925, which brought gurdwaras under the control of the SGPC.
- It also pitched the party against the colonial government, paving the way for its alliance with Congress party.

### Punjabi Suba movement

- The Akali Dal started calling for the creation of a Punjabi Suba soon after the government of India appointed the States Reorganisation Commission in December 1953.
- The demand, in part, stemmed from the concentration of Sikhs, who formed 35% of the population in the post-Partition Punjab.
- The movement for a Punjabi-speaking state also had supporters among other religions.
- Akalis suspended the Punjabi Suba movement during the 1962 and 1965 wars, and instead took part in the war efforts with generous supply of both men and material.
- Finally, the Gulzari Lal Nanda government at the Centre relented and Lok Sabha passed the Punjab Reorganisation Act 1966, and Punjab in its present form became a reality on November 1, 1966.

### Anandpur Sahib resolution & Dharam Yudh Morcha

- Anandpur Sahib resolution wanted an independent political status for the community.
- In 1978, the party revised the resolution and shifted the focus from the panthic agenda (Khalse ka Bol Bala) to autonomy for the state.
- The resolution also sought transfer of Chandigarh to Punjab and readjustment of boundaries to include certain Punjabi-speaking territories of neighbouring states.



- The **Dharam Yuddh Morcha** ("righteous campaign") was a political movement launched on 4 August 1982, by the Akali Dal in partnership with Jarnail Singh Bhindranwale, with its stated aim being the fulfilment of a set of devolutionary objectives based on the Anandpur Sahib Resolution.

### Moga Declaration

- It was in 1996 that Akali Dal announced its ideological transformation into a party of all Punjabis, regardless of their religion or geography in its Moga declaration.
- The party has admitted a large number of Hindus.

### Wars and battles:

#### **Tai Khamti Resistance:**

Context – Call to give Tai Khamti resistance its due. Arunachal Deputy CM asks Centre to recognise battles against British in northeast  
 Concept –

- Tai Khamti took place in 1839 between the Tai Khamti people and the British. The theatre of this war was some 2,400 km east of Meerut in Uttar Pradesh where the mutiny began.
- Tai Khamtis resisted colonisation by the British. Some 80 British soldiers, including Col. Adam White, were killed in the resultant conflict.
- The Tai Khamti people, who follow Theravada Buddhism, number a little more than 1,00,000 today and live in areas straddling Arunachal Pradesh and Assam.

#### **Other battles between communities of Arunachal Pradesh and the British –**

- Anglo-Abor wars from 1858 to 1911
  - The Abors, now called Adis, inhabit central Arunachal Pradesh
- Wancho-British war in Tirap district's Ninu in 1875
  - Wanchos live in the southern part of the State in Arunachal.

#### **About Tai Khamti**

- They are an ethnic group native to Myanmar. In India, they are found in Arunachal Pradesh and Assam and possibly in some parts of China.
- The Tai Khamtis who inhabit the region around the Tengapani basin were descendants of migrants who came during the century from the Hkhamti long region, the mountainous valley of the Irrawaddy.
- The Tai-Khamti are followers of Theravada Buddhism.
- The Tai-Khamti have their own script for their language, known as 'Lik Tai', which originated from the Shan (Tai) script of Myanmar.
- Their mother tongue is known as Khamti language. It is a Tai language, closely related to Thai and Lao.
- Sangken is the main festival of the Khamti.

#### **Battle of Aberdeen:**

Context – Tribal communities, workers, peasants, students and the common people braved imprisonment or bullets and fought for the dream of a freedom that would ensure justice and equality. The Constitution was and remains the culmination of that struggle.

Concept –

- It is a violent clash between the **native Adivasi population of the Andaman Islands** and the **British** and the **convicts deported to the Penal Colony** in the Andaman Islands after 1857.
- in April 1859, a batch of Indian prisoners had escaped the Penal Settlement and wanted to hide in the habitat of the Adivasis. All but one of the convicts were killed, as they had been clearing the forest for creating British settlements.
- A month later, in May 1859, the Adivasis decided to attack the British establishment; but **Dudhnath Tiwari, convict no. 276, who they had not killed, betrayed them and reported the plot to the British.**
- As a result, 1,500 tribal men faced the bullets fired from the navy schooner Charlotte.



**Paika Rebellion:**

Context – The 1817 Paika rebellion of Odisha could not be called the first war of Independence, but considering it as a beginning of a popular uprising against the British, it would be included as a case study in the Class 8 National Council of Educational Research and Training (NCERT) history textbook, the Union Culture Minister said.

Concept –

- Pre-dating what has been popularly regarded as the first war of independence in 1857, the Paika Bidroha (Paika Rebellion) of 1817 in Odisha briefly shook the foundations of British rule in the eastern part of India.
- Paikas were essentially the peasant militias of the Gajapati rulers of Odisha who rendered military service to the king during times of war while taking up cultivation during times of peace.
- Till 1803, Odisha was under Maratha rule, however after the second Anglo-Maratha War, the Marathas were forced to cede most of their territory in Odisha to the British East India Company.
- Establishment of British rule in Odisha was followed by a policy of repression against the Paikas. They lost their traditional position in the society and their lands were taken away.
- In addition to losing their estates, the Paikas were also heavily exploited by the revenue collectors under the British.
- Paikas under the leadership of Baxi Jagabandhu, the hereditary chief of the militia army of the Gajapati King of Khurda (a kingdom near Puri), rose in rebellion in March 1817, taking support of tribals and other sections of society.
- The Paikas attacked British symbols of power, setting ablaze police stations, administrative offices and the treasury during their march towards Khurda.
- The Paikas were supported by the rajas, zamindars, village heads and ordinary peasants. The rebellion quickly spread to different parts of the province.
- British were initially taken aback and then tried to regain lost ground but faced stiff resistance from the rebelling Paikas. However, the Paikas were eventually defeated by the British.
- The Paikas retreated into the thick jungles of Odisha and carried out guerrilla warfare for several years. After successive defeats, the Paika leader, Bakshi Jagabandhu, surrendered to the British in 1825 and lived as a prisoner in Cuttack till his death in 1829.

## Paika Bidroha (Rebellion) of Odisha

### Who were the Paikas?

- Paikas were the peasant militias of the Gajapati rulers of Odisha who rendered military service to the king during times of war while taking up cultivation during times of peace.
- They unfurled the banner of rebellion against the British under the leadership of **Baxi Jagandhu Bidyadhara** as early as 1817

### What is Paika Bidroha?

When the British started tinkering with the revenue system in 1803, the farming community of Odisha rose in rebellion. At that critical juncture, **Baxi Jagandhu Bidyadhara** led his army of Paikas forcing the British East India Company forces to retreat. The rebellion came to be known as Paika Bidroha.

### Time period of the Paika Bidroha

- It started in March 1817 and spread quickly. The tribals of Ghumsar and other sections of the population actively took part in it. The Paika Bidroha got the opportune moment to spread when 400 tribals of Ghumsar entered Khurda protesting against the British rule.
- Widespread suppression followed with many killed and imprisoned. Many more were tortured. Some rebels fought a guerrilla war till 1819 but were captured and killed. **Baxi Jagandhu** was finally arrested in 1825 and died in captivity in 1829.



**Indo-Pak War of 1971:**

Context – 50 years ago, on the eve of December 3, 1971, Pakistan launched a series of air strikes against Indian air bases in the Western Sector, thus signalling the official beginning of the third Indo-Pak War. This war would lead to the creation of a new country, Bangladesh.

Concept –

- The Indo-Pakistani War of 1971 was a military confrontation between India and Pakistan that occurred during the **Bangladesh Liberation War** in East Pakistan from 3 December 1971 to the fall of Dacca (Dhaka) on 16 December 1971.
- The war began with **Operation Chengiz Khan's** preemptive aerial strikes on 11 Indian air stations, which led to the commencement of hostilities with Pakistan and Indian entry into the war for independence in East Pakistan on the side of Bengali nationalist forces, expanding the existing conflict with Indian and Pakistani forces engaging on both eastern and western fronts.
- In 1971, India won the war against Pakistan that resulted in the birth of Bangladesh (then East Pakistan).
- On August 2, 1972, India and Pakistan signed the **Shimla Agreement** under which the former agreed to release all the 93,000 Pakistani prisoners of war.

**Vijay Diwas 2021:**

Context – To commemorate its victory over Pakistan during the 1971 war, India celebrates Vijay Diwas on December 16 every year as a tribute to the success of the Indian army.

Concept –

- To commemorate its victory over Pakistan during the 1971 war, India celebrates Vijay Diwas on December 16 every year as a tribute to the success of the Indian army. This war led to the creation of Bangladesh. Today, marks fifty years of the war.

**The history**

- After India's independence, Pakistan was formed in two territories, east and west Pakistan.
- The Bengalis in the east were highly discriminated and their Bengali language wasn't accepted. There were economic disparities between the two regions, and the power helmed by west Pakistan had created tensions.
- In 1970, the Awami League led by Sheikh Mujibur Rahman won the elections wherein the Pakistan People's Party neglected to hand over the power.
- Later in mid 1971, Bangladesh declared independence from Pakistan. As violence started erupting, many refugees began entering India.
- The war between India and Pakistan started when Pakistan launched air strikes on 11 Indian air bases. In retaliation to this attack, former Indian Prime Minister Indira Gandhi ordered the Indian army to launch war against Pakistan, which India won after fighting for 13 days, resulting in the birth of Bangladesh.
- Pakistan surrendered to the Indian army finally and this day is also observed as 'Bijoy Dibos' in Bangladesh.

## GEOGRAPHY

### Mapping:

#### Golan Heights:

Concept –

- The Golan Heights is a rocky plateau with an area of 1,800km<sup>2</sup> on the border between Israel and Syria in south-western Syria.



#### Ganga River:

Context – Days after it advised all District Ganga Committees to address the issue of bodies being dumped in the river, the National Mission for Clean Ganga (NMCG) asked Uttar Pradesh and Bihar to submit a “detailed report” in two days

Concept –

- **Source of origin:** The Ganga rises from the Gangotri glacier near Gomukh in Uttarkashi district of the state of Uttarakhand.
  - Alaknanda River joins Bhagirathi at Devaprayag.
  - From Devaprayag the river is called as Ganga.
- **Confluence or Mouth:** The Ganga River drains into the Bay of Bengal before forming a very huge delta.
- The Ganga River system outspreads in India, Tibet (China), Nepal and Bangladesh.
- It is the largest river basin in India and accounts for about one-fourth of the total area of the country.
- It covers states of Uttar Pradesh, Madhya Pradesh, Rajasthan, Bihar, West Bengal, Uttarakhand, Jharkhand, Haryana, Chhattisgarh, Himachal Pradesh and Union Territory of Delhi.

#### Ganga River System

- The Ganga is formed from the 6 headstreams and their five confluences.
- The **Alaknanda River** meets the Dhauliganga River at Vishnuprayag, the Nandakini River at Nandprayag, the Pindar River to form the Ganga main stream.
- **The Bhagirathi**, considered to be the source stream: rises at the foot of Gangotri Glacier, at Gaumukh, at an elevation of 3892m and fanning out into the 350km wide Ganga delta, it finally empties into the Bay of Bengal.
- From Devaprayag the river is called as Ganga.
- Ganga debouches [emerge from a confined space into a wide, open area] from the hills into the plain area at It is joined by the Yamuna at Allahabad.
- Near Rajmahal Hills it turns to the south-east.
- At Farraka, it bifurcates into Bhagirathi-Hugli in West Bengal and Padma-Meghna in Bangladesh (it ceases to be known as the Ganga after Farraka).
- Brahmaputra (or the Jamuna as it is known here) joins Padma-Meghna.
- The total length of the Ganga river from its source to its mouth (measured along the Hugli) is 2,525 km.



- Haridwar, Kanpur, Soron, Kannauj, Allahabad, Varanasi, Patna, Ghazipur, Bhagalpur, Mirzapur, Ballia, Buxar, Saidpur, and Chunar are the important towns.
- It has long been considered holy by Hindus and worshipped as the goddess Ganga in Hinduism.

### Major Tributaries of the Ganga River

#### Right Bank Tributaries of the Ganga River

- Yamuna River
- Chambal River
- Banas River
- Sind River
- Betwa River
- Ken River
- Son River
- Damodar River

#### Left Bank Tributaries of the Ganga River

- Ramganga River
- Gomti River
- Ghaghra River
- Kali River
- Gandak River
- Burhi Gandak
- Kosi River

### The Five Prayags

1. **Devaprayag**, the place of confluence of Bhagirathi river and Alaknanda river.
2. **Rudraprayag**, the place of confluence of Mandakini river and Alaknanda river.
3. **Nandaprayag**, the place of confluence of Nandakini river and Alaknanda river.
4. **Karnaprayag**, the place of confluence of Pindar river and Alaknanda river.
5. **Vishnuprayag**, the place of confluence of Dhauliganga river and Alaknanda river.



### Central Asian Nations:

Context – Central Asian leaders invited for R-Day

Concept –

- The Central Asia region (CA) comprises the countries of Kazakhstan, Kyrgyz Republic, Tajikistan, Turkmenistan, and Uzbekistan.





### Polavaram project:

Subject – Geography

Context – Polavaram — displaced and nowhere to go: Several await houses, compensation

Concept –

- Polavaram Project is located in Andhra Pradesh on the river Godavari, near Polavaram village.
- It is a multi-purpose irrigation project as the project once completed will provide Irrigation benefits and will generate HydroElectric Power. In addition, this project will also supply drinking water.
- It will facilitate an inter-basin transfer to the Krishna river basin through its Right canal.
- It will also provide indirect benefits such as development of Pisciculture (breeding and rearing of fish), tourism and urbanisation.
- The Project has been accorded national project status by the union government in 2014 (under Section-90 of Andhra Pradesh Reorganization Act, 2014).
- Its reservoir spreads in parts of Chhattisgarh and Orissa States also.



**Deucha Pachami coal block:**

Context – With India's largest coal mining project slated to come up in West Bengal, approximately 21,000 people will need to be relocated and rehabilitated.

Concept –

- Deucha Panchami coal mine or Deaucha Panchami coal block is a coal mine situated in Deucha and Panchamati area under Mohamadbazar community Development Block of **Birbhum district, West Bengal, India.**
- This coal mine or block belongs to **Birbhum coalfield area.**
- There are about 2102 million tonnes of coal reserves in Deucha Panchami coal block.
- This coal mine is the **largest coal mine or coal block in Asia**, due to the amount of coal reserves. It is the newest coal mine in West Bengal.
  - It is the second largest coal mine in the world.
- In accordance with the provisions of Coal Block Allocation Rules, 2017, made under the Mines and Minerals (Development and Regulations) Act, 1957, the WBPDC has been allocated the Deocha Pachami Dewanganj - Harinsingha coal block.

**Russia-Ukraine Border Map:**

Context – The tension on the Russia-Ukraine border represents a major security crisis for the region, with the potential to snowball into a broader conflict.

Concept –

**Countries bordering Black Sea****Ken-Betwa Project:**

Context – Cabinet nod for Ken-Betwa project

Concept –

**Ken Betwa Link Project (KBLP):**

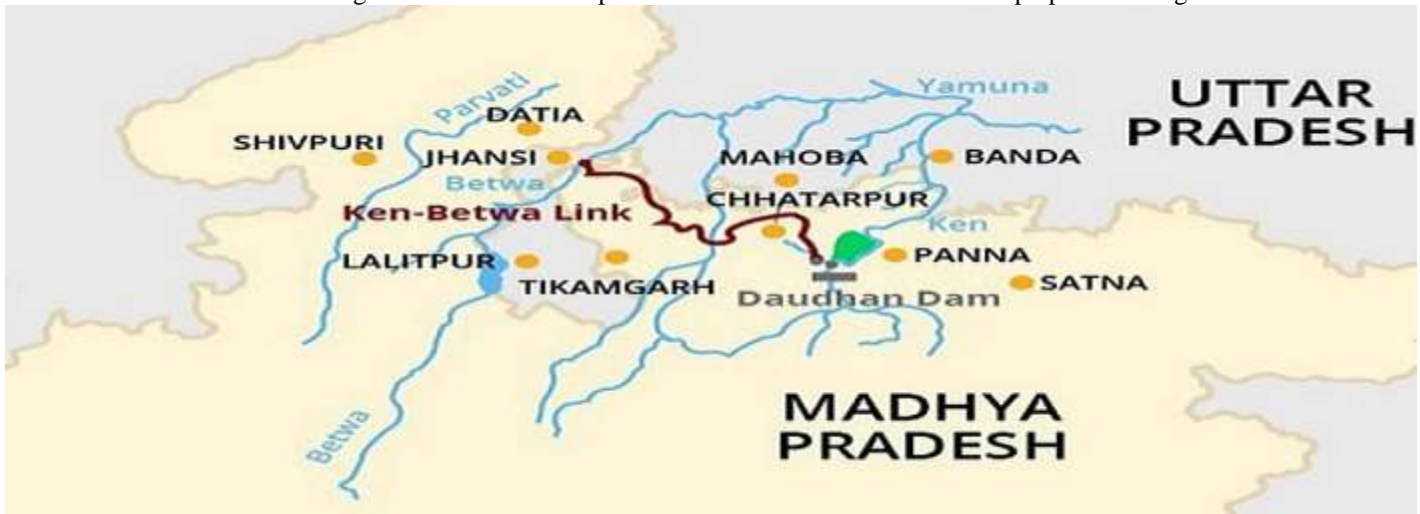
- The Ken-Betwa Link Project (KBLP) is the River interlinking project that aims to transfer surplus water from the Ken river in MP to Betwa in UP to irrigate the drought-prone Bundelkhand region.
- The region spread across the districts of two states mainly Jhansi, Banda, Lalitpur and Mahoba districts of UP and Tikamgarh, Panna and Chhatarpur districts of MP.
- The project involves building a 77-metre tall and a 2-km wide Dhaudhan dam and a 230-km canal.
- Ken-Betwa is one of the 30 river interlinking projects conceived across the country.
- The project has been delayed due to political and environmental issues.

**Ken and Betwa Rivers**

- Ken and Betwa rivers originate in MP and are the tributaries of Yamuna.
- Ken meets with Yamuna in Banda district of UP and with Betwa in Hamirpur district of UP.
- Rajghat, Paricha and Matatila dams are over Betwariver.
- Ken River passes through Panna tiger reserve.

#### National Perspective Plan for interlinking of rivers:

- The National River Linking Project (NRLP) formally known as the National Perspective Plan, envisages the transfer of water from water 'surplus' basins where there is flooding, to water 'deficit' basins where there is drought/scarcity, through inter-basin water transfer projects.
- Under the National Perspective Plan (NPP), the National Water Development Agency (NWDA), has identified 30 links (16 under the Peninsular Component and 14 under the Himalayan Component) for the preparation of feasibility reports (FRs).
- The NPP for transferring water from water-surplus basins to water-deficit basins was prepared in August 1980.



#### **Gujarat's Little Rann of Kutch:**

Context – Great change in Little Rann: salt workers on the brink in Gujarat brought about a solar revolution

Concept –

- The Little Rann of Kutch is a salt marsh which is part of the Rann of Kutch in Kutch district, Gujarat, India.
- The Little Rann of Kutch is home to the Indian wild ass (khur). To conserve this species, the Indian Wild Ass Sanctuary (IWAS) was created in 1973.
- In 2008, to project Kutch as an international nature destination, the Government of Gujarat designated the area as the Kutch Biosphere Reserve.
  - Biosphere reserves aim to promote sustainable development in the surrounding area, which is reserved for conservation and research.
  - Such reserves are protected under the Wildlife Protection Act, the Indian Forest Act and the Forest Conservation Act.
  - The government provides funds for the conservation of the landscape's biological diversity and its cultural heritage.



**US-Mexico Border:**

Context – The Biden administration on Monday reinstated a Trump-era policy to make asylum-seekers wait in Mexico for hearings in US immigration court

Concept –



**Facts for Prelims**

**Swarnim Vijay Parv'**

- It is an event commemorating the valour & professionalism of the Armed Forces and their contribution to the liberation of Bangladesh in the Indo-Pak 1971 war.
- The event marks the culmination of year-long celebrations of 50 years of India's victory in the war.

**Chile Mapping:**

Context – Leftist Gabriel Boric to become Chile's youngest ever president

Concept –

Name	Geographical Location	Bordering Countries
Chile	<ul style="list-style-type: none"> <li>• A country in the western part of South America.</li> <li>• It occupies a long, narrow strip of land between the Andes to the east and the Pacific Ocean to the west</li> </ul>	<ul style="list-style-type: none"> <li>• Chile is the southernmost country in the world, the closest to Antarctica.</li> <li>• Peru to the north,</li> <li>• Bolivia to the northeast,</li> <li>• Argentina to the east,</li> <li>• Drake Passage in the far south.</li> </ul>

Capital	National Language	Features	Biodiversity
Santiago	Spanish	<ul style="list-style-type: none"> <li>• It is situated within the Pacific Ring of Fire.</li> <li>• Chile is among the longest north-south countries in the world.</li> </ul>	Atacama Desert in the north and the Andes mountains to the east





### Lake Chad:

Context – Lake Chad not shrinking, but climate is fuelling terror groups: report

Concept –

- Lake Chad is a historically large, shallow, endorheic lake in Central Africa, which has varied in size over the centuries.
- According to the Global Resource Information Database of the United Nations Environment Programme, it shrank by as much as 95% from about 1963 to 1998.
  - The United Nations has term the Lake Chad crisis as “one of the worst in the world”.
- Lake Chad is economically important, providing water to more than 30 million people living in the four countries surrounding it (Chad, Cameroon, Niger, and Nigeria) on the central part of the Sahel.
- It is the largest lake in the Chad Basin.
  - This is the second-largest lake in Africa (after Lake Victoria).
- The freshwater lake is located in the Sahelian zone of West-central Africa. Despite high levels of evaporation, the lake is freshwater.
- The Chari River, fed by its tributary the Logone, provides over 90% of the lake's water, with a small amount coming from the Yobe River in Nigeria/Niger.
- The Lake Chad basin comprises biosphere reserves, World Heritage and Ramsar sites as well as wetlands of international conservation importance.



Concepts:**Changing monsoon patterns over 30 years:**

Context – Between 1989 and 2018, five states — UP, Bihar, West Bengal, Meghalaya and Nagaland — have shown significant decreasing trends in Southwest Monsoon rainfall, according to an India Meteorological Department (IMD) report cited by the government in Lok Sabha on Wednesday.

Concept –

- Between 1989 and 2018, five states — UP, Bihar, West Bengal, Meghalaya and Nagaland — have shown significant decreasing trends in Southwest Monsoon rainfall, according to an India Meteorological Department (IMD) report cited by the government in Lok Sabha.
  - The annual rainfall over these five states, along with Arunachal Pradesh and Himachal Pradesh, also show significant decreasing trends.
- A significant increasing trend in the frequency of heavy rainfall days has been observed over Saurashtra and Kutch, south-eastern Rajasthan, northern Tamil Nadu, Andhra Pradesh and adjoining areas of southwest Odisha, and parts of many other states.

**WHAT THE STATES RECEIVED (JUNE 1 TO OCT 31, 2021)**

STATE/UT	ACTUAL (mm)	NORMAL (mm)	DEPARTURE
<b>DEFICIENT RAINFALL</b>			
Arunachal Pradesh	1,423.4	1,911.6	-26%
Assam	1,271.8	1,614.3	-21%
Meghalaya	2,460.9	3,124.3	-21%
Nagaland	919.6	1,261.8	-27%
Manipur	635.1	1,567.7	-59%
Mizoram	1,393.7	1,858.8	-25%
Tripura	1,349.6	1,628.6	-17%
Chandigarh	641.2	868.7	-26%
<b>EXCESS RAINFALL</b>			
Andaman and Nicobar	2,438.1	1,936.2	26%
Haryana	601.1	448.4	34%
Delhi	801.9	597.5	34%
Dadra and Nagar Haveli	2,785.1	2,202.1	26%
Telangana	1,103.3	844.3	31%
Tamil Nadu	621.4	513.2	21%

**975.57 mm**

Rainfall received across India between June 1 and October 31. This was 2% above the Long period Average (LPA) of 956.5 mm, or in the 'normal' range.

**37 states/UTs**

23 of them had normal rainfall (between 19% above and 19% below LPA) in 2021; 8 had 'deficient rainfall' (20-59% below LPA); six had 'excess' (20-59% above LPA).

**Tornadoes:**

Context – Tornadoes ripped through over five US states on Friday, killing dozens.

Concept –

- Thunderstorms and tornadoes are severe local storms. They are of short duration, occurring over a small area but are violent.
- A tornado is a violently rotating column of air that extends from a thunderstorm to the ground. It is a vortex of rapidly moving air.
- Thunderstorms occur when denser, drier cold air is pushed over warmer, humid air, conditions scientists call atmospheric instability. As that happens, an updraft is created when the warm air rises. When winds vary in speed or direction at different altitudes—a condition known as wind shear—the updraft will start to spin.
- These changes in winds produce the spin necessary for a tornado. For especially strong tornadoes, changes are needed in both the wind's speed and direction.
- Tornadoes in December are unusual, but not unheard of.



- There's usually a lot of wind shear in the winter because of the big difference in temperature and air pressure between the equator and the Arctic.
- But usually, there's not a lot of instability in the winter that's needed for tornadoes because the air isn't as warm and humid.
- Tornadoes typically lose energy in a matter of minutes.



OPTIMIZE IAS

## CYCLONE VERSUS TORNADO

Cyclone is a large-scale air mass that circulates around a center of low atmospheric pressure	Tornado is a rotating column of air accompanied by a funnel-shaped cloud that progresses in a narrow path over the land
Purely oceanic phenomena	Primarily over-land phenomena
Measured by Beaufort scale and Saffir-Simpson scale	Measured by Fujita, Enhanced Fujita and TORRO scale
Can stretch over several hundred miles	Relatively small when compared to cyclones, but the damage may be extensive

- Tornadoes as well as cyclones both occur in India. However, unlike cyclones the frequency of tornado outbreak is very low.
- Cyclones originate in the Bay of Bengal region as well as in the Arabian Sea region where as Tornadoes of weak strength occur in north-western and north-eastern region of the country causing significant damage to man and material.

### What conditions led to storms of this scale in US?

- Spring-like temperatures across much of the Midwest and South in December helped bring the warm, moist air that helped form thunderstorms.
- Some of this is due to La Nina, which generally brings warmer than normal winter temperatures to the Southern US.

### **Cyclone Jawad:**

Context – Cyclone Jawad to bring heavy rain to Odisha, Bengal and A.P.

Concept –

- Cyclone Jawad has formed in the Bay of Bengal on Friday and is expected to reach Paradip, on the Odisha coast, by Sunday with winds expected to touch 90 kmph as well as heavy rains in Odisha, West Bengal, and north Andhra Pradesh over the weekend
- Saudi Arabia has given the cyclone its name ‘Jawad’. The meaning ‘Jawad’ is liberal or merciful. The carries significance as this cyclonic storm will not be as severe as the previous ones.





**Western Coast of India less vulnerable to Cyclones:**

Context – More cyclones in Arabian Sea recently, Minister tells RS. This has not measurably increased threat to western coast.

Concept –

- The eastern coast remained far more vulnerable to “extremely severe cyclones” than the western coast, but there was nevertheless “no significant trend” in the frequency of extremely severe cyclonic storms (ESCS).
- “The increase in frequency of cyclones over the Arabian Sea has not posed a corresponding increase in the coastal vulnerability along the west coast since most of such cyclones forming over the Arabian Sea were making landfall over the coasts of Oman, Yemen etc and hence the threat to Gujarat & Maharashtra coasts remains same.
- Low-lying coastal belts of West Bengal, Odisha, Andhra Pradesh and Tamil Nadu and Puducherry were more prone to the impact of these systems.
- The winds over the Arabian Sea are stronger because of the presence of the mountains of East Africa. These strong winds force a much more vigorous oceanic circulation and the heat received at the surface is transported into the deeper ocean.

**Cold Wave in Northwest India:**

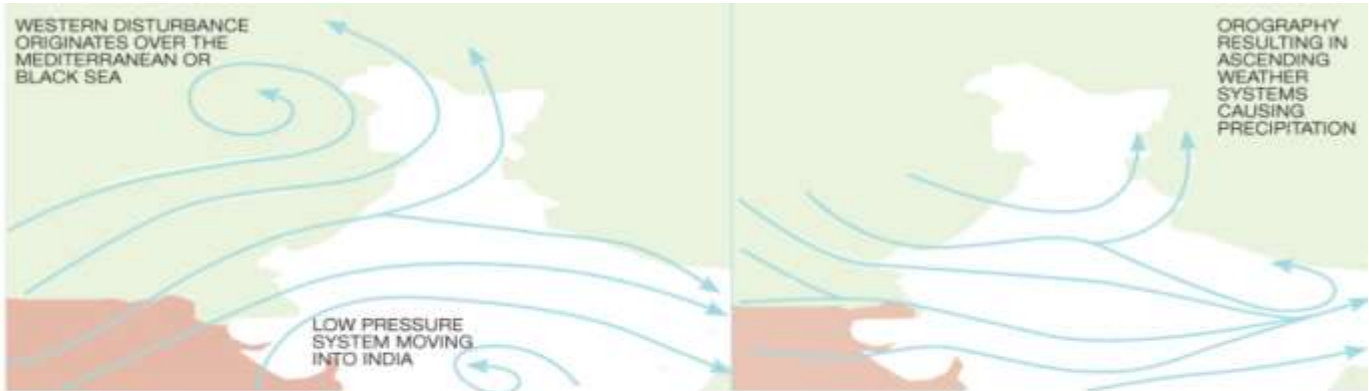
Context – IMD has predicted a cold wave in Northwest India

Concept –

- The India Meteorological Department (IMD) has predicted a cold wave in parts of Punjab, Haryana, Chandigarh, Gujarat, Rajasthan and Uttar Pradesh over the next few days.
- A western disturbance as a cyclonic circulation lies over north Pakistan and adjoining Jammu and Kashmir, according to an IMD bulletin.
- Western disturbances are storms that originate in the Mediterranean region and bring winter rainfall to northwest India.
- In this gap of five to six days, the IMD expects strong north-westerly and westerly cold winds over north India.
- The minimum temperature is likely to fall by 2 to 4 degree Celsius in these places over the next few days, going by the forecast.

**What is a cold wave?**

- The IMD records a cold wave when the minimum temperature is equal to or less than 10 degree Celsius at a weather station in the plains, and is 4.5 degrees to 6.4 degrees below the normal temperature for that period.
- A cold wave may also be recorded at a station in the plains when the minimum temperature is less than or equal to 4 degree Celsius.
- For hilly regions, a cold wave is declared when the minimum temperature is less than or equal to 0 degree Celsius and the minimum temperature is 4.5 degrees to 6.4 degrees below the normal.
- The ‘normal’ temperature is calculated for every five days by taking the average temperature for these days over the past 30 years.
- The IMD defines a cold wave qualitatively as “a condition of air temperature which becomes fatal to the human body when exposed.”
- The IMD also has an ‘impact matrix’ for cold waves – when cold wave conditions persist in isolated areas for more than two days, the impact matrix indicates that the cold is tolerable but “a mild health concern for vulnerable people (infants, pregnant women, elderly, people with chronic diseases etc.
- In ‘severe’ cold wave conditions, where the minimum temperature is less than or equal to 10 degree Celsius, and departs from the normal by 6.5 degrees or more, or if cold wave conditions persist for four days or more, the IMD’s impact matrix indicates an increased likelihood of illnesses like flu, due to prolonged exposure to the cold.



As the western disturbance dissipates, day temperatures rise, while night temperatures fall appreciably, bringing on the cold wave.

**Why do cold waves occur?**

- Cold waves usually occur from mid-December to the end of February.
- The cold waves depend on weather systems and wind patterns from the middle latitudes, that is from Europe or West Asia, since the winds from these regions bring cold weather.
- According to the IMD, the factors that bring cold waves to India include the movement of cold air masses brought about by upper-level winds. They can be triggered by strong westerly winds approaching northwest India and transporting cold air towards the southeast direction.
- Build-up of an extended area of relatively high pressure over northwest Asia can also bring cold waves.

**Glaciers:**

Context – Glacier loss pushing India’s mountain region towards water insecurity

Concept –

Glacier	Location
Parkachik Glacier	Kargil, Ladakh
Kolahoi Glacier	Kashmir
Machoi Glacier	Drass, Ladakh
Thajiwas Glacier (Sonamarg)	Kashmir valley
Gangotri Glacier	Uttarakhand
Nanda Devi Glacier	Uttarakhand



## INDIAN POLITY AND GOVERNANCE:

### Judiciary:

#### **Statutory Bail:**

Context - The National Investigation Agency (NIA) has approached the Supreme Court against a Bombay High Court order granting bail to advocate and activist Sudha Bharadwaj.

Concept –

- Also known as statutory bail, this is a right to bail that accrues when the police fail to complete investigation within a specified period in respect of a person in judicial custody.
- This is enshrined in Section 167(2) of the Code of Criminal Procedure where it is not possible for the police to complete an investigation in 24 hours, the police produce the suspect in court and seek orders for either police or judicial custody.
- This section concerns the total period up to which a person may be remanded in custody prior to filing of charge sheet.
- For most offences, the police have 60 days to complete the investigation and file a final report before the court.
- However, where the offence attracts death sentence or life imprisonment, or a jail term of not less than 10 years, the period available is 90 days.
- In other words, a magistrate cannot authorise a person's judicial remand beyond the 60 or 90-day limit.
- At the end of this period, if the investigation is not complete, the court shall release the person "if he is prepared to and does furnish bail".

#### **How does the provision vary for special laws?**

- The 60 or 90-day limit is only for ordinary penal law.
- Special enactments allow greater latitude to the police for completing the probe.
- In the Narcotic Drugs and Psychotropic Substances Act, the period is 180 days.
- However, in cases involving substances in commercial quantity, the period may be extended up to one year.
- This extension beyond 180 days can be granted only on a report by the Public Prosecutor indicating the progress made in the investigation and giving reasons to keep the accused in continued detention.
- In the Unlawful Activities (Prevention) Act, the default limit is 90 days only. The court may grant an extension of another 90 days, if it is satisfied with a report by the Public Prosecutor showing the progress made in the investigation and giving reasons to keep the accused in further custody.
- These provisions show that the extension of time is not automatic but requires a judicial order.

#### **What are the laid-down principles on this aspect?**

- Default or statutory bail is a right, regardless of the nature of the crime.
- The stipulated period within which the charge sheet has to be filed begins from the day the accused is remanded for the first time. It includes days undergone in both police and judicial custody, but not days spent in house-arrest.
- A requirement for the grant of statutory bail is that the right should be claimed by the person in custody.
- If the charge sheet is not filed within the stipulated period, but there is no application for bail under Section 167(2), there is no automatic bail.
- In general, the right to bail on the investigation agency's default is considered an 'indefeasible right', but it should be availed of at the appropriate time.

#### **Personal Recognisance (PR) Bond:**

Context – Assam editor facing sedition charge released on PR bond

Concept –

- A Personal Recognisance Bond, better known as a "PR Bond", is granted by a court judge once the review of an individual's case and criminal history has been completed during a pretrial hearing.



- In most cases where PR Bonds are granted, the judge has determined that individual does not pose a threat to the community, and has ties to the community that help the court decide whether or not he/she is a flight risk (e.g., employed, a student, a community leader, etc.).
- The benefit of obtaining a PR Bond is that although a bail amount is set by a judge, the bonded party won't have to pay anything and is required to be present for all court appearances. Keep in mind that if the individual doesn't uphold their end of the personal recognizance bond (by missing court dates or leaving town), that person will have to pay the full bail amount and may be rearrested in the future.

**3 Things to Know About PR Bonds**

- **Delayed release from jail** – The process of getting out of jail with a PR Bond is longer than with a bail bondsman. You must participate in an interview with a pretrial officer.
- **PR Bonds are granted exclusively by judges** – Even if you have a lawyer to speak on your behalf, the only way to get a PR Bond is with the approval of a court judge.
- **Undisclosed additional costs** – Although you don't have to pay the full bail amount once you've acquired a PR Bond, there may be several undisclosed costs associated with the conditions of the judge-approved bond such as court-ordered classes that must be paid for at your own expense.

**How bail bonds work?**

**A PERSON GETS ARRESTED**



- Police records necessary information.
- Conducts Criminal back ground check.
- Takes fingerprints, photos if necessary.
- Seizes any personal belongings.
- Accused is allowed a phone call.
- He/She is taken into custody.
- Awaits a bail hearing in front of a judge.
- For less serious crimes bail can be posted immediately.

**BAIL BONDS CONDITIONS**



- Gravity of the crime.
- Prior criminal history.
- Ties to the community.
- Danger to the society or not.
- History of showing up past court hearings.
- Suspect is flight risk or not.

**BAIL AMMOUNT**



- Severity of the crime.
- Judges discretion.
- Some jurisdiction has preset bail amount.

**TYPES OF BAIL**



- Cash Bail.
- Surety Bond .
- Release on Citation.
- Release on Own Personal Recognizance.
- Property Bond.

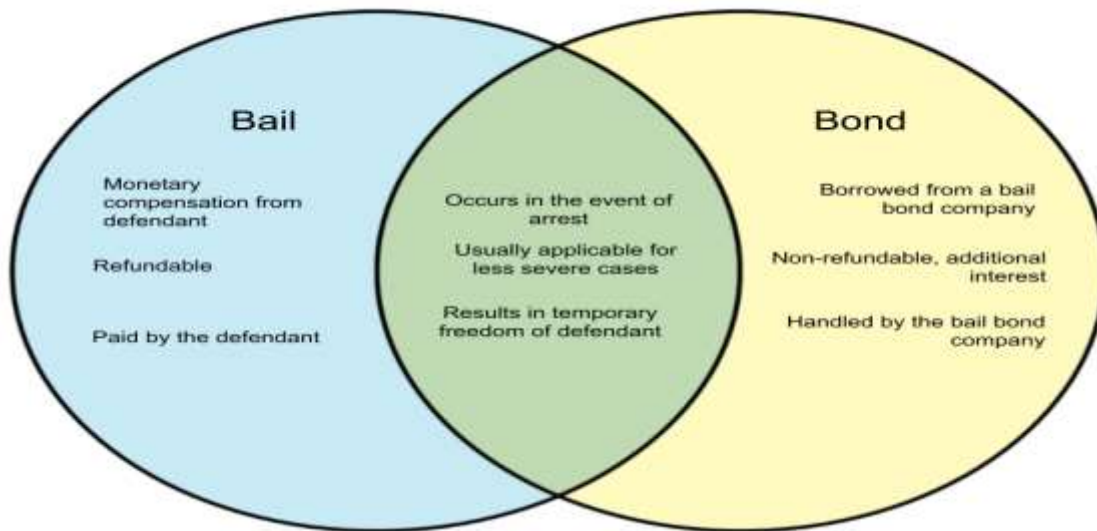
**GETTING HELP FROM BAIL AGENT**



- Of the bonds mentioned above:
- Get help from bail bonds man.
- The Bail agent will post your bond.

**Bail vs Bond –**





### Law Commission of India:

Context – Law panel appointments under consideration

Concept –

- The Law Commission of India is a **non-statutory body** constituted by the Government of India from time to time.
- The first Law Commission of independent India was established in **1955** for a three-year term. Since then, twenty one more Commissions have been established.
- The first Law Commission was **established during the British Raj era in 1834 by the Charter Act of 1833** and was chaired by Lord Macaulay.
- It works as an **advisory body to the Ministry of Law and Justice**.
- The Law Commission undertakes research in law and review of existing laws in India for making reforms therein and enacting new legislations on a reference made to it by the Central Government or suo-motu.

### Foreigner's Tribunals:

Context – The Gauhati High Court has, in less than a month, picked holes in the orders of three Foreigners' Tribunals (FTs) declaring as many people foreigners

Concept –

- In 1964, the govt brought in the Foreigners (Tribunals) Order.
- **Composition:** Advocates not below the age of 35 years of age with at least 7 years of practice (or) Retired Judicial Officers from the Assam Judicial Service (for assam) (or) Retired IAS Officers (not below the rank of Secretary/Addl. Secretary) having experience in quasi-judicial works.

### Who can setup these tribunals?

- The Ministry of Home Affairs (MHA) has amended the Foreigners (Tribunals) Order, 1964, and has empowered district magistrates in all States and Union Territories to set up tribunals (quasi-judicial bodies) to decide whether a person staying illegally in India is a foreigner or not.
- Earlier, the powers to constitute tribunals were vested only with the Centre.
- Typically, the tribunals there have seen two kinds of cases: those concerning persons against whom a reference has been made by the border police and those whose names in the electoral roll has a "D", or "doubtful", marked against them.

### Who can approach?

- The amended order (Foreigners (Tribunal) Order, 2019) also empowers individuals to approach the Tribunals. Earlier, only the State administration could move the Tribunal against a suspect.



**Process**

- Foreigners Tribunals, quasi-judicial authorities, have been deciding on matters pertaining to citizenship in order to identify foreigners.
- The process begins by the border police or the Election Commission referring the case of a suspected foreigner to the Foreigners Tribunal.
- The tribunal calls on the person to appear before it and prove that they are not a foreigner, and then passes an order in favour or against them.

**Pension for Judges:**

Context – Rajya Sabha approves Bill on enhanced pension for retired judges

Concept –

- The High Court Judges (Salaries and Conditions of Service) Act, 1954, and the Supreme Court Judges (Salaries and Conditions of Service) Act, 1958 regulate the salaries and conditions of service of the judges of High Courts and the Supreme Court of India.
- The salaries and allowances of CJI and Supreme Court judges are charged from Consolidated Fund of India.
- The salaries and allowances of state high court judges including chief justices are charged from Consolidated Fund of State.
- Retired Judges of SC and all HCs are entitled to pension which is drawn from Consolidated Fund of India.

**Current Provisions**

- Through the High Court and Supreme Court Judges (Salaries and Conditions of Service) Amendment Act, 2009, section 16B and section 17B were respectively inserted (in the 1954 Act and 1958 Act).
- The 2009 act aims to provide that every retired Judge or after his death, the family will be entitled to an additional quantum of pension or family pension in accordance with the scale specified therein.
- Accordingly, the additional quantum of pension to retired Judges of the High Court and Supreme Court is being sanctioned on completing the age of 80 years, 85 years, 90 years, 95 years and 100 years, as the case may be.
- The additional quantum increases with age (from 20% to 100% of the pension or family pension).

**Judicial review of Speaker's decision:**

Context – Supreme Court sets aside Manipur Speaker's order disqualifying three MLAs for defection

Concept –

- Constitutional courts cannot judicially review disqualification proceedings under the Tenth Schedule (anti-defection law) of the Constitution until the Speaker or Chairman makes a final decision on merits.
- A 28-year-old judgment of the Supreme Court in the **Kihoto Hollohan versus Zachillu and Others** has said that “judicial review cannot be available at a stage prior to the making of a decision by the Speaker/Chairman and a quia timet action would not be permissible. Nor would interference be permissible at an interlocutory stage of the proceedings.”
- “The only exception for any interlocutory interference being cases of interlocutory disqualifications or suspensions which may have grave, immediate and irreversible repercussions and consequence.”
- **Conditions for judicial review:** The February 1992 judgment had said that even the scope of judicial review against an order of a Speaker or Chairman in anti-defection proceedings would be confined to jurisdictional errors, that is, “infirmities based on violation of constitutional mandate, mala fides, non-compliance with rules of natural justice and perversity.”
- The Constitution Bench had upheld the anti-defection law.
- The reason for limiting the role of courts in ongoing defection proceedings is that the “office of the Speaker is held in the highest respect and esteem in parliamentary traditions.”
- But the Speaker's decision was subject to judicial review as he acted as a tribunal while deciding cases under the anti-defection law.
- The Speaker of the House does not have the power to review his own decisions to disqualify a candidate.
- Ignoring a petition for disqualification is not merely an irregularity but a violation of constitutional duties.

**Right to be Forgotten:**

Context – Centre told the Delhi High Court that the “right to be forgotten” is part of the fundamental right to privacy



Concept –

- It allows a person to seek deletion of private information from the Internet.
- The concept has found recognition in some jurisdictions abroad, particularly the European Union.
- While the right is not recognised by law in India, courts in recent months have held it to be an intrinsic part of the right to privacy.

#### Which countries have such laws?

- The EU in 2018 adopted the **General Data Protection Regulation (GDPR)**, Article 17 of which provides for the right to erasure of certain categories of personal data.
- **Russia** in 2015 enacted a law that allows users to force a search engine to remove links to personal information on grounds of irrelevancy, inaccuracy and violation of law.
- The right to be forgotten is also recognised to some extent in **Turkey** and **Siberia**, while courts in **Spain** and **England** have ruled on the subject.

#### What is the position in India?

- Centre told the Delhi High Court that the right to privacy has been recognised as a fundamental right in the K S Puttaswamy judgment (2017) and that the ‘right to be forgotten’ is evolving in India.
- The government said the Personal Data Protection Bill (a Joint Parliamentary Committee’s report on which was tabled on December 16), contains provisions to the doctrine of the ‘right to be forgotten’.

#### Legislature:

#### **Right To Freedom of Religion:**

Context – Karnataka’s anti-conversion legislation

Concept –

- Part III of the Indian Constitution guarantees various fundamental rights. Article 25- 28 provides for the right to freedom of religion which is largely based upon Irish Constitution.
- **Article 25** - Freedom of conscience and free profession, practice and propagation of religion.
- **Article 26** - Freedom to manage religious affairs.
- **Article 27** - Freedom as to payment of taxes for promotion of any particular religion.
- **Article 28** - Freedom as to attendance at religious instruction or religious worship in certain educational institutions.

#### SC Case

- In **Stainislaus Rev. v. State of M.P.**, Supreme Court held that the right to propagate one’s religion means the right to communicate a person’s beliefs to another person or to expose the tenets of that faith, but would not include the right to ‘convert’ another person to the former’s faith because the latter person is “equally entitled to freedom of conscience” which words precede the word ‘propagate’.
  - So, **nobody has any fundamental right to convert the religion** of someone without his free choice.
  - Further, Court held that the word propagate does not give rise to the **right to convert**.

#### **Forest Rights Act (FRA):**

Context – The Forest Rights Act (FRA) has been in existence for 15 years

Concept –

#### History of forest laws

- In the colonial era, the **British diverted abundant forest wealth of the nation to meet their economic needs**. While procedure for settlement of rights was provided under statutes such as the **Indian Forest Act, 1927**, these were hardly followed. As a result, tribal and forest-dwelling communities, who had been living within the forests in harmony with the environment and the ecosystem, continued to live inside the forests in tenurial insecurity, a situation which continued even after independence as they were marginalized.
- **The symbiotic relationship between forests and forest-dwelling communities found recognition in the National Forest Policy, 1988.**
- The policy called for the need to associate tribal people in the protection, regeneration and development of forests.



- The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006, was **enacted to protect the marginalised socio-economic class of citizens and balance the right to environment with their right to life and livelihood.**

**Preamble:** The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 (FRA) was enacted to recognize and vest the forest rights and occupation in forest land in forest dwelling Scheduled Tribes and other traditional forest dwellers who have been residing in such forests for generations but whose rights could not be recorded.

**Provisions:**

- The act **recognize and vest the forest rights and occupation in Forest land in forest Dwelling Scheduled Tribes (FDST) and Other Traditional Forest Dwellers (OTFD)** who have been residing in such forests for generations.
- The act also establishes **the responsibilities and authority for sustainable use, conservation of biodiversity and maintenance of ecological balance** of FDST and OTFD.
- It strengthens the conservation regime of the forests while ensuring livelihood and food security of the FDST and OTFD.
- The act identify **four types of rights:**
- **Title rights:** It gives FDST and OTFD the **right to ownership to land farmed** by tribals or forest dwellers subject to a maximum of 4 hectares. Ownership is only for land that is actually being cultivated by the concerned family and no new lands will be granted.
- **Use rights:** The rights of the dwellers extend to **extracting Minor Forest Produce, grazing areas**, to pastoralist routes, etc.
- **Relief and development rights:** To rehabilitation in case of illegal eviction or forced displacement and to basic amenities, subject to restrictions for forest protection
- **Forest management rights:** It includes **the right to protect, regenerate or conserve or manage any community forest resource** which they have been traditionally protecting and conserving for sustainable use.

**The personal laws under Part III of the Indian Constitution:**

Context – A Bill proposing to increase the age of marriage for women, and ensuring harmony in the age limit across religions, was introduced in Lok Sabha

Concept –

- Personal laws are a set of laws that govern and regulate relations arising out of certain factors connecting two persons or over two persons. These factors are marriage, blood, and affinity. Moreover, personal law governs and regulates subjects or areas of a private sphere such as marriage, divorce, maintenance, succession, minority, and guardianship, etc.
- Hindus, Muslims, Christians, Parsis, Jews are governed by their own Personal Laws, such as the Hindu law, Muslim Law, Christian Law, Parsi Law, and Jewish Law respectively.
- **Article 13(1)** of Indian Constitution - All laws in force in the territory of India immediately before the commencement of this Constitution, in so far as they are inconsistent with the provisions of this Part, shall, to the extent of such inconsistency, be void.
- **Article 13(3)(b)** includes laws passed or made by the legislature or other competent authority in the territory of India before the commencement of this Constitution and not previously repealed. It means the same thing as 'existing law' defined in Article 372 of the Indian Constitution.

**1. Personal laws in marriage**

The Prohibition of Child Marriage (Amendment) Bill, 2021 proposes three changes –

- First, the law proposes to **increase the minimum age of marriage** for a woman. The Bill makes the minimum age of marriage same for both men and women. Currently, it is 18 years for women and 21 for men.
- Second, it also increases the **window for a “child” to file a petition** to declare a child marriage void.
  - Under the law, child marriages, although illegal, are not void but “voidable.”
  - A child marriage can be declared null and void by a court when either party to the marriage files a petition under Article 3(4) of the 2006 Prohibition of Child Marriage Act.
  - A “void” marriage, as opposed to a divorce, in legal terms, would be as if the marriage had never taken place in the first place.
  - The Bill proposes to extend this window for both the woman and the man to five years after attaining majority. Since the age of majority is 18 for both, this would mean that either the man or the woman can file a petition to declare the child marriage void before they turn 23, or until two years after reaching the new minimum age of marriage.
- Introduction of a **“notwithstanding” clause** - this essentially clears the decks for equal application of the Prohibition of Child Marriage Act across religions, notwithstanding any customs.





### Who is a Child?

- The amendments proposed to the anti-child marriage law defines a child as someone under the age of 21 and contradicts laws where the legal age of competence is recognised as 18.
- The Prohibition of Child Marriage (Amendment) Bill, 2021, which seeks to raise the age of marriage for women to 21, amends the definition of child to mean “a male or female who has not completed twenty-one years of age”.
- It overrides personal laws of Hindus, Christians, Muslims and Parsis, as well as the Special Marriage Act, 1954.
- Under the Indian Contract Act, 1872 a person should have attained the age of majority in order to be able to enter into a contract.
- The law to punish sexual crimes against children, the Protection of Children from Sexual Offences (POCSO) Act, 2012 too recognises a child as someone under the age of 18 years and thereby implies that the age of consent for sex is also 18 years.
- The law that deals with juvenile offenders (or children in conflict with law) and children who need care and protection, that is, the Juvenile Justice (Care and Protection) Act, 2015 does the same.

## Who's a child? | While most laws fix 18 as the age when one ceases to be a child, there are exceptions:

- The Majority Act, 1875 sets the age of majority at 18
- 61st Constitutional Amendment Act fixes the minimum voting age at 18
- POCSO Act, 2012 and Juvenile Justice Act, 2015 define a child as someone under the age of 18



- Right to Education Act, 2009 says a child is someone between the ages of six and 14

- Child Labour Amendment Act, 2016 says a child is someone under the age of 14 and an adolescent is aged between 14 and 18

### Hindu personal laws

- The Hindu personal laws (that apply also to the Sikhs, Jains and Buddhists) have been codified by the Parliament in 1956
- This Code Bill has been split into four parts:
  - The Hindu Marriage Act, 1955
  - The Hindu Succession Act, 1956
  - The Hindu Minority and Guardianship Act, 1956
  - The Hindu Adoption and Maintenance Act, 1956
- Hindu personal laws have been by and large secularized and modernized by statutory enactments

### Muslim personal laws

- Muslim personal laws are still primarily unmodified and traditional in their content and approach.
- The Shariat law of 1937 governs the personal matters of all Indian Muslims in India.
- It clearly states that in matters of personal disputes, the State shall not interfere and a religious authority would pass a declaration based on his interpretations of the Quran and the Hadith.
- Since Muslim law recognises “attaining puberty”, which is legally assumed at 15 years, as the minimum age of marriage, it raises questions as to whether the child marriage law can apply to Muslims.

### **Election Laws (Amendment) Bill, 2021:**

Context – RS passes electoral reforms Bill amid Opposition protest

Concept –

- The Bill amends the Representation of the People Act, 1950 and the Representation of the People Act, 1951 to implement certain electoral reforms.



- The 1950 Act provides for allocation of seats and delimitation of constituencies for elections, qualifications of voters, and preparation of electoral rolls.
- The 1951 Act provides for the conduct of elections, and offences and disputes related to elections.
- **Linking electoral roll data with Aadhaar:**
  - The 1950 Act provides that a person may apply to the electoral registration officer for inclusion of their name in the electoral roll of a constituency.
  - The Bill adds that the electoral registration officer may require a person to furnish their Aadhaar number for establishing their identity.
  - Persons will not be denied inclusion in the electoral roll or have their names deleted from the roll, if they are unable to furnish Aadhaar number due to sufficient cause as prescribed. Such persons may be permitted to furnish alternate documents prescribed by the central government.
- **Qualifying date for enrolment in electoral roll:**
  - Under the 1950 Act, the qualifying date for enrolment in the electoral roll is January 1 of the year in which such roll is being prepared or revised. This implies that a person who turns 18 (i.e., eligible to vote) after January 1 can enrol in the electoral roll only when the roll is prepared/ revised the next year.
  - The Bill amends this to provide four qualifying dates in a calendar year, which will be January 1, April 1, July 1, and October 1.

### Economically Weaker Sections (EWS):

Context – A three member-committee set up to examine the income criteria for determining the economically weaker sections (EWS) is expected to submit its report to the Centre within the next few days.

Concept –

- The committee was set up after the Supreme Court questioned the income criteria for defining EWS, and termed it “arbitrary”, noting that the **ceiling for determining EWS (Rs 8 lakh)** is the **same as the limit for determining the other backward classes (OBC) “creamy layer”** for reservation for the children of people outside of government.
  - At present, those with an annual income below Rs 8 lakh fall in the EWS category.
- The 10% EWS quota was introduced under the **103rd Constitution (Amendment) Act, 2019** by amending Articles 15 and 16.
  - It inserted **Article 15 (6) and Article 16 (6)**.
- It is for **economic reservation** in jobs and admissions in education institutes for Economically Weaker Sections (EWS).
- It was enacted to promote the welfare of the poor not covered by the 50% reservation policy for Scheduled Castes (SCs), Scheduled Tribes (STs) and Socially and Educationally Backward Classes (SEBC).
- It **enables both Centre and the states** to provide reservation to the EWS of society.

## EWS, AS DEFINED

■ Persons who are not covered under the scheme of reservation for SCs, STs and OBCs and whose family has gross annual income below Rs 8 lakh are to be identified as EWSs for benefit of reservation

■ Income shall also include income from all sources i.e. salary, agriculture, business, profession, etc. for the financial year prior to the year of application

■ Persons whose family owns or possesses any of the following assets shall be excluded from being identified as EWS, irrespective of the family income: 5 acres of agricultural land and above; Residential at of 1000 sq ft and above; residential plot of 100 sq yards and



The next hearing in the Supreme Court is on January 6. *Express Archive*

above in notified municipalities; residential plot of 200 sq yards and above in areas other than the notified municipalities

— DoPT, JAN 31, 2019

- EWS reservation was granted based on the recommendations of a **commission headed by Major General (retd) S R Sinho**.
  - The Sinho Commission recommended that all below poverty line (BPL) families within the general category as notified from time to time, and also all families whose annual family income from all sources is below the taxable limit, should be identified as EBCs (economically backward classes).
- The present income ceiling of Rs 8 lakh fixed for EWS is the same as that for OBCs for quotas for people outside of government. For the OBC quota in government, there is a different criterion based on the ranks of the parents of the candidate. Outside of government, there is an income criterion, which was raised from Rs 6 lakh to Rs 8 lakh in 2017.

### ARTICLE 141 - DOCTRINE OF PRECEDENT:

#### CONTEXT

Recently, Supreme Court judges have expressed the need to 'Indianise' the legal system.

#### WHAT IS DOCTRINE OF PRECEDENT?

- The doctrine refers to a decision that has already been taken by a higher court is binding to the lower court and at the same time stands as a precedent to the lower court judgment, which cannot be altered by a lower court. This principle is known as **Stare decisis**.
- The doctrine of stare decisis helps
  - To generate judicial accountability along with it
  - It also ensures fairness in adjudication and excludes arbitrariness
  - Helps in maintaining stability and certainty.
  - It is both a social as well as a legal norm.

#### THE DOCTRINE OF STARE DECISIS UNDER ARTICLE 141 OF THE CONSTITUTION OF INDIA

- Article 141 of the Indian Constitution states that
  - law declared by Supreme Court to be binding on all courts within the territory of India.
  - Article 141 states that only the ratio decendi of a case is binding not the obiter dicta and the mere facts of the cases.
  - Therefore, while applying the decision of S.C. by other courts, what is required is to understand the true principle laid down by the previous decision.
- Some basic concept of Article 141
  - All the courts in India are bound by law to follow the decision of the Supreme Court.
  - The judgment has to be read as a whole and at the same time, the observation from the judgment has to be determined in the light of the questions presented before the court.



**Article 167 of the Constitution:**

Context – WB Governor seeks information on State's Pegasus probe panel

Concept –

- Article 167 of the Constitution lays down the duties of the chief minister to furnish information to the Governor.
- Article 167 of the Constitution says it is the Chief Minister's duty to communicate to the Governor all decisions of the Council of Ministers relating to the administration and proposals for legislation.
- It enjoins the Chief Minister to furnish such information relating to the administration as the Governor may call for.
- If Governor wants to understand how schemes are being implemented, he can seek details from the Chief Minister instead of holding meetings in the districts.

**Article 3 of the Constitution:**

Context – The demand has grown louder to carve out a separate state of 'Greater Tripaland' for the indigenous communities in Tripura under Article 2 and 3 of the Constitution.

Concept –

**ARTICLE 2 : ADMISSION OR ESTABLISHMENT OF NEW STATES**

Parliament may by law admit into the Union, or establish, new States on such terms and conditions as it thinks fit.

**ARTICLE 3 : FORMATION OF NEW STATES AND ALTERATION OF AREAS, BOUNDARIES OR NAMES OF EXISTING STATES**

Parliament may by law –

(a) form a new State by separation of territory from any State or by uniting two or more States or parts of States or by uniting any territory to a part of any State;

(b) increase the area of any State;

(c) diminish the area of any State;

(d) alter the boundaries of any State;

(e) alter the name of any State:

- A Bill giving effect to any or all the changes stated above can be introduced in either House of the Parliament, only on the recommendation of the President.
- If such a bill affects the boundary or name of a State, then the President, before introducing it in the Parliament, shall refer the Bill to the State Legislature concerned for its opinion, fixing a time limit within which an opinion may be expressed by the State Legislature. The President may extend the time limit so specified.
- If the State Legislature fails to express an opinion within the stipulated time limit then it is deemed that it has expressed its views.
- If it submits its views within the period so specified or extended, Parliament is not bound to accept or act upon the views of the State Legislature.
- Further, it is not necessary to make fresh reference to the State Legislature every time an amendment to the Bill is proposed and accepted.
- The Bill is passed with simple majority.
- However, in the case of Union Territories, it is not necessary to obtain the views of Legislatures of Union Territories before a Bill affecting their boundaries or names is introduced.

**Scrappage Policy for Thermal Plants:**

Context – NITI Aayog expert group suggests scrappage policy for thermal plants

Concept –

- An expert group set up by NITI Aayog has suggested the creation of a thermal power plant (TPP) scrappage policy in a bid to bring down the dependency of the power sector on coal and to maximise the use of clean and more efficient energy sources such as renewables.
- India has committed to becoming carbon neutral by 2070 and to have 500 Giga Watt (GW) of renewable energy capacity.
- Coal-fired power plants are normally decommissioned in India after their useful life of 30-45 years.
- Coal accounts for about 72 per cent of India's power supply as of 2021, while RE has been growing rapidly to generate 10.7 per cent of electricity.
- Around 40 per cent of India's greenhouse gas emissions can be attributed to 633 power units – 25 MW and above capacity – operating at 189 thermal plants.

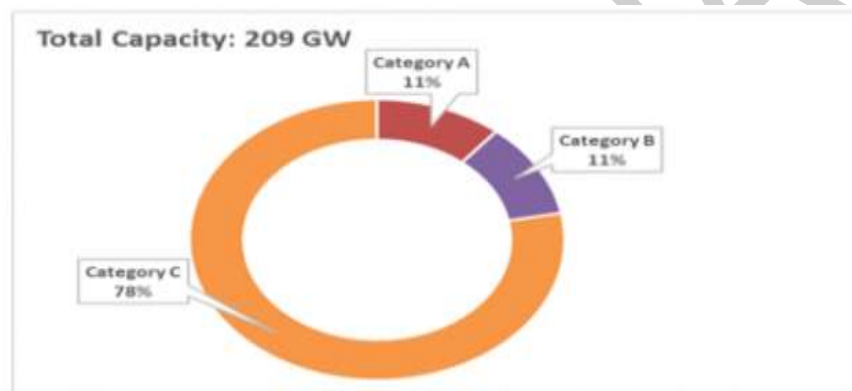


**Categories of Thermal Power Plants**

- In April 2021, the MoEF&CC amended the 2015 notification to put coal thermal power plants under three categories.
- The Union Ministry of Environment, Forest and Climate Change (MoEF&CC) has released a draft list of the coal thermal power plants and their categorisation in line with the ministry's April 2021 notification.
- Coal thermal power plants contribute to over half sulphur dioxide (SO<sub>2</sub>) concentration, 30 per cent oxides of nitrogen (NO<sub>x</sub>), 20 per cent particulate matter (PM) in the ambient air.

It puts coal thermal power plant units into three categories:

Category	Criteria	Deadline for compliance
A	Within 10 km radius of the National Capital Region (NCR) or cities having million-plus population	2022
B	Within 10 km radius of critically polluted areas or non-attainment cities	2023
C	Remaining plants	2024



*The country's 596 coal thermal power plant units have been put under three categories: A, B and C.*

**Look out circular:**

Context – Home Ministry puts out lookout notice for Akali Dal leader Majithia

Concept –

- Look out circular (LOC) is a circular letter used by authorities to check whether a traveling person is wanted by the police.
- It may be used at immigration checks at international borders (like international airports or sea ports).
- In India, LOC has a given proforma which have identification parameters of criminals and help police to catch absconding criminals and stopping them from crossing borders.
- The basic guidelines (regarding the publication of the LOCs in relation to Indian citizens) are **issued by the Ministry of Home Affairs (MHA)**.

**Consumer Protection (Jurisdiction of the District Commission, the State Commission and the National Commission) Rules, 2021:**

Subject – Governance

Context – Centre notifies new rules for consumer commissions

Concept –

- The Centre has notified the Consumer Protection (Jurisdiction of the District Commission, the State Commission and the National Commission) Rules, 2021, revising the pecuniary jurisdiction of the district, State and national commissions.



- According to the notification, **district commissions** will have jurisdiction to entertain complaints where the value of the goods or services paid does **not exceed ₹50 lakh**.
- **State commissions** can handle complaints in the range of **₹50 lakh-₹2 crore**.
- The **National Commission** shall have jurisdiction to entertain complaints where the value of the goods or services paid as consideration **exceeds ₹2 crore**.

### E-Daakhil portal

- Consumer Affairs Ministry said that consumers can also file complaints digitally through the E-Daakhil portal.
- Currently, the facility of E-Daakhil is available in 544 consumer commissions, which includes the National Commission and consumer commissions in 21 States and 3 UTs.
- The Consumer Protection Act, 2019, which came into force on July 20, 2020, has a provision for e-filing of consumer complaints in the consumer commissions and online payment of the fees for filing a complaint.
- A web application for e-filing of consumer complaints named 'edaakhil.nic.in' has been developed by NIC for the purpose.
- E-filing was launched by the National Consumer Disputes Redressal Commission (NCDRC) on September 7, 2020.
- Delhi was the first state to implement it on September 8, 2020.

### Consumer Protection Act

- The new Consumer Protection Act 2019 seeks to **revamp the process of administration and settlement of consumer disputes, with strict penalties**, including jail term for adulteration and misleading ads by firms.
- It defined 6 rights of the consumers which include:
  - Right to be protected against the marketing of goods, products or services which can be hazardous to life and property
  - Right to be informed about the quality, quantity, potency, purity, standard and price of goods, products and services
  - Right to be assured of access to goods, products and services at competitive prices.
  - Right to be heard at appropriate forums
  - Right to seek redressal against unfair trade practices that are involved in exploitation of customers
  - Right to consumer awareness
- It proposes to **set up Central Consumer Protection Authority (CCPA) to promote, protect and enforce the rights of consumers**. The CCPA would make interventions to prevent consumer detriment arising from unfair trade practices. The agency can also **initiate class action, including enforcing recall, refund and return of products**.
- It also **simplified dispute resolution process**, has **provision for Mediation and e-filing of cases**. The Consumer will be able to file cases in the nearest commission under the jurisdiction of which he resides.
- Under the Consumer Protection Act, there is also an option of **resolving consumer disputes through mediation** with the consent of both parties.

**Consumer Disputes Redressal Commissions (CDRCs)** would be setup at various levels. The CDRCs would be set up at multiple levels – district, state and national. Consumers can file complaints with the CDRCs regarding any of the following.

- Defective goods or services
- Overcharging or deceptive charging on goods and services
- Any unfair or restrictive trade practices
- Offering services or sale of goods which can be hazardous to life or not safe
- As per the new act, all the laws that apply for direct selling would also be **applicable for E-Commerce**.
- Consumers can file complaints from anywhere and they do not need to hire lawyer to represent their cases. For mediation, there will be strict timeline fixed in the rules.
- **On misleading advertisements there is provision for jail term and fine for manufacturers**.
- For the first time there will be an exclusive law dealing with **Product Liability**. A manufacturer or product service provider or product seller will now be **responsible to compensate for injury or damage caused by defective product or deficiency in services**.

### **The Dam Safety Bill, 2019:**

Context – Rajya Sabha passes Dam Safety Bill after four-hour discussion

Concept –

- The Bill provides for the surveillance, inspection, operation, and maintenance of all specified dams across the country. These are dams with height more than 15 metres, or height between 10 metres to 15 metres with certain design and structural conditions.
- It constitutes two national bodies: the **National Committee on Dam Safety**, whose functions include evolving policies and recommending regulations regarding dam safety standards; and the **National Dam Safety Authority**, whose functions include



implementing policies of the National Committee, providing technical assistance to State Dam Safety Organisations (SDSOs), and resolving matters between SDSOs of states or between a SDSO and any dam owner in that state.

- It also constitutes two state bodies: **State Committee on Dam Safety**, and **State Dam Safety Organisation**. These bodies will be responsible for the surveillance, inspection, and monitoring the operation and maintenance of dams within their jurisdiction.
- Functions of the national bodies and the State Committees on Dam Safety have been provided in Schedules to the Bill. These Schedules can be amended by a government notification.
- An offence under the Bill can lead to imprisonment of up to two years, or a fine, or both.

#### Additional facts about Dams

- Dams are artificial barriers on rivers which store water and help in irrigation, power generation, flood moderation, and water supply.
- In India, **dams higher than 15 m** or between 10 m and 15 m height that fulfil certain additional design conditions are called **large dams**.
- As on June 2019, India has **5,745 large dams** (includes dams under construction).
- Of these, 5,675 large dams are **operated by states**, **40 by central public sector undertakings**, and five by **private agencies**.
- Over **75% of these dams are more than 20 years old** and about 220 dams are more than 100 years old.
- Most of these large dams are in **Maharashtra** (2394), **Madhya Pradesh** (906), and **Gujarat** (632).
- The **Central Dam Safety Organisation**, under the Central Water Commission (CWC), provides technical assistance to dam owners, and maintains data on dams.
- CWC provides that each dam owner should carry out pre and post monsoon inspections (covering site conditions, dam operations) every year.
- The **National Committee on Dam Safety** devises dam safety policies and regulations.
- As per **Entry 17 of the State List**, states can make laws on water supply, irrigation and canals, drainage and embankments, water storage and water power, subject to Entry 56 of the Union List.
- **Entry 56 of the Union List** allows Parliament to make laws on the regulation of inter-state rivers and river valleys if it declares such regulation to be expedient in public interest.

#### **How MPs' questions are allowed and disallowed in parliament?**

Context – On Tuesday, The Indian Express reported how a question by Congress MP K C Venugopal in Rajya Sabha, scheduled to be answered on December 2, was removed from the list of finally admitted questions.

Concept –

- In both Houses, elected members enjoy the right to seek information from various ministries and departments in the form of starred questions, unstarred questions, short notice questions and questions to private members.
- Usually, MPs' questions form a long list, which then go through a rigorous process of clearance.
- The admissibility of questions in **Rajya Sabha** is governed by **Rules 47-50 of the Rules of Procedure and Conduct of Business in the Council of States**.
  - Once a question that fulfils the conditions of admissibility is received, the **Secretariat sends it to the ministry concerned**.
  - Once the facts are received from the ministry, the question is further examined for admissibility.
  - A final list of questions is circulated to ministers, on the basis of which they frame their answers.
- In **Lok Sabha**, once the notice for questions is received, **ballots determine priority**.
  - Starred, unstarred and short notice questions are entered into software, separately.
  - Next, the questions are examined for admissibility under **Rules 41-44 of the Rules of Procedure and Conduct of Business in Lok Sabha**.
- For answering the questions, ministries and departments have been divided into **five groups (I to V)** that have been allotted Mondays, Tuesdays, Wednesdays, Thursdays and Fridays respectively.
  - The grouping has been done in such a way that each minister has one fixed day in the week for answering questions in Rajya Sabha and another fixed day for answering questions in Lok Sabha.

#### What are starred, unstarred and other categories of questions?

- **STARRED QUESTION:** The member desires an oral answer from the minister. Such a question is distinguished by the MP with an asterisk. The answer can also be followed by supplementary questions from members.



- **UNSTARRED QUESTION:** The MP seeks a written answer, which is deemed to be laid on the table of the House by the concerned minister.
- **SHORT NOTICE QUESTION:** These are on an urgent matter of public importance, and an oral answer is sought. A notice of less than 10 days is prescribed as the minimum period for asking such a question.
- **QUESTION TO PRIVATE MEMBER:** A question can be addressed to a private member under Rule 40 of Lok Sabha's Rules of Procedure, or under Rule 48 of Rajya Sabha's Rules, provided that the question deals with a subject relating to some Bill, resolution or other matter for which that member is responsible.

#### When are the questions asked?

- In both Houses, the first hour of every sitting is usually devoted to asking and answering of questions, and this is referred to as the 'Question Hour'.
- The total number of questions for any day is limited to 175, including 15 questions for oral answers, questions postponed from one list to another for written answers, and 15 questions pertaining to states under President's Rule.

#### What kind of questions can be asked?

- Their admissibility is governed by Rules 47-50 (Rajya Sabha) and 41-44 (Lok Sabha).
- The Rajya Sabha Chairman or the Lok Sabha Speaker has the authority to decide whether a question or a part is or is not admissible under the norms of the House, and disallow any question or a part.
- In Rajya Sabha, among various norms,
  - the question "shall be pointed, specific and confined to one issue only;
  - it shall not bring in any name or statement not strictly necessary to make the question intelligible;
  - if it contains a statement the member shall make himself responsible for the accuracy of the statement;
  - it shall not contain arguments, inferences, ironical expressions, imputations, epithets or defamatory statements".
- In Lok Sabha, questions that are not admitted include:
  - those that are repetitive or have been answered previously;
  - matters that are pending for judgment before any court of law or under consideration before a Parliamentary Committee.

#### How often are questions disallowed?

- According to Rajya Sabha data, 833 questions were disallowed during the last Monsoon Session.
- For comparison, during the 2013-14 Winter Session, Rajya Sabha disallowed 748 questions.
- Once disallowed, it is often difficult for members to challenge the decision.

#### Protection of Plant Varieties & Farmers' Rights (PPV&FR) Authority

Context – Win for farmers as India revokes PepsiCo's patent on FL-2027 potato variety

Concept –

History –

- PepsiCo, a multi-million-dollar conglomerate, had sued Gujarati farmers asking them to pay ₹1.05 crore each for alleged violation of Intellectual Property Rights.
- The company has said that farmers infringed its patent rights by growing the potato variety used in its product called as Lays chips.
- PepsiCo has **invoked Section 64** of the Protection of Plant Varieties and Farmers' Rights (**PPV&FR) Act, 2001** to claim infringement of its rights.
- The section **prohibits anyone other than the breeder of seeds or a registered licensee of that variety to sell, export, import or produces such variety.**
- The farmers were allegedly growing a variety of potato namely **FL 2027, also called FC5**, on which PepsiCo claimed exclusive rights by virtue of a Plant Variety Certificate (PVC).
- However, farmers groups have said that **section 39** of the Protection of Plant Varieties and Farmers' Rights (PPV&FR) Act, 2001 **allows farmers to grow and sell any variety of crop** or even seed as long as they don't sell branded seed of registered varieties.

#### **Protection of Plant Varieties and Farmers' Rights (PPV&FR) Act, 2001:**

- Enacted by India in 2001 **adopting sui generis system.**
- It is in conformity with **International Union for the Protection of New Varieties of Plants (UPOV)**, 1978.
- The aim of the act is the establishment of an effective system for the **protection of plant varieties**, the **rights of farmers** and **plant breeders** and to encourage the development of new varieties of plant.
- The act also establishes **Protection of Plant Varieties and Farmers' Rights Authority** under the **Ministry of Agriculture and Farmers Welfare.**





- The major function of Authority includes
  - Registration of new plant varieties;
  - Documentation of varieties registered;
  - Preservation of plant genetic resource;
  - Maintenance of the National Register of Plant Varieties and
  - Maintenance of National Gene Bank (for conserving seeds of registered varieties).
- The legislation recognizes the contributions of both commercial plant breeders and farmers in plant breeding activity and also provides to implement TRIPs in a way that supports the specific socio-economic interests of all the stakeholders including private, public sectors and research institutions, as well as resource-constrained farmers.

#### **Rights under the Act**

**Breeders' Rights:** Breeders (Seed Producers) will have exclusive rights to produce, sell, market, distribute, import or export the protected variety.

- A breeder can exercise for civil remedy in case of infringement of rights

**Researchers' Rights:** Researcher can use any of the registered variety under the Act for conducting an experiment or research.

- Researchers can use the initial source of variety for the purpose of developing another variety but repeated use needs the prior permission of the registered breeder.

**Farmers' Rights:** A farmer who has evolved or developed a new variety is entitled to registration and protection in like manner as a breeder of a variety.

- A farmer can save, use, sow, re-sow, exchange, share or sell his farm produce including seed of a variety protected under the PPV&FR Act, 2001
- However, the farmer shall not be entitled to sell branded seed of a variety protected under the PPV&FR Act, 2001.
- There is also a provision for compensation to the farmers for non-performance of variety.
- The farmer shall not be liable to pay any fee in any proceeding before the Authority or Registrar or the Tribunal or the High Court under the Act.
- Farmers are eligible for recognition and rewards for the conservation of Plant Genetic Resources of land races and wild relatives of economic plants.

#### **International Union for the Protection of New Varieties of Plants (UPOV)**

- The International Union for the Protection of New Varieties of Plants (UPOV) is an intergovernmental organization with headquarters in Geneva (Switzerland).
- UPOV was established by the International Convention for the Protection of New Varieties of Plants. The Convention was adopted in Paris in 1961 and it was revised in 1972, 1978 and 1991.
- UPOV's mission is to provide and promote an effective system of **plant variety protection**, with the aim of encouraging the development of new varieties of plants, for the benefit of society.
- The UPOV Convention provides the basis for members to **encourage plant breeding** by granting breeders of new plant varieties an intellectual property right: **the breeder's right**.
- In the case of a variety protected by a breeder's right, the authorization of the breeder is required to propagate the variety for commercial purposes. **The breeder's right is granted by the individual UPOV members.**
- Only the breeder of a new plant variety can protect that new plant variety. It is not permitted for someone other than the breeder to obtain protection of a variety.
- There are no restrictions on who can be considered to be a breeder under the UPOV system: a breeder might be an individual, a farmer, a researcher, a public institute, a private company etc.
- **India is not a member.**

#### **Supplementary Demands for Grants:**

Context – Finance minister Nirmala Sitharaman on Friday sought Parliamentary clearance for an additional spending of Rs 3,73,761 crore, placing the second batch of supplementary demands for grants for the current fiscal.

Concept –

In addition to the budget that contains the ordinary estimates of income and expenditure for one financial year, various other grants are made by the Parliament under extraordinary or special circumstances:

**Supplementary Grant** - It is granted when the amount authorised by the Parliament through the appropriation act for a particular service for the current financial year is found to be insufficient for that year.

**Additional Grant** - It is granted when a need has arisen during the current financial year for additional expenditure upon some new service not contemplated in the budget for that year.



**Excess Grant** - It is granted when money has been spent on any service during a financial year in excess of the amount granted for that service in the budget for that year. It is voted by the Lok Sabha after the financial year. Before the demands for excess grants are submitted to the Lok Sabha for voting, they must be approved by the Public Accounts Committee of Parliament.

**Vote of Credit** - It is granted for meeting an unexpected demand upon the resources of India, when on account of the magnitude or the indefinite character of the service, the demand cannot be stated with the details ordinarily given in a budget. Hence, it is like a blank cheque given to the Executive by the Lok Sabha.

**Exceptional Grant** - It is granted for a special purpose and forms no part of the current service of any financial year.

**Token Grant** - It is granted when funds to meet the proposed expenditure on a new service can be made available by reappropriation. A demand for the grant of a token sum (of Re 1) is submitted to the vote of the Lok Sabha and if assented, funds are made available. Reappropriation involves transfer of funds from one head to another. It does not involve any additional expenditure.

Supplementary, additional, excess and exceptional grants and vote of credit are regulated by the same procedure which is applicable in the case of a regular budget.

### Citizenship (Amendment) Act, 2019:

Context – Two years on, CAA rules not notified

Concept –

- The Citizenship (Amendment) Act, 2019 seeks to amend the Citizenship Act, 1955.
- The **Citizenship Act, 1955** provides various ways in which citizenship may be acquired. It provides for citizenship by **birth, descent, registration, naturalisation and by incorporation of the territory into India**.
- In addition, it regulates the registration of Overseas Citizen of India Cardholders (OCIs) and their rights. An OCI is entitled to some benefits such as a multiple-entry, multipurpose lifelong visa to visit India.

### Key Features of CAA

- **Citizenship on the basis of religion:** The Bill amends the Citizenship Act, 1955, and for the first time, will grant citizenship on the basis of religion to non-Muslim communities from Afghanistan, Bangladesh and Pakistan, who entered India on or before December 31, 2014.
- **Non – Muslim Communities Included:** Hindu, Sikh, Buddhist, Jain, Parsi, and Christian. This implies that migrants, who identify themselves with any group or community other than those mentioned here, from the above mentioned countries won't be eligible for citizenship.
- **Exceptions:** The provisions on citizenship for illegal migrants will not apply to two categories – states protected by the 'Inner Line', and areas covered under the **Sixth Schedule** of the Constitution.
- **Inner Line Permit (ILP):** This is a special permit that citizens from other parts of India require to enter a state protected by the ILP regime. Without an ILP granted by the state government, an Indian from another state cannot visit a state that is under the ILP regime.
- **Sixth Schedule:** The Sixth Schedule relates to special provisions in administration of certain Northeastern states (Assam, Mizoram, Meghalaya and Tripura). It provides special powers for Autonomous District Councils (ADCs) in these states.

### Citizenship by Naturalization

- Under The Citizenship Act, 1955, one of the requirements for citizenship by naturalisation is that the applicant must have resided in India during the last 12 months, as well as for 11 of the previous 14 years.
- The amendment relaxes the **second requirement from 11 years to 5 years** as a specific condition for applicants belonging to the specified six religions, and the above mentioned three countries.
- **Additional Ground for Cancelling Overseas Citizen of India (OCI) Registration** i.e. violation of any law notified by the central government.
- However, the Bill does not provide any guidance on the nature of laws which the central government may notify.

### Rajya Sabha marks Human Rights Day:

Context – Rajya Sabha Deputy Chairperson opened proceedings by marking the 73rd anniversary of the adoption of the Universal Declaration of Human Rights. The anniversary is celebrated across the world as Human Rights Day.

Concept –

- Universal Declaration of Human Rights, adopted on 10<sup>th</sup> December in 1948, sets out, for the first time, the inalienable rights that everyone is entitled to as a human being regardless of race, colour, religion, sex, language, political or other opinion, national or social origin, property, birth or other status.
- This year, the day focuses on the theme 'Equality — Reducing inequalities, advancing human rights', which aims to highlight principles of equality and non-discrimination as the core of human rights.



- There should be a human rights approach to development to reduce inequalities and discrimination, and to pave the way for equality, inclusion and sustainability.
- **Hansa Jivraj Mehta**, a leading freedom fighter and champion of women's rights, was single-handedly responsible for amending a critical feature of the Universal Declaration of Human Rights adopted by the United Nations General Assembly in 1948 - sought a small amendment to Article 1 of the UDHR, which stated, "All men are born free and equal."
  - After her recommendation, Article 1 of the Universal Declaration of Human Rights read, "**All human beings are born free and equal.**"

## Objectives of Human Rights Day



# Human Rights

### 6th Schedule of Constitution:

Context – Various civil society groups in Ladakh have been demanding inclusion of Ladakh under the Sixth Schedule of the Constitution.

Concept –

- The Sixth Schedule of the Constitution consists of provisions for the administration of **tribal areas in Assam, Meghalaya, Tripura and Mizoram, according to Article 244 of the Indian Constitution.**
- Passed by the Constituent Assembly in 1949, it seeks to safeguard the rights of tribal population through the formation of Autonomous District Councils (ADC).
- ADCs are bodies representing a district to which the Constitution has given varying degrees of autonomy within the state legislature.
- The Governors of these states are empowered to reorganise boundaries of the tribal areas.
- In simpler terms, she or he can choose to include or exclude any area, increase or decrease the boundaries and unite two or more autonomous districts into one.
- They can also alter or change the names of autonomous regions without a separate legislation.
- **Along with ADCs, the Sixth Schedule also provides for separate Regional Councils** for each area constituted as an autonomous region.
- In all, there are **10 areas in the Northeast that are registered as autonomous districts – three in Assam, Meghalaya and Mizoram and one in Tripura.**
- These regions are named as district council of (name of district) and regional council of (name of region).
- Each autonomous district and regional council consists of **not more than 30 members**, of which **four are nominated by the governor** and the rest via elections. All of them remain in power for a term of five years.
- The Bodoland Territorial Council, however, is an exception as it can constitute up to 46 members.

### Ladakh Autonomous Hill Development Councils:

Context – The parliamentary panel asked the MHA to increase sanctioning powers delegated to the engineering cadre and financial power of the Ladakh Autonomous Hill Development Councils (LAHDC).

Concept –

- LAHDC, Leh is an autonomous district council that administers the Leh district of Ladakh.



- The council was created under the Ladakh Autonomous Hill Development Council Act of 1995.
- LAHDC-Leh has a total of 30 seats and four councillors are nominated by the government.
- The executive arm of the council consists of an executive committee composed of a Chief Executive Councillor and four other executive councillors.
- The autonomous hill council work with village panchayats to take decisions on economic development, healthcare, education, land use, taxation, and local governance which are further reviewed at the block headquarters in the presence of the chief executive councillor and executive councillors.
- The administration of Union Territory of Ladakh looks after law and order, communications and the higher education in the districts.
- Leh, which is a Buddhist-dominated district of Ladakh, has demanded the implementation of the sixth schedule for the Union territory to guard against demographic change and dilution of the unique cultural and tribal identity.
- The democratic constitution of the Council has heralded democratic decentralization of planning process with the involvement of people at the grass root level.
- An Autonomous Hill Council has also been established in neighboring Kargil District. The Hill Council in Kargil came into existence in July 2003.

**Pre-Budget:**

Context – Pre-budget consultation: Agri experts for MSP based on realistic cost, subsidised diesel

Concept –

- Budget is the annual financial statement of a government which lays out fiscal roadmap for the country for the next one year. It is prepared by the ministry of finance in consultation with Niti Aayog and other concerned ministries.
- The Budget division of the department of economic affairs (DEA) in the finance ministry is the nodal body responsible for producing the Budget.
- Budget-making process starts in August-September, that is, about six months prior to its date of presentation.
- It needs to be passed by both houses of Parliament before beginning of the financial year, that is, April 1.
- The finance minister holds pre-Budget meetings with various stakeholders to know about their proposals and demands. These stakeholders include state representatives, bankers, agriculturists, economists and trade unions.
- Once the pre-Budget consultations are done, the finance minister takes the final call on all demands. It is also discussed with the Prime Minister before finalisation.

**Speaker of Lok Sabha:**

Context – The Speaker has ample power to quell disorderly behaviour, but thereafter, the House is the master

Concept –

- The speaker of Lok Sabha is the chair person or presiding officer.
- The members of Lok Sabha elect speaker and deputy speaker from among its members after elections or when vacancy exists.
- To maintain independence of the office of speaker his salary on the consolidated Fund of India and the same is not subject to vote of Parliament.
- He is sixth in the Order of Precedence of Government of India.
- The speaker decides the agenda of discussions and has a casting vote (vote not in first place, but, only if tie exist).
- The Committees of the House function under the overall direction of the Speaker. He nominates the chairpersons of the committee.
- Committees like the Business Advisory Committee, the General Purposes Committee and the Rules Committee work directly under her Chairmanship
- The speaker has the power to adjourn or suspend the house/meetings if the quorum is not met. The Speaker ensures the discipline and decorum of the house. If the speaker finds the behaviour and a member of Parliament is not good, he/she can punish the unruly members by suspending.
- The Speaker of Lok Sabha does not leave the office just after dissolution of the assembly. He continues to be in the office till the newly formed assembly takes its first meeting and elects the new Speaker.
- The final power to decide whether a particular bill is a Money Bill or not is vested in the Speaker of the Lok Sabha.
- The Speaker of Lok Sabha presides over the joint sitting of both the Houses.

**Removal from office:**

- If no more a member of house; resigns by writing to deputy speaker; he is of unsound mind declared so by the court of law; if he is declared undischarged insolvent; if he is no longer the citizen of India;



- He is removed from the post of Speaker by passing a resolution by majority of the members of Lok Sabha. This is to note that during resolution for removal of Speaker, the Speaker is not in position to cast his vote even if there is tie.

### The Ordinance Raj:

Context – The frequent promulgation of ordinances is detrimental for a constitutional democracy.

Concept –

- The ordinance-making power in the Constitution is not a necessary feature of the Westminster form of parliamentary democracy that India has adopted.
- It is a relic of the Government of India Act, 1935 that was nonetheless retained by the Constituent Assembly.

**Separation of powers between the Legislature, Executive and Judiciary:** In India, the central and state legislatures are responsible for law making, the central and state governments are responsible for the implementation of laws and the judiciary (Supreme Court, High Courts and lower courts) interprets these laws. However, there are several overlaps in the functions and powers of the three institutions. For example, the President has certain legislative and judicial functions and the legislature can delegate some of its functions to the executive in the form of subordinate legislation.

**Ordinance making powers of the President** Article 123 of the Constitution grants the President certain law making powers to promulgate Ordinances when either of the two Houses of Parliament is not in session and hence it is not possible to enact laws in the Parliament.

An Ordinance may relate to any subject that the Parliament has the power to legislate on. Conversely, it has the same limitations as the Parliament to legislate, given the distribution of powers between the Union, State and Concurrent Lists. Thus, the following limitations exist with regard to the Ordinance making power of the executive:

1. **Legislature is not in session:** The President can only promulgate an Ordinance when either of the two Houses of Parliament is not in session.
2. **Immediate action is required:** The President cannot promulgate an Ordinance unless he is satisfied that there are circumstances that require taking 'immediate action'
3. **Parliamentary approval during session:** Ordinances must be approved by Parliament within six weeks of reassembling or they shall cease to operate. They will also cease to operate in case resolutions disapproving the Ordinance are passed by both the Houses. Figure 1 shows the number of Ordinances that have been promulgated in India since 1990. The largest number of Ordinances was promulgated in 1993, and there has been a decline in the number of Ordinance promulgated since then. However, the past year has seen a rise in the number of Ordinances promulgated.

**Ordinance making powers of the Governor** Just as the President of India is constitutionally mandated to issue Ordinances under Article 123, the Governor of a state can issue Ordinances under Article 213, when the state legislative assembly (or either of the two Houses in states with bicameral legislatures) is not in session. The powers of the President and the Governor are broadly comparable with respect to Ordinance making. However, the Governor cannot issue an Ordinance without instructions from the President in three cases where the assent of the President would have been required to pass a similar Bill

### Important Cases

Supreme Court Cases	Judgement
<b>RC Cooper vs. Union of India, 1970</b>	In RC Cooper vs. Union of India (1970) the Supreme Court, while examining the constitutionality of the Banking Companies (Acquisition of Undertakings) Ordinance, 1969 which sought to nationalise 14 of India's largest commercial banks, held that the President's decision could be challenged on the grounds that 'immediate action' was not required; and the Ordinance had been passed primarily to by-pass debate and discussion in the legislature.
<b>38<sup>th</sup> Constitutional Amendment Act, 1975</b>	Inserted a new clause (4) in Article 123 stating that the President's satisfaction while promulgating an Ordinance was final and could not be questioned in any court on any ground.
<b>44<sup>th</sup> Constitutional Amendment Act, 1977</b>	Deleted clause (4) inserted by the 38 <sup>th</sup> CAA and therefore reopened the possibility for the judicial review of the President's decision to promulgate an Ordinance.
<b>AK Roy vs. Union of India, 1980</b>	In AK Roy vs. Union of India (1982) while examining the constitutionality of the National Security Ordinance, 1980, which sought to provide for preventive detention in certain cases, the Court argued that the President's Ordinance making power is not beyond the scope of judicial



	review. However, it did not explore the issue further as there was insufficient evidence before it and the Ordinance was replaced by an Act. It also pointed out the need to exercise judicial review over the President's decision only when there were substantial grounds to challenge the decision, and not at "every casual and passing challenge".
<b>T Venkata Reddy vs. State of Andhra Pradesh, 1985</b>	In T Venkata Reddy vs. State of Andhra Pradesh (1985), while deliberating on the promulgation of the Andhra Pradesh Abolition of Posts of Part-time Village Officers Ordinance, 1984 which abolished certain village level posts, the Court reiterated that the Ordinance making power of the President and the Governor was a legislative power, comparable to the legislative power of the Parliament and state legislatures respectively. This implies that the motives behind the exercise of this power cannot be questioned, just as is the case with legislation by the Parliament and state legislatures.
<b>DC Wadhwa vs. State of Bihar, 1987</b>	It was argued in DC Wadhwa vs. State of Bihar (1987) the legislative power of the executive to promulgate Ordinances is to be used in exceptional circumstances and not as a substitute for the law making power of the legislature. Here, the court was examining a case where a state government (under the authority of the Governor) continued to re-promulgate ordinances, that is, it repeatedly issued new Ordinances to replace the old ones, instead of laying them before the state legislature. A total of 259 Ordinances were re-promulgated, some of them for as long as 14 years. The Supreme Court argued that if Ordinance making was made a usual practice, creating an 'Ordinance raj' the courts could strike down re-promulgated Ordinances.

### Section 43D(5) of the Unlawful Activities Prevention Act (UAPA):

Context – Just two days before his death, Stan Swamy had moved the Bombay High Court challenging Section 43D(5) of the Unlawful Activities Prevention Act (UAPA) — a provision Swamy termed "illusory"

Concept –

- The provision makes grant of bail virtually impossible under UAPA since it leaves little room of judicial reasoning.
- In the case of Zahoor Ahmed Shah Watali, the Supreme Court in 2019 confirmed that courts must accept the state's case without examining its merits while granting bail.
- In string of rulings, however, courts have taken an alternative reading of this provision, emphasising the right to a speedy trial and raising the bar for the state to book an individual under UAPA.
- The UAPA, enacted in 1967, was strengthened by the Congress-led UPA government in 2008 and 2012.
- The test for denying bail under the UAPA is that the court must be satisfied that a "prima facie" case exists against the accused.
  - In 2019, the SC defined prima facie narrowly to mean that the courts must not analyse evidence or circumstances but look at the "totality of the case" presented by the state.
- Section 43D(5) reads: "Notwithstanding anything contained in the Code, no person accused of an offence punishable under Chapters IV and VI of this Act shall, if in custody, be released on bail or on his own bond unless the Public Prosecutor has been given an opportunity of being heard on the application for such release.
  - "Provided that such accused person shall not be released on bail or on his own bond if the Court, on a perusal of the case diary or the report made under section 173 of the Code is of the opinion that there are reasonable grounds for believing that the accusation against such person is prima facie true."

### Law of Bail under UAPA

- Both regular bail and bail by default like CrPC are available under UAPA with some alterations under section 43 D of UAPA.
- The Regular Bail in UAPA can be granted by a competent magistrate under section 437 CrPC and by the high court or district and sessions court under section 439 of CrPC.
- The provisions for default bail is also available under section 167(2) CrPC read with section 43D(2) of UAPA, after 30 days of police custody and 90 days of judicial custody, subjected to delay in filing of charge-sheet.
- UAPA does not provide any specific conditions to be satisfied to grant bail.

### Curious case of Section 43D(5)



- It is only applicable to offences punishable under chapter IV and VI of the act i.e. offences related to terrorist acts and terrorist organizations.
- It has a proviso which basically explains condition when bail shall be denied, i.e. if reasonable grounds exist for accusations to be prima-facie true and such decision shall be based on charge sheet or case diary.
- The second part of proviso explains the burden over prosecution and the prosecution had to prove that reasonable grounds exist for accusations believed to be prima facie true.

### Executive:

#### **President's Rule:**

Context – BJP MP asks for Presidential Rule in Jharkhand after ECI order on official

Concept –

- It is the **suspension of an elected state/UT government and the imposition of direct rule of the Centre**, also called as the “state emergency”.
- The Constitution provides for the President's Rule imposition through the invocation of **Article 356 of the Constitution** by the President on the advice of the Union Council of Ministers.
- This application of the President's rule is done after receipt of the report from the Governor of the State or otherwise (Article 365 says that whenever a state fails to comply with or to give effect to any direction from the Centre, it will be lawful for the president to hold that a situation has arisen in which the government of the state cannot be carried on in accordance with the provisions of the Constitution), is satisfied that a situation has arisen in which the government of the State cannot be carried on in accordance with the provisions of the Constitution

#### **Parliamentary Approval and Duration of Art 356**

- Proclamation must be approved by both the Houses of Parliament within two months from the date of its issue through simple majority in either House.
- It is initially valid for six months and can be extended for a maximum period of three years with the approval of the Parliament, every six months.

#### **Revocation**

- A proclamation of President's Rule may be revoked by the President at any time by a subsequent proclamation. Such a proclamation does not require parliamentary approval.
- Consequences of President's Rule
- The state governor, on behalf of the President, carries on the state administration with the help of the chief secretary of the state or the advisors appointed by the President.
- The President can declare that the powers of the state legislature are to be exercised by the Parliament.
- The President either suspends or dissolves the state legislative assembly.

#### **Governor as Chancellor of the Universities:**

Context – Kerala Governor Arif Mohammed Khan says he wants to quit as Chancellor

Concept –

- Hon'ble Governor is ex-officio Chancellor of the State Universities.
- As per the provisions of the Act of the concerned University, the Governor appoints the Vice Chancellor on the advice/ in consultation with the State Government.
- As Chancellor, the Governor also presides over the Convocation of the State Universities, whenever present.
- The Governor as Chancellor has absolute authority. The Governor chairs the Senate and the Syndicate meetings. In his absence the Vice-Chancellor officiates. As the visitor of the university he can inspect, order and command. The institution runs under his stewardship.
- Chancellor also appoints his/her nominees on various bodies like Senate, Syndicate, Board of Management, Selection Committee and Academic Council of the State Universities.
- The Chancellor has been entrusted with the powers to enquire into the affairs of the State Universities as per the provisions of the Act.
- Under the Central Universities Act, 2009, and other statutes, the President of India shall be the Visitor of a central university.
- With their role limited to presiding over convocations, Chancellors in central universities are titular heads, who are appointed by the President in his capacity as Visitor.
- The VCs too are appointed by the Visitor from panels of names picked by search and selection committees formed by the Union government.



- The Act adds that the President, as Visitor, shall have the right to authorise inspections of academic and non-academic aspects of the universities and also to institute inquiries.

### Various offices and posts:

#### **Election Commission of India:**

Context – Election Commission ordering the Jharkhand government to remove an official from his current post for registering a false case

Concept –

- The Election Commission of India is an autonomous constitutional authority responsible for administering Union and State election processes in India.
- The body administers elections to the Lok Sabha, Rajya Sabha, and State Legislative Assemblies in India, and the offices of the President and Vice President in the country.
- Part XV of the Indian constitution deals with elections, and establishes a commission for these matters.
- Article 324 to 329 of the constitution deals with powers, function, tenure, eligibility, etc of the commission and the member

#### **Structure of the commission**

- The commission consists of one Chief Election Commissioner and two Election Commissioners.
- The secretariat of the commission is located in New Delhi.
- At the state level election commission is helped by Chief Electoral Officer who is an IAS rank Officer.
- The President appoints Chief Election Commissioner and Election Commissioners.
- They have a fixed tenure of six years, or up to the age of 65 years, whichever is earlier.
- They enjoy the same status and receive salary and perks as available to Judges of the Supreme Court of India.
- The Chief Election Commissioner can be removed from office only through a process of removal similar to that of a Supreme Court judge for by Parliament.

#### **Procedure of Removal**

- Judges of High Courts and Supreme Court, CEC, Comptroller and Auditor General (CAG) may be Removed from office through a motion adopted by Parliament on grounds of ‘Proven misbehaviour or incapacity’.
- Removal requires special majority of 2/3rd members present and voting supported by more than 50% of the total strength of the house.
- The Constitution does not use the word ‘impeachment’, for the removal of the judges, CAG, CEC.
- The term ‘Impeachment’ is only used for removing the President which requires the special majority of 2/3rd members of the total strength of both the houses which is not used elsewhere.

#### **Functions**

- Election Commission of India superintendents, direct and control the entire process of conducting elections to Parliament and Legislature of every State and to the offices of President and Vice-President of India.
- The most important function of the commission is to decide the election schedules for the conduct of periodic and timely elections, whether general or bye-elections.
- It prepares electoral roll, issues Electronic Photo Identity Card (EPIC).
- It decides on the location polling stations, assignment of voters to the polling stations, location of counting centres, arrangements to be made in and around polling stations and counting centres and all allied matters.
- It grants recognition to political parties & allot election symbols to them along with settling disputes related to it.
- The Commission also has advisory jurisdiction in the matter of post election disqualification of sitting members of Parliament and State Legislatures.
- It issues the Model Code of Conduct in election for political parties and candidates so that the no one indulges in unfair practice or there is no arbitrary abuse of powers by those in power.
- It sets limits of campaign expenditure per candidate to all the political parties, and also monitors the same.

#### **Model Code of Conduct:**

Context – Raising the issue in the Lok Sabha, BJP MP said the ECI had registered cases against him saying he had violated model code of conduct six months after the elections.

Concept –





- The MCC is a **set of guidelines issued by the Election Commission (EC)** to regulate political parties and candidates prior to elections. Basically, the code spells out the do's and don'ts for elections.
- This is in keeping with Article 324 of the Constitution, which mandates EC to conduct free and fair elections to the Parliament and State Legislatures.
- It is **not statutory** but Political Parties, Candidates and Polling Agents are expected to observe the norms, on matters ranging from the content of election manifestos, speeches and processions, to general conduct etc.
- The code comes into force on the announcement of the poll schedule and remains operational till the process is concluded.
- The EC has devised several mechanisms to take note of the violation of the code, which include joint task forces of enforcement agencies and flying squads.

#### Legal Enforcement

- Though MCC **does not have any statutory backing**, but the Code has come to acquire teeth in the past decade because of its strict enforcement by the EC.
- Certain provisions of the MCC may be enforced through invoking corresponding provisions in other statutes such as the Indian Penal Code, 1860, Code of Criminal Procedure, 1973, and Representation of the People Act, 1951.
- In 2013, the Standing Committee on Personnel, Public Grievances, Law and Justice, recommended making the model code of conduct legally binding. It recommended that the MCC be made a part of the Representation of the People Act, 1951.
- **The EC argues against making it legally binding.** According to it, elections must be completed within a relatively short time or close to 45 days, and judicial proceedings typically take longer, therefore it is not feasible to make it enforceable by law.

#### Additional Information: cVIGIL App

- The cVIGIL App provides time-stamped, evidence-based proof of the Model Code of Conduct / Expenditure Violation, having live photo/video with auto location data.
- Any citizen can lodge a complaint through the Mobile App. Flying Squads will then investigate the matter and the Returning Officer takes the decision.
- The status of cVIGIL can be shared with the cVIGIL complainant within a specified time limit.

#### Governance:

##### **Char Dham Devasthanam Management Act:**

Context – Chief Minister of Uttarakhand Pushkar Singh Dhami on Tuesday announced the withdrawal of the Char Dham Devasthanam Management Act.

Concept –

- The Uttarakhand government in December 2019 had tabled the Uttarakhand Char Dham Shrine Management Bill, 2019, in the state Assembly.
- The bill was aimed at bringing the **Char Dham of Badrinath, Kedarnath, Gangotri and Yamunotri and 49 other temples** under the purview of a proposed shrine board.
- The bill was passed in the Assembly and became the Uttarakhand Char Dham Devasthanam Management Act, 2019.
- Under the same Act, the government constituted the Uttarakhand **Char Dham Devasthanam Board** on January 15, 2020.
- As per the Act, **the Chief Minister is the chairman** whereas the **minister for religious affairs is the vice-chairman** of the board. Two MLAs of Gangotri and Yamunotri are members on the board along with the Chief Secretary. **A senior IAS officer is the Chief Executive Officer.**
- Under this board, there are **53 temples**, including four shrines – Badrinath, Kedarnath, Gangotri and Yamunotri – and other temples located around these shrines.
- The shrine board was constituted as the **highest governing body** for the **management of the temples** with powers to frame policies, execute provisions of the Act, budget formulation and sanction expenditure, among others.
  - The board was also empowered to give directions for the safe custody, prevention and **management of funds**, valuable securities, jewellery and properties vested in the temples.
- Before the constitution of the Board, the **Shri Badrinath-Shri Kedarnath Act, 1939** was in place for the management of two shrines – Badrinath and Kedarnath – and **Shri Badrinath- Shri Kedarnath Mandir Samiti** for 45 temples. The Samiti was chaired by a government-appointed person whereas an official of all India service used to be the CEO.
  - In Gangotri and Yamunotri, management of the shrines was earlier in the control of local trusts and the government was not getting any share from the donations made by devotees.

- All the decisions related to utilization of the donations, funds and development works in and around those 45 temples including Badrinath and Kedarnath were taken by that committee and the government did not intervene. But through the Devasthanam board, the **government tried to take control over the financial and policy decisions.**

**DigiLocker:**

Context – TN directs Departments to adopt DigiLocker

Concept –

- DigiLocker, a flagship initiative of the Union Ministry of Electronics and Information Technology (**MeitY**) under the Digital India Programme, is a platform to access the documents and certificates issued by an authority and digitally verify the same, thus eliminating the use of physical documents.
- DigiLocker is a secure cloud based platform for storage, sharing and verification of documents & certificates.
- This is government's effort to create an electronic version of documents, which can be easily verified and stored in printable format.
- The users can store their documents such as insurance, medical reports, PAN card, passport, marriage certificate, school certificate and other documents in the digital format.
- The locker can be accessed by individuals, using their mobile number.
- Technology companies such as Google and Dropbox offer storage space for users to store documents.
- Apart from e-documents, DigiLocker can store a **Uniform Resource Identifier (URI)** link of e-documents issued by various issuer departments.

**HOW DOES DIGILOCKER WORK?**

- To Sign-up for the DigiLocker you need to have an Aadhaar and **mobile number registered with Aadhaar.**
- Type your Aadhaar number and the **captcha code.**
- After clicking signup button, an **OTP (One Time Password)** will be sent to the registered mobile number and email-id.
- Enter OTP and click on **“Validate OTP” button to complete the sign up and login.**

**Exemplar School Initiative:**

Context – ADB approves \$500-million loan to improve quality of school education

Concept –

- In a significant announcement for strengthening School Education as envisioned under National Education Policy 2020, **Union Budget 2021-22** announced that more than 15,000 schools will be qualitatively strengthened to **include all components of the National Education Policy 2020.** These will emerge as exemplar schools in their regions, handholding and mentoring other schools to achieve the ideals of the Policy.
- Under this initiative one primary and one elementary school in each block and one secondary and one senior secondary school in each district will be developed as schools of excellence that are strengthened, empowered and capacitated to provide – a safe and stimulating learning environment where a wide range of learning experiences are offered, and where good physical infrastructure and appropriate resources conducive to learning are available to all students.
- Few Kendriya Vidyalayas and Navodaya Vidyalays will also be developed as exemplars for showcasing implementation of NEP 2020 and emerging as schools of excellence.

**Beneficiaries and Benefits of Exemplar Schools**

- These schools will focus on cognitive development, building character and creating holistic and well-rounded individuals equipped with 21st century skills.
- These schools will help showcase the implementation of the NEP and emerge as exemplars and schools of excellence in their respective regions.
- Pedagogy adopted in these schools will be more experiential, holistic, integrated, real life situations based, inquiry-driven, discovery-oriented, learner-centered, discussion-based, flexible, and, enjoyable.



- Focus on learning outcomes of every child in every grade – Assessment of Quantitative, Verbal & Logical Reasoning Skills.
- Introduction of Child tracking, Holistic progress Card etc.
- Convergence with existing schemes and line Ministries.

**Integrated Scheme for School Education (Samagra Shiksha):**

Context – ADB approves \$500-million loan to improve quality of school education

Concept –

- It is an integrated scheme for school education covering the entire gamut from pre-school to class XII.
- It aims to deliver inclusive, equitable, and affordable school education.
- It subsumes the three Schemes of Sarva Shiksha Abhiyan (SSA), Rashtriya Madhyamik Shiksha Abhiyan (RMSA) and Teacher Education (TE).
- The scheme covers 1.16 million schools, over 156 million students and 5.7 million Teachers of Govt. and Aided schools (from pre-primary to senior secondary level).
- It is being implemented as a centrally sponsored scheme. It involves a 60:40 split in funding between the Centre and most States. It was launched by the Ministry of Education in 2018.

**National Family Benefit Scheme (NFBS):**

Context – National Family Benefit Scheme is in urgent need of revival

Concept –

- The National Family Benefit Scheme (NFBS) was introduced by GOI throughout the country in August 1995, under the National Social Assistance Programme (NSAP), with the aim to provide immediate succor to those Below Poverty Line (BPL) families whose lone bread earner expires due to natural or accidental cause.
- Till 2002-03 it was fully funded by GOI under centrally sponsored scheme. Thereafter it was shifted to State Sector and is currently in vogue under the same pattern.
- Under National Family Benefit Scheme one-time financial assistance of Rs.20000/-is being paid to the bereaved family living below poverty line whose lone bread earner expires due to the natural or accidental death and is having no substantial source of income.
- In addition to this the deceased bread earner should be in the age group of 18-64 years.

**Lateral Entry into the Civil Services:**

Context – The government has approved appointment of 38 candidates, including 10 joint secretaries, from the private sector through the lateral entry system

Concept –

- Lateral entry means when personnel from the private sector are selected to an administrative post of the government despite them not being selected in or being part of a bureaucratic setup.
- In 2018, the government decided to undertake lateral recruitment of joint secretaries to fulfil the twin purpose of bringing in domain expertise to the civil services and addressing the problem of shortage of IAS officers at the Centre
- The lateral entry appointments are done on a contractual basis. Since it is not a permanent post like regular government jobs, it will dilute the monopoly of bureaucrats in the government departments.
- The appointments are mainly made to the post of Director, Joint Secretary, and Deputy Secretary.
- The maximum age limit for joint secretaries is 45 years and for director-level posts, it is 35 years.

**Directorate of Revenue Intelligence (DRI):**

Context – Bihar has again emerged as the state with the highest number of seizures of ganja (cannabis), according to the latest report on smuggling in India by the Directorate of Revenue Intelligence (DRI).

Concept –

- The Directorate of Revenue Intelligence (DRI) is the premier intelligence and enforcement agency of the Government of India on anti-smuggling matters.
- The Directorate is run by officers from the Central Board of Indirect Taxes and Customs (CBIC), Ministry of Finance, who are posted in its various Zonal Units as well as in Indian embassies abroad as part of the Customs Overseas Intelligence Network.



- It is headed by a Director General of the rank of Special Secretary to the Government of India.
- The Agency works to secure India's national and economic security by preventing the outright smuggling of contraband such as firearms, gold, narcotics, Fake Indian Currency notes, antiques, wildlife and environmental products.
  - Moreover, it also works to prevent the proliferation of black money, trade based money laundering and commercial frauds.
- The DRI has also been designated as the lead agency for Anti-Smuggling National Coordination Centre (SCord).

**Civil Registration System:**

Context – Establishing reliable, real-time mortality surveillance is an essential element of pandemic preparedness

Concept –

- The history of Civil Registration System (CRS) in India dates back to the middle of the 19th century.
- In 1886 a Central Births, Deaths and Marriages Registration Act was promulgated to provide for voluntary registration throughout British India.
- Post-independence, the Registration of Births and Death Act (RBD Act) was enacted in 1969 to promote uniformity and comparability in the registration of Births and Deaths across the country and compilation of vital statistics based thereon.
- With the enactment of the Act, registration of births, deaths and still births has become mandatory in India.
- The Registrar General, India (RGI) at the Central Government level coordinates and unifies the activities of registration throughout the country.
- However, implementation of the statute is vested with the State Governments.
- The registration of births and deaths in the country is done by the functionaries appointed by the State Governments.
- Directorate of Census Operations are the sub-ordinate offices of Office of the Registrar General, India and these offices are responsible of monitoring of working of the Act in their concerned State/UT.
- Civil Registration System (CRS) in India is the unified process of continuous, permanent, compulsory and universal recording of the vital events (births, deaths, stillbirths) and characteristics thereof. The data generated through a complete and up-to-date CRS is essential for socio-economic planning.

**National Voters Service Portal (NVSP):**

Context – Flaw on voters' portal fixed, possible data leak averted

Concept –

- In a bid to provide all possible support services to electors with the help of IT tools, the Election Commission of India (ECI) created the National Voter Service Portal (NVSP).
- The portal was launched on the occasion of National Voters' Day in 2015. National Voters' Day is celebrated on 25th January every year.

**Aim of NVSP**

- The sole aim of NVSP is to provide single window services to electors.

**Services offered in NVSP**

- Search the name in Electoral List.
- Deletion/objection in electoral roll
- Correction of entries in electoral roll
- Application for transposition of entry in electoral roll
- Apply online for new registration
- Apply online for registration of overseas voter
- Apply online for Enrolment, Modification, Deletion and change of address in electoral roll
- Track Status of applications
- Print vote information slip
- View details of Polling booth, Assembly Constituency and Parliamentary constituency, Booth Level officer, Electoral Registration Officer and other Election officer.
- View links to State / UT CEO offices websites
- View awareness information on polling processes, Electronic Voting Machine (EVM), etc

**Institution of National Importance:**

Context – The Rajya Sabha passed the National Institute of Pharmaceutical Education and Research (Amendment) Bill, 2021

Concept –



- An Institution of National Importance refers to an autonomous institute established under an Act, with the power to hold examinations, grant degrees, diplomas and other academic distinctions or titles.
- These institutes of national importance receive funding from the central government.

#### Benefits of Institute of National Importance

- Functional autonomy to enhance efficiency, quality and accountability.
- Increased funding.
- Have a better quality of education imparted, and improved research facilities.
- Faster decision-making capabilities.
- Minimal interference from the political executive.
- Such institutions might be able to provide more scholarships to the students.
- They can also provide more sports facilities, seminars, etc.

#### The National Institute of Pharmaceutical Education and Research (Amendment) Bill, 2021

- It seeks to amend the National Institute of Pharmaceutical Education and Research Act, 1998.
  - The 1998 Act established the National Institute of Pharmaceutical Education and Research, Punjab and declared it as an Institution of National Importance.
- The Bill declares six additional National Institute of Pharmaceutical Education and Research as Institutions of National Importance.
- These institutes are located in: (i) Ahmedabad, (ii) Hajipur, (iii) Hyderabad, (iv) Kolkata, (v) Guwahati, and (vi) Raebareli.
- The Bill provides for a Council to coordinate the activities among the institutes under the Bill to ensure development of pharmaceutical education and research and maintenance of standards.

#### Institutions of Eminence (IoEs)

- The institutes of eminence scheme under the Union human resource development (HRD) ministry aims to project Indian institutes to global recognition.
- The selected institutes will enjoy complete academic and administrative autonomy.
- The selection shall be made through challenge method mode by the Empowered Expert Committee constituted for the purpose.
- Grant: The public institutions under IOE tag will receive a government grant of 1,000 crore, while the private institutions will not get any funding under the scheme.

### **ECONOMICS**

#### Banking sector:

#### **RBI keeps the Repo Rates Unchanged:**

Context – The Monetary Policy Committee (MPC) of the Reserve Bank of India on Wednesday kept key policy rates unchanged for the ninth time in a row

Concept –

- The bank has kept the **repo rate** — **the rate at which the RBI lends funds to banks** — unchanged at four per cent and the **reverse repo rate** — **the rate at which RBI borrows from banks** — at 3.35 per cent.
- The **bank rate** — **the rate at which RBI lends short-term funds to banks sans security** — also remains unchanged at 4.25 per cent.
- The unchanged repo rates will help maintain the status quo on the prevailing low interest rate regime for some more time.
- This works well for borrowers as the environment of affordability will continue.



**Variable Reverse Repo Rate (VRRR):**

Context – RBI increases 14-day VRRR amount in December to shift out of overnight auctions

Concept –

- RBI's rebalancing of liquidity management started in February 2020, as the central bank shifted its liquidity absorption tool out of the fixed-rate overnight reverse repo window into VRRR auctions of longer maturity.
- In order **to absorb additional liquidity in the system**, the RBI announced conducting a VRRR program because it has higher yield prospects as compared to the fixed rate overnight reverse repo.
- The Reserve Bank of India (RBI) has increased the amount of variable rate reverse repo (VRRR) auctions in December, as it is shifting out of the fixed-rate overnight reverse repo auction and re-establishing VRRR as the main liquidity management operations
- The amount under the 14-day VRRR auctions on a fortnightly basis has been increased to Rs 6.5 lakh crore for December 17 and further to Rs 7.5 lakh crore for December 31.
  - While from January 2022 onwards, liquidity absorption will be undertaken mainly through the auction route.
- Market participants expect the heavy liquidity withdrawal from the system will pull overnight rates near to repo rate, this would mean that accrual returns on a very short-term, low market risk products like overnight and liquid funds could rise in the coming months.

**Banking Reform Committees:**

Context – A recent RBI report has made a host of valuable suggestions to streamline digital lending while protecting borrowers

Concept –

<u>Year</u>	<u>Committee</u>	<u>Mandate</u>
1988	Rangarajan Committee	Bank Computerisation
1991	Narasimham Committee	Financial System Reforms
1998	Narasimham Committee	Banking Sector Reforms
1999	Madhav Rao Committee	Urban Cooperative Banks
2010	Malegam Committee	MFI sector

**Scheduled Status of a Bank:**

Context – Scheduled status to Paytm Payments Bank

Concept –

- Paytm Payments Bank has been given the scheduled bank status by the Reserve Bank of India.
- According to the bank, it has been included in the Second Schedule to the **Reserve Bank of India Act, 1934**.
- With the scheduled bank status, the bank can explore new business opportunities, including participation in government and other large corporations issued request for proposals, primary auctions, fixed-rate and variable rate repos, and reverse repos

**Scheduled banks**

- Scheduled banks are banks that are listed in the 2nd schedule of the Reserve Bank of India Act, 1934.
- The bank's paid-up capital and raised funds must be at least Rs5 lakh to qualify as a scheduled bank.
- Scheduled banks are liable for low-interest loans from the Reserve Bank of India and membership in clearinghouses.
- They must, however, meet certain requirements, such as maintaining an average daily CRR (Cash Reserve Ratio) balance with the central bank at the rates set by it.
- The RBI allows Scheduled Banks to raise debts and loans at bank rates.

Scheduled banks consist of

1. **Scheduled commercial banks**
2. **Scheduled cooperative banks**

The **scheduled commercial banks** are divided into following categories:



1. **Public sector banks** (which are further classified as nationalised banks and State Bank of India [SBI] banks);
2. **Private sector banks** (which are further classified as old private sector banks and new private sector banks that emerged after 1991);
3. **Foreign banks** in India; and,
4. **Regional rural banks** (which operate exclusively in rural areas to provide credit and other facilities to small and marginal farmers, agricultural workers, artisans, and small entrepreneurs).

	Scheduled Banks	Non-Scheduled Banks
<b>Meaning</b>	Minimum paidup capital required is 5 lakh (not required for examination). And does not harm the interest of customer.	They does not comply with RBI guidelines
<b>CRR</b>	Cash Reserve Ratio maintained with RBI	CRR maintained with themselves
<b>Schedule</b>	Listed in 2nd scheduled of RBI act	Not listed
<b>Returns</b>	At particular time returns are to be submitted	Not required
<b>Member of clearing house</b>	Can become member of clearing house	Cannot
<b>Borrowing</b>	Can borrow money from RBI	Cannot

### Inter Creditor Agreement:

Context – RCF: Authum resolution plan gets debenture holder's nod

Concept –

- ICA is an agreement among banks that have dues from a borrower in stress. The pact mandates the lead bank to formulate a resolution plan that will be executed in a time bound manner.
- It was framed under the aegis of Indian banks association, following the recommendation of Sunil Mehta Committee on stressed asset resolution.
- Around 22 public sector banks (including India Post Payments Bank), 19 private lenders and 32 foreign banks signed the inter-creditor agreement (ICA) to fast track the resolution of stressed assets.
- Applicability - The ICA is applicable to all corporate borrowers who have availed loans for an amount of 50 crore or more under consortium lending / multiple banking arrangement.
- The agreement is part of the proposed **Project Sashakt**.
  - "Sashakt" plan is approved by the government to address the problem of resolving bad loans.
- The objective is to use this ICA for faster facilitation of resolution of stressed assets.



**Taxation:****GSTR-3B vs GSTR-1:**

Context – Taxmen can directly start recovery for mismatch in sales in GSTR-1, 3B

Concept –

- **GSTR – 3B** is a monthly summary return filed by a taxpayer by the 20th of the next month or 22nd/24th of month following a quarter. GSTR-3B discloses supplies made during the month along with GST to be paid, input tax credit claimed, purchases on which reverse charge is applicable, etc., and also makes a provision for the payment of taxes, if any, for the relevant month.
- **GSTR – 1** is a monthly or quarterly return filed by taxpayers to disclose details of their outward supplies for the month – along with their tax liability. Here, invoice-wise details are to be uploaded so that the Government can keep a check on every transaction. This forms the basis for the recipient of supplies to accept the same and take the eligible input tax credit.

**Fuel Taxes:**

Context – Centre rakes in Rs 3.72 lakh crore, low basic excise duty limits states' share

Concept –

- As of now LPG, kerosene, naphtha, furnace oil, and light diesel oil are under GST.
- Five other petroleum products viz. crude oil, high speed diesel, motor spirit (petrol), natural gas, and aviation turbine fuel lie outside the GST.
- Currently, taxes on petroleum products are levied by both the Centre and the states.
- While the Centre levies excise duty, states levy value-added tax (VAT).
- As per recommendation of the 15th Finance Commission, the Centre shares 41 per cent of the tax receipts with states for award period 2021–26.
- States' share in central petroleum taxes remained low as the basic excise duty was not raised as much as other duties were hiked.
- Petroleum taxes with states are shared only out of basic excise duty. The Centre also levies additional excise duty and cesses on petroleum products.

**Cess and Surcharges –**

- A cess is imposed on the base tax liability of a corporation or an individual taxpayer, for a specific purpose. Surcharge is a tax on tax that the Union government can use for whichever purpose it deems fit.
- The issue of cess and surcharge is currently not within the mandate of the Finance Commission, as these collections are not part of the divisible pool.
- The government will have to amend Article 269 and Article 270 of the Constitution to make these a part of the divisible pool.

**Employment:****Gig Worker:**

Context – Europe takes on Uber, Deliveroo and other gig economy firms, workers to get employee rights

Concept –

- Gig workers are independent contractors, online platform workers, contract firm workers, on-call workers and temporary workers.
- A person who works temporary jobs typically in the service sector as an independent contractor or freelancer is a gig worker.

**What is Gig Economy?**

- A gig economy is a free market system in which temporary positions are common and organizations contract with independent workers for short-term engagements
- Examples of gig employees in the workforce could include freelancers, independent contractors, project-based workers and temporary or part-time hires.
- Global Gig Economy Index report has ranked India among the top 10 countries.
- The report says there has been an increase in freelancers in India from 11% in 2018 to 52% in 2019, thanks to various initiatives including Startup India and Skill India.

**Does new version of labour code offer any relief to Gig workers?**



- The three new labour codes passed by Parliament recently acknowledge platform and gig workers as new occupational categories in the making
- Defining gig workers is done in a bid to keep India's young workforce secure as it embraces 'new kinds of work', like delivery, in the digital economy.
- In the Code on Social Security, 2020, platform workers are now eligible for benefits like maternity benefits, life and disability cover, old age protection, provident fund, employment injury benefits, and so on.

### Informal Economy:

Context – According to a recent State Bank of India (SBI) Research report, the informal economy in India has been shrinking since 2018.

Concept –

- According to a recent State Bank of India (SBI) Research report, the informal economy in India has been shrinking since 2018.
- The report claims that the share of the informal sector is just 15-20% in 2021 compared to 52.4% in 2018.
- Informal economy represents enterprises that are not registered, where employers do not provide social security to employees.
- It is characterized as a range of economic units which are mainly owned and operated by individuals and employ one or more employees on a continuous basis.
- It includes farmers, agricultural labourers, owners of small enterprises and people working in those enterprises and also the self-employed who do not have any hired workers.
- National Accounts Statistics (NAS) defines the unorganised sector in addition to the unincorporated proprietary or partnership enterprises, including enterprises run by cooperative societies, trust, private and limited companies.
- The informal sector can, therefore, be considered as a subset of the unorganised sector.
- According to the Periodic Labour Force Survey, over 90 per cent of workers in India are informal workers. Out of these, those engaged in rural areas workers are significantly more than urban areas workers.

### Self Help Group – Bank Linkage Programme (SHG-BLP):

Context – 30 years of SHG -BLP

Concept –

- NABARD, through its' Micro Credit Innovations Department has continued its role as the facilitator and mentor of microfinance initiatives in the country.
- The model of 'SHG-BLP' has evolved as a cost-effective mechanism for providing financial services to the unreached and underserved poor households.
- What started as a pilot to link around 500 SHGs of poor to the formal financial institutions during the year 1992-93 has now become the largest microfinance programme in the world, in terms of the client base and outreach.
- The SHGs which follow '**Panchsutras**' viz.
  - conduct of regular group meetings,
  - regular savings within the group,
  - internal lending based on the demand of members,
  - timely repayment of loan and
  - maintenance of proper books of accounts - considered to be of good quality and over years have proved themselves to be good customers of Banks.
- The NGO sector has played a prominent role of working as a Self Help Group Promoting Institution (SHPI) by organizing, nurturing and enabling credit linkage of SHGs with banks.
- NABARD later co-opted many others as SHPIs including the rural financial institutions (RRBs, DCCBs, PACS), Farmers' Clubs (FCs), SHG Federations, Individual Rural Volunteers (IRVs) etc.
- These stakeholders were encouraged to take up promotion of SHGs by way of promotional grant assistance from NABARD.
- This savings led microfinance model has now become the largest coordinated financial inclusion programme in the world covering almost 100 million households in the country.
- With more than 84% of the groups being exclusively women groups, the programme has provided the much needed push to empowerment of women in the country.
- Banks are also provided 100% refinance support by NABARD for financing of SHGs.



Capital market:**‘NSE Prime’:**

Context – The National Stock Exchange (NSE) has launched a new corporate governance initiative – ‘NSE Prime’

Concept –

- The National Stock Exchange (NSE) has launched a new corporate governance initiative – ‘NSE Prime’, a framework that prescribes higher standards of corporate governance for listed companies than those required by regulations.
- All the NSE-listed companies can adopt NSE Prime voluntarily.
- Listed companies that voluntarily choose to be part of NSE Prime will need to comply with pre-defined norms on an ongoing basis, which will be monitored by NSE.
- The initiative will raise the bar for corporate governance standards in India, enable investors to identify companies that have voluntarily signed up for higher standards of corporate governance, broaden the quality of investors in listed companies and further strengthen trust in Indian capital markets.
- The world’s largest derivatives exchange by trading volume, the NSE is ranked 4th in the world in the cash equities by a number of trades.

**Derivative Trading:**

Context – Capital and commodity markets regulator Securities and Exchange Board of India (SEBI) has suspended futures and options trading for one year in a host of agricultural commodities including chana, mustard seed, crude palm oil, moong, paddy (Basmati), wheat and soyabean and its derivatives.

Concept –

- Derivative is a product whose value is derived from the value of one or more basic variables, called bases (underlying asset, index, or reference rate), in a contractual manner. The underlying asset can be equity, forex, commodity or any other asset.
- A derivative can trade on an exchange or over-the-counter.
- Common derivatives include futures contracts, forwards, options, and swaps.

## What Is a Derivative?

*A derivative is a financial security with a value that is reliant upon, or derived from, an underlying asset or group of assets*



Stocks



Bonds



Commodities



Currencies



Interest Rates



Market Indices

**Options**

- An option gives the buyer the right, but not the obligation, to buy (or sell) an asset at a specific price at any time during the life of the contract.
- They tend to be fairly complex; options contracts tend to be risky. Both call and put options generally come with the same degree of risk. When an investor buys a stock option, the only financial liability is the cost of the premium at the time the contract is purchased.
- Options are based on the value of an underlying security such as a stock. As noted above, an options contract gives an investor the opportunity, but not the obligation, to buy or sell the asset at a specific price while the contract is still in effect. Investors don’t have to buy or sell the asset if they decide not to do so.



**Futures**

- A futures contract gives the buyer the obligation to purchase a specific asset, and the seller to sell and deliver that asset at a specific future date unless the holder's position is closed prior to expiration.
- Options may be risky, but futures are riskier for the individual investor. Futures contracts involve maximum liability to both the buyer and the seller
- A futures contract requires a buyer to purchase shares—and a seller to sell them—on a specific future date, unless the holder's position is closed before the expiration date.
- Futures contracts tend to be for large amounts of money. The obligation to sell or buy at a given price makes futures riskier by their nature.
- They are preferred by speculators.

**Swaps**

- Swaps are private agreements between two parties to exchange cash flows in the future according to a prearranged formula. They can be regarded as portfolios of forward contracts. The two commonly used swaps are:
  - **Interest rate swaps:** These entail swapping only the interest related cash flows between the parties in the same currency and
  - **Currency swaps:** These entail swapping both principal and interest between the parties, with the cash flows in one direction being in a different currency than those in the opposite direction.

**Forwards**

- Forward contracts or forwards are similar to futures, but they do not trade on an exchange.
- These contracts only trade over-the-counter.

**Algorithmic trading:**

Context – SEBI mulls norms to regulate algo trading by retail investors

Concept –

- Algorithmic trading (also called automated trading, black-box trading, or algo-trading) uses a computer program that follows a defined set of instructions (an algorithm) to place a trade.
- The trade, in theory, can generate profits at a speed and frequency that is impossible for a human trader.
- The defined sets of instructions are based on timing, price, quantity, or any mathematical model.
- Apart from profit opportunities for the trader, algo-trading renders markets more liquid and trading more systematic by ruling out the impact of human emotions on trading activities.

**Algorithmic trading in India**

- Algorithmic trading was introduced and allowed in India in 2008 by the Securities and Exchange Board of India (Sebi).
- Initially, it started with Direct Market Access (DMA) and was restricted to institutional investors only, but due to the cost advantage and better execution, the trading community welcomed it with open arms.

**Benefits of Algorithmic Trading**

- Trades are executed at the best possible prices.
- Trade order placement is instant and accurate (there is a high chance of execution at the desired levels).
- Trades are timed correctly and instantly to avoid significant price changes.
- Reduced transaction costs.
- Simultaneous automated checks on multiple market conditions.
- Reduced risk of manual errors when placing trades.
- Algo-trading can be backtested using available historical and real-time data to see if it is a viable trading strategy.
- Reduced the possibility of mistakes by human traders based on emotional and psychological factors.

**Non-Convertible Debentures:**

Context – Several companies, including IIFL Home Finance, Indiabulls Housing Finance and Edelweiss Financial Services, have announced public issues to raise funds through non-convertible debentures, offering interest rates between 8.25–9.7%.

Concept –

- Debentures are long-term financial instruments which acknowledge a debt obligation towards the issuer.
- Some debentures have a feature of convertibility into shares after a certain point of time at the discretion of the owner.
  - The debentures which can't be converted into shares or equities are called non-convertible debentures (or NCDs).



- Non-convertible debentures are used as tools to raise long-term funds by companies through a public issue.
- To compensate for this drawback of non-convertibility, lenders are usually given a higher rate of return compared to convertible debentures.
- Besides, NCDs offer various other benefits to the owner such as high liquidity through stock market listing, tax exemptions at source and safety since they can be issued by companies which have a good credit rating as specified in the norms laid down by RBI for the issue of NCDs.
- In India, usually these have to be issued of a minimum maturity of 90 days.
- The major players in the NCD market are housing finance companies, gold loan companies and non-banking financial companies (NBFCs) which found it a good avenue for funds with the decline in interest rates in the system.
  - Apart from retail investors, banks, mutual funds and insurance companies also invest in NCDs.



• **RATE OF INTEREST:**  
Average 10%-12%



• **NON-SECURED DEBENTURES:**  
Raised without collaterals



• **DURATION OF INTEREST PAYOUT:**  
Monthly, quarterly, half yearly or annually



• **SECURED DEBENTURES:**  
Raised with collaterals



• **TAXATION**  
The returns received from NCDs are taxable as per the investor's tax slab

**Types of debentures**

There are two types of NCDs-secured and unsecured.

- A **secured NCD** is backed by the assets of the company. If the company fails to pay the obligation, the investor holding the debenture can claim that through liquidation of those assets.
- **Unsecured** non-convertible debentures have no backing even if company defaults.

**CONVERTIBLE DEBENTURE**

Convertible debentures can be term as debt security or loan that can be converted into equity shares after a stipulated period.

**Fully Convertible Debenture**

Fully Convertible Debentures are those debentures in which the whole value of debentures is convertible into equity shares of the company.

**Partly Convertible Debenture**

In partly convertible debentures, only some part of the debentures shall be eligible for conversion into equity shares.

**Stricter IPO Norms:**

Context – Stricter IPO norms: Cap on proceeds for future acquisitions, corporate use

Concept –

- The Securities and Exchange Board of India (SEBI) tightened the guidelines for usage of proceeds from the initial public offering (IPO) by companies.
- The regulator, in a board meeting, has prescribed certain conditions for selling shares in an **Offer-for-Sale (OFS)** under IPO by significant shareholders and has extended **anchor investors lock-in period** to **90 days** for half of the quota for such investors.
- The regulator has decided to put a cap on IPO proceeds earmarked for making future acquisition of unspecified targets and will bring under monitoring the funds reserved for general corporate purposes.



- In addition, Sebi has decided to revise allocation methodology for non-institutional investors (NIIs).
- The board of Sebi cleared a proposal to prescribe a combined limit of up to 35 per cent of the fresh issue size for deployment on such objects of inorganic growth initiatives (takeovers) and general corporate purpose (GCP), where the intended acquisition/strategic investment is unidentified in the objects of the offer.
- However, such limits will not apply, if the proposed acquisition or strategic investment object has been identified and suitable

#### Who are anchor investor?

Institutional investors, like retail investors, have the option to start bidding for an IPO-bound company's shares when it opens for subscription. In addition, institutional investors also have an option to bid for shares at a pre-determined price band a day before the IPO opens for subscription.

In such a scenario, these institutional investors are termed as anchor investors.

#### What is lock in period of anchor investor?

Anchor investors are guaranteed an allotment of shares a day before the IPO subscription process starts. Since they already acquire shares before the IPO subscription process, they are bound to hold the shares during the lock-in period and are not allowed to sell them before that.

specific disclosures are made at the time of filing of the offer document.

#### Why SEBI wants longer lock in period?

Sebi has decided that a longer lock-in period is needed to protect the interest of other investors. It suggested that at least 50 per cent of the anchor book should have a lock-in of 90 days.

A lock-in period of 30 days allows anchor investors to sell their holdings just after 30 days, leading to substantial fluctuations in the stock price. According to experts, this significantly hurts the interest of smaller retail investors.

#### Electronic Gold Receipt' (EGR) as Securities:

Context – Electronic gold receipts are now 'securities', says Finance Ministry

Concept –

- The Finance Ministry has specified '**Electronic Gold Receipt'** (EGR) as '**securities'** under the **Securities Contracts (Regulation) Act 1956**, paving way for trading of such instruments on any new gold exchanges that may come up in the country.
- This move would also **enable trading of EGR in existing exchanges** under a separate segment. Like shares, **EGRs will be held in demat form** and can be **converted into physical gold when needed**.
- With this move, **EGR will have trading, clearing and settlement features** akin to any other securities.
- An EGR is an electronic receipt issued on the basis of deposit of underlying physical gold in accordance with the regulations made by SEBI.
- Finance Minister Nirmala Sitharaman had in the 2021-22 budget said that Securities and Exchange Board of India (SEBI) will be the regulator for gold exchanges and that the Warehousing Development and Regulatory Authority would be strengthened to set up the commodity market ecosystem.
- SEBI had in September this year given its nod for setting up a gold exchange wherein the yellow metal will be traded in the form of an EGR.
  - SEBI had then said that any recognised stock exchange, existing as well as new, can launch trading in EGRs in a separate segment.
  - The denomination for trading of EGRs and conversion of an EGR into gold can be decided by the stock exchanges with the approval of SEBI.

#### Benefits

- Host of benefits for the value chain participants as well as for the entire gold market ecosystem such as efficient and transparent price discovery, investment liquidity, assurance in the quality of gold etc.
- The EGR holder can continue to hold the EGRs as long as intended since EGRs will have perpetual validity.
- An EGR holder at his discretion can also withdraw the underlying gold from the vaults upon surrender of such receipts.
- To lower the costs associated with withdrawal of gold from the vaults, SEBI said **EGRs will be made "fungible"** and "interoperability between vault managers" will be allowed.

#### Vault managers

- SEBI has already said that it would regulate vault managers, who will have to register with the market regulator, as an intermediary for providing vaulting services meant for gold deposited to create EGRs.
- The obligations of the vault manager include accepting deposits, storage and safekeeping of gold, creation as well as withdrawal of EGR, grievance redressal and periodic reconciliation of physical gold with the records of depository.

Note –



- India is one of the largest consumers of gold with annual demand of about 900 tonnes.
- A SEBI paper put out for public comments had said that EGR trading will **attract securities transaction tax and goods and services tax (GST)** from the beginning

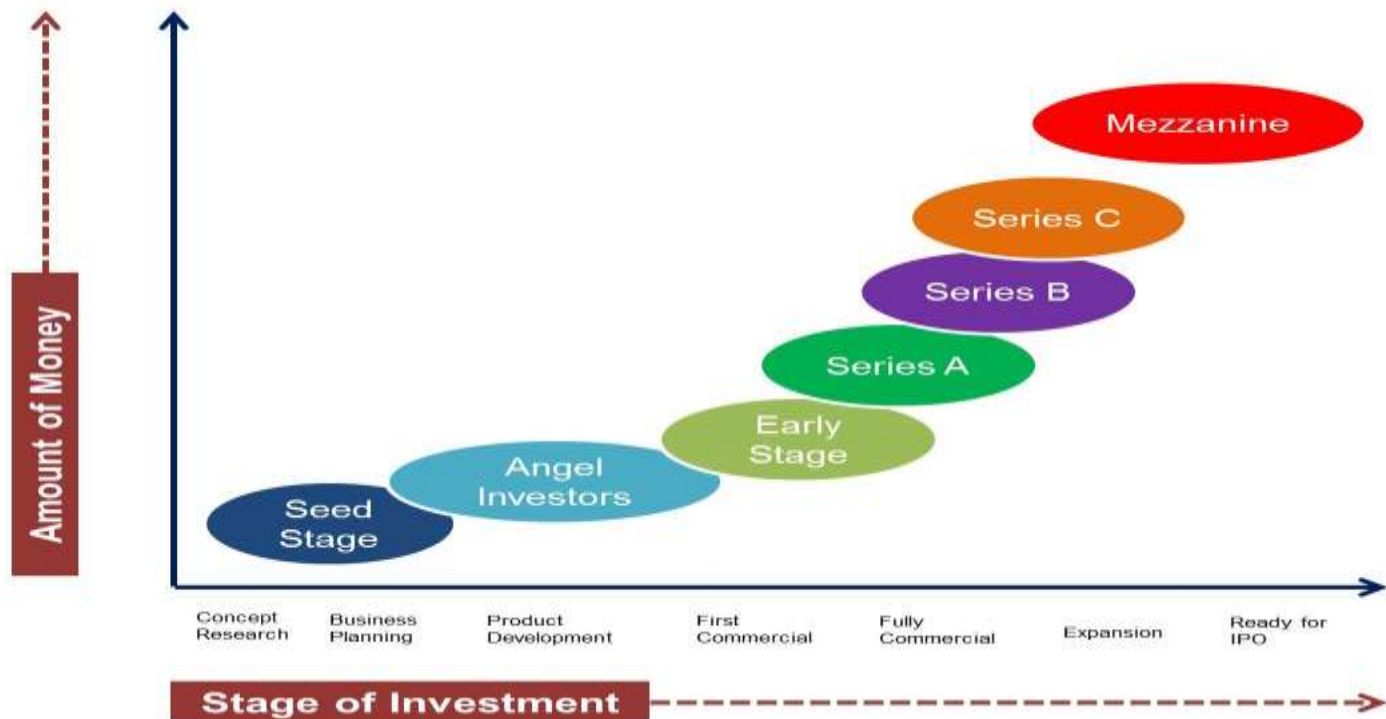
### Investment:

#### Series G Funding:

Context – Funding blitz: Four start-ups raise over \$1.2 billion from new, existing investors

Concept –

- Every round of funding represents new opportunity for the business, but also presents the possibility of diluting the company's equity and valuation.
- Very few companies are going to make it to Series F funding or Series G funding, but it is possible. Some notable financial services have found themselves getting Series F or Series G funding, because capital is so inherent to the ways that they do business.
- Series G is the 8th Fundraising event at a start-up (first one being seed fundraising round).
  - Or it is the 9th Fundraising event (if there is a pre-series A between seed and series-A).
- In the wake of the COVID-19 pandemic, more businesses have been entering the latter stages of funding to ensure that they survive without having to suffer heavy losses due to a lack of productivity or consumer power.
- Some start-ups have found great success from these late stages of funding.
- While the latter series of fundraising may feel like a level of failure for your start-up, it's important to remember that every business is different and some endeavours can comfortably enter new rounds of funding for a variety of reasons that don't signify that failure's inevitable.



#### Energy Efficiency:

Context – The human development index of countries like Japan and Germany is similar to the US but their energy consumption is significantly lower

Concept –

- The world's energy usage is projected to double in a few decades. "Net Zero by 2050", a report by the International Energy Agency (IEA) released in May 2021, states that per capita electricity consumption will rise.
- In India, Passenger and freight transport in the railways is much less compared to road transport.



- China has the highest network of high-speed trains.

## Costly commute

India's energy consumption (by transport mode) in 2018 shows the efficiency of using public transport



1.5 MJ/km



0.9 MJ/km



0.2 MJ/km



3.2 MJ/km

SOURCE: Sectoral Profile -Transport, Odyssee-Mure; MJ: million joules

- Another important point for India is its dependence on energy imports. In 2040, oil imports are likely to account for 90 per cent of consumption, as per "India Energy Outlook 2021" and "World Energy Outlook" published by IEA, while gas import will account for 50 per cent to 70 per cent of India's energy import.

## Saving by recycling

Materials have different recyclability (energy efficiency while recycling) and their use in appliances must be moderated keeping this in mind



ALUMINUM



STEEL



COPPER



LEAD



PAPER

Source: Petroleum Conservation Research Association; Bureau of Energy Efficiency

## Project Development Cells (PDCs):

Context – Officials across ministries are working with investors to facilitate 863 projects with an investment of \$121 billion across sectors, including chemicals and petrochemicals, steel and heavy industry

Concept –

- Project Development Cells will be dedicated units in select ministries whose primary task will be to develop investible industrial project proposals. The cell will be headed by a joint secretary level officer in the respective ministry.
- Project Development Cells will be set up in 22 ministries which deal with industrial sectors.
  - These include heavy industries, textiles, chemicals & fertilisers, electronics, pharmaceuticals, commerce & industry, food processing, petroleum & natural gas, defence, steel, coal, housing & urban affairs, transport & highways, shipping, civil aviation, renewable energy, power, railways, health, agriculture, animal husbandry.
- The Cell will be tasked with conceptualising, strategising, and implementing investible projects. The cell will create detailed project reports, ensure that all permissions are in place, and land is available for allotment for their respective projects for investments by companies. Once the project proposals are ready, they will be presented to the Empowered Group of Secretaries.
- In addition, these cells will also identify policy issues that need to be resolved and place them before the Empowered Group of Secretaries. Moreover, the Cells will also interact with state governments and coordinate with them while preparing project proposals.

## Empowered Group Of Secretaries

- The Empowered Group Of Secretaries (EGoS) is a panel of six senior central government officials from the economic ministries.
- This group will be headed by cabinet secretary Rajiv Gauba, who is the senior most serving bureaucrat in India. Other members of this panel are Amitabh Kant, CEO of NITI Ayog, and Secretaries of Department for Promotion of Industry and Internal Trade (Guruprasad Mohapatra), Department of Commerce (Anup Wadhawan), Department of Economic Affairs (Tarun Bajaj), and Department of Revenue (Ajay Bhushan Pandey).
- Moreover, the secretary of the respective line ministry will also be co-opted when issues are discussed by this panel. The secretary of DPIIT will be the convener of EGoS.
- The primary task of the Empowered Group Of Secretaries (EGoS) is to improve investment environment in the country for foreign and domestic investors. The EGoS will also handhold investors and promote JVs with Indian companies.



- The EGoS will discuss and recommend investment policies to government departments and ensure that they get implemented. It will also identify sectors for import substitution. It will recommend FDI reforms to attract green fielded foreign investments.
- The policy recommendation of the EGoS will be mandatory for central government departments.
- FDI related clearances were given by Foreign Investment Promotion Board. But it was wound down in 2017 and currently, the line ministries are tasked with approving FDI related proposals.
- Any inter-ministerial issue that comes up during promoting investments will be referred to the EGoS.
- Unlike inter-ministerial economic platforms like GST Council or the SEZ Board of Approval, states don't have any representation in the EGoS.
- EGoS will not lead to single window clearance for investors. EGoS will have a mechanism to engage with stakeholders from the corporate world to take feedback. DPIIT has long been working on a one-stop digital platform for all state and central government clearances.

### Infrastructure:

#### **Flex-Fuel Vehicles:**

Context – Minister of Road Transport and Highways Nitin Gadkari has called on carmakers to start manufacturing flex-fuel vehicles and flex-fuel hybrids in India, while saying the same will be commute-ready within six months.

Concept –

- Flex fuel vehicles (FFV) are capable of running on **100 per cent petrol or 100 per cent bioethanol or a combination** of both.
- Bio-ethanol contains less energy per litre than petrol but the calorific value (energy contained in the fuel) of bio-ethanol will become on par with petrol with use of advanced technology.
- The government has also advised carmakers to start making Flex Fuel Strong Hybrid Electric Vehicles (FFSHEV).
- Such a vehicle, though yet to be made widely available in world markets, essentially houses an electric motor which powers the vehicle alongside the traditional petrol engine.

#### **What way are they different from existing vehicles?**

- Since an FFV is capable of running on either petrol or ethanol, it will be the first of its kind **100 per cent dual fuel vehicle** to run on Indian roads.
- To be sure, a litre of petrol sold in India has an average of 8 per cent ethanol content even though oil marketing companies have clearance to do even 10 per cent (E10) blending.
  - All vehicles manufactured in India are tuned for E10.
  - All existing vehicles on Indian roads will not be able to run on higher ethanol content beyond 10 per cent.

#### **To what extent will FFVs help in cutting emission?**

- According to a report by the expert committee formed by the Ministry of Petroleum and Natural Gas, by just hitting E20, carbon monoxide emissions were observed to be 50 per cent lower in two-wheelers and 30 per cent lower in four-wheelers compared to petrol.
  - Hydrocarbons were lower by 20 per cent.
  - The report also mentioned that **E20 blending will result in drop in fuel efficiency by nearly 6-7 per cent** in four-wheelers designed for E0 and calibrated to E10.

#### **What has been the auto industry's reaction to government's policy?**

- **Higher blending of ethanol will mean higher manufacturing costs** which translates to pricier vehicles. Certain auto parts, especially those that come in contact with higher ethanol content, will have to be replaced with a compatible product to avoid corrosion.

#### **K-Rail SilverLine Project:**

Context – The Kerala Government faces severe resistance at several places as it begins laying survey stones for the 530-km SilverLine semi-high speed rail corridor

Concept –

- The project entails building a semi high-speed railway corridor through the state linking its southern end and state capital Thiruvananthapuram with its northern end of Kasaragod.
- The line is proposed to be 529.45 kms long, covering 11 districts through 11 stations.





- When the project is realised, one can travel from Kasaragod to Thiruvananthapuram in less than four hours on trains travelling at 200 km/hr. The current travel time on the existing Indian Railways network is 12 hours.
- The deadline for the project, being executed by the Kerala Rail Development Corporation Limited (KRDCL), is 2025.
- KRDCL, or K-Rail, is a joint venture between the Kerala government and the Union Ministry of Railways.

### Government Owned Contractor Operated (GOCO) Model:

Context – The Army’s ambitious plan for modernization of the Army Base Workshops (ABWs) and implementation of ‘Government-owned, contractor-operated (GOCO)’ model is “delayed” and the original timeline for implementing the system lapsed in December 2019, the Comptroller and Auditor General (CAG) said in its report tabled in the Parliament.

Concept –

- The GOCO model was one of the recommendations of the **Lt. Gen. DB Shekatkar (Retd.) committee** to enhance combat capability and re-balancing defence expenditure.
- In GOCO model, the **assets owned by government** will be **operated by the private industries**.
- Under the GOCO model, the private companies need not make investments on land, machinery and other support systems.
- The missions are set by government and the **private sectors are given full independence in implementing the missions** using their best practices.
- The main advantage of the model is that the targets are achieved in lesser time frame. Also, it will boost competitiveness among the private entities paving way to newer technologies.

### Eligibility-

- The service provider should be an Indian registered company with at least 10 years of working experience in related domains and have an average annual turnover of ₹50 crore for each of the last three financial years.

### Open Acreage Licensing Policy:

Context – India offers 8 oil, gas blocks for bidding in latest round

Concept –

- The Hydrocarbon Exploration and Licensing Policy (HELP) replacing the erstwhile New Exploration Licensing Policy (NELP) was approved in March 2016 and the Open Acreage Licensing Policy (OALP) along with the National Data Repository (NDR) were launched in June 2017 as the key drivers to accelerate the Exploration and Production (E&P) activities in India.
- It provides a single, uniform Licence for exploration and production of conventional as well as unconventional hydrocarbon resources.
- Under OALP, companies are allowed to carve out areas they want to explore oil and gas in. Companies can put in an expression of interest for any area throughout the year but such interests are accumulated thrice in a year. The areas sought are then put on auction.
- The successful roll-out of the HELP regime, followed by OALP Bid Rounds, has led to an increase in exploration acreages in India.
- The OALP has helped in removing red-tapism and brought in a quantum jump in the Exploration & Production sector.
- The revenue-sharing model is used for offering fields.
- Producers have complete marketing and pricing freedom for crude oil and natural gas produced.
- Working – Under the OALP, once an explorer selects areas after evaluating the National Data Repository (NDR) and submits the EoI, it is to be put up for competitive bidding and the entity offering the maximum share of oil and gas to the government is awarded the block.

### Facts for Prelims

- Drug Trodelvy - a cancer medicine used to treat adults with a type of breast cancer.

### Char Dham Highway Project:

Context – Supreme Court approves widening of three Char Dham highways

Concept –

- It aims to connect four Hindu holy towns of Yamunotri, Gangotri, Kedarnath, and Badrinath in Uttarakhand and is a 900-KMS long project.
- It will widen almost 900 km of highways connecting the pilgrimage sites and the Tanakpur-Pithoragarh stretch of National Highway (NH) 125, a part of the Kailash Mansarovar Yatra route.



- The project is also deemed strategically important in the backdrop of the recent India-China military standoff at LAC.
- Implementing Agencies: Uttarakhand State Public Works Department (PWD), Border Roads Organisation (BRO) and the National Highway & Infrastructure Development Corporation Limited (NHIDCL).
  - NHIDCL is a fully owned company of the Ministry of Road Transport & Highways.



### Acts and regulations:

#### Specialty steel under producer linked incentive scheme:

##### CONTEXT

Recently, Government started taking applications for specialty steel and has fixed the deadline for investors looking to invest under the **Producer Linked Incentive Scheme (PLI)**.

##### MORE FROM THE NEWS

- Earlier the Prime Minister had approved 6,322 crore PLI Scheme to boost production of Specialty Steel in India and also attract an additional investment of about 40,000 crore and generating additional employment opportunities.

##### WHAT IS PRODUCER LINKED INCENTIVE SCHEME?

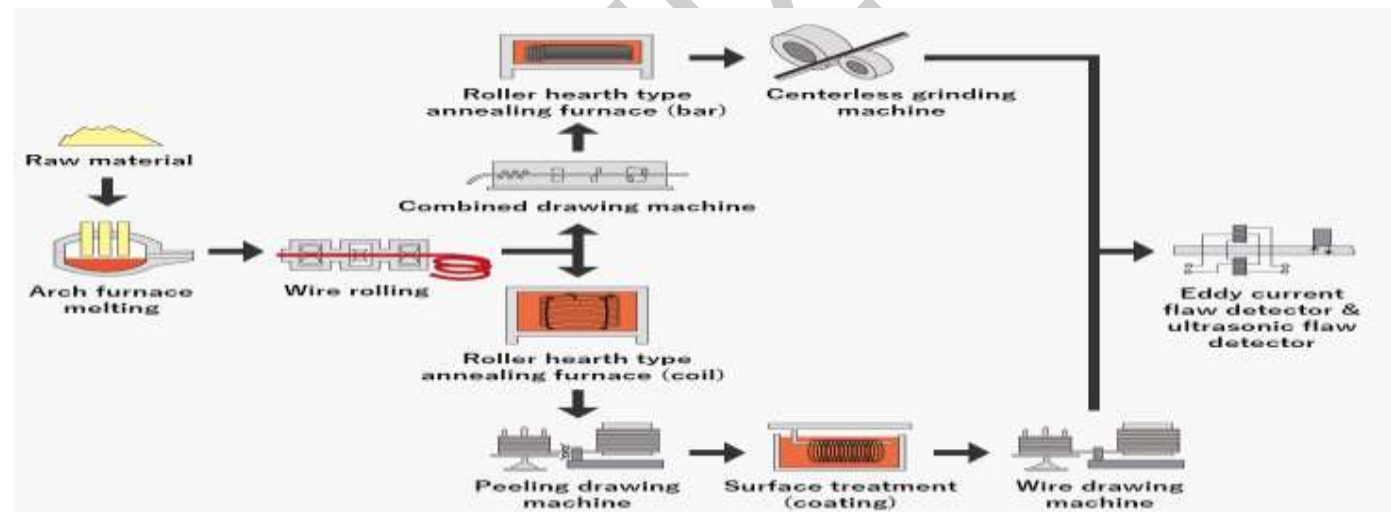
- PLI scheme has been launched under the aegis of **AatmaNirbhar Bharat** to give a boost to domestic industries through a **slew of measures such as incentives, subsidies and funding support**. This will further promote **Ease of Doing Business in India**.
- Even though the state governments had been providing the incentives to industries however, Central Government has increased their prominence due to –
  - Widening the coverage of central government's incentives to additional sectors for holistic growth
  - Creation of a large-scale domestic manufacturing ecosystem across priority sectors.
- Basis of PLI Scheme:
  - **Outcome-based and result oriented** – This means that incentives will be disbursed only after production has taken place in the country.
  - **Linking incentives to output**: The calculation of incentives will be based on incremental production to be achieved at a high rate of growth. To achieve this incremental production, beneficiaries will be required to make additional investments in establishing green-field facilities or carrying out expansion of existing facilities.
  - **Creating 'champions' to maximize impact**: The scheme focuses on size and scale by selecting those players who can deliver on volumes. The targeted nature of the scheme will make it highly effective and the beneficiaries are likely to become globally competitive.
  - Selection of sectors has solely been based on its **scope to cover cutting-edge technology, integrate with global value chains and create large-scale employment**.
- The scheme has been approved for 14 key sectors to achieve following –
  - Make domestic manufacturing globally competitive,
  - To create global champions in manufacturing,
  - To boost existing capacities in domestic manufacturing for sunrise and strategic sectors,
  - Curb cheaper imports,
  - Reduce import bills,



- Improve cost competitiveness of domestically manufactured goods,
- Enhance export capacity, and
- Generate employment
- **Key sectors under PLI scheme** – Key Starting Materials (KSMs)/Drug Intermediates (DIs) and Active Pharmaceutical Ingredients (APIs), Large Scale Electronics Manufacturing, Manufacturing of Medical Devices, Electronic/Technology Products, Pharmaceuticals drugs, Telecom & Networking Products, Food Products, White Goods (ACs & LED), High-Efficiency Solar PV Modules, Automobiles & Auto Components, Advance Chemistry Cell (ACC) Battery, Textile Products: MMF segment and technical textiles, Specialty Steel and Drones and Drones components.

### SPECIALTY STEEL:

- Specialty steels also referred to as alloy steel contain additional alloyed materials that deliver special properties to the final product.
- Specialty steels are engineered to provide superior performance under specific conditions. Various stainless-steel alloys are included among common specialty steels.
- **What are the benefits of specialty steels?**
  - The benefits of specialty steels include:
    - High corrosion resistance
    - Targeted resistance to high and/or low temperatures
    - Easily fabricated
    - Dimensional stability and strength
    - Non-magnetic
    - Sterile and hygienic
    - Well suited for special applications
    - Lighter weight
- Specialty steel is used for parts or manufacturing and maintenance components in various applications, from automobiles and other transportation equipment essential in modern society to daily home appliances and smartphone and other precision equipment.



### PLI FOR SPECIALTY STEEL

- This scheme aims to **help India's SS production reach 42 million Tonnes (MT) by 2026-27.**
- Categories: There are five categories of specialty steel which have been chosen in the PLI Scheme:
  - Coated/plated steel products.
  - High strength/wear resistant steel.
  - Speciality rails.
  - Alloy steel products and steel wires.
  - Electrical steel.
- Slabs: There are three slabs of PLI incentives, the lowest being 4% and highest being 12%.
- Beneficiaries: Both big players i.e. integrated steel plants and to the smaller players (secondary steel players).
  - Any company registered in India, engaged in manufacturing of the identified 'specialty steel' grades will be eligible to participate in the scheme.



**Reason for choosing Specialty Steel:**

- To Increase Production:
  - Specialty Steel S has been chosen as the target segment by the government because out of a production of 102 million tonnes of steel in 2020-21, only 18 million tonnes of value-added steel/specialty steel were produced in the country.
- To Reduce Imports:
  - Most of the imports into India are in the value-added and specialty segment. The PLI scheme will boost manufacturing capacities by Indian mills in this segment and MSMEs will be able to source from them directly.
  - Out of 6.7 million tonnes of imports of steel in 2020-21, approximately 4 million tonnes were of specialty steel, resulting in Foreign Exchange (Forex) outflow of approximately Rs 30,000 crore.
- Sector in Uptrend:
  - The steel sector is on an uptrend and major integrated producers have lined up major expansion plans.

**ESG Funds:**

Context – The asset size of ESG funds has ballooned nearly five times to Rs 12,300 crore over the last couple of years.

Concept –

- Environment, social responsibility, and corporate governance have of late emerged as key themes for investors in India.
- Earlier this week, the National Stock Exchange (NSE) launched NSE Prime, a framework that allows companies to submit to standards of corporate governance that are higher than those required by existing regulations.
- ESG investing - the expression is used synonymously with sustainable and socially responsible investing.
- While selecting a stock for investment, an ESG fund shortlists companies that score high on environment, social responsibility, and corporate governance, and then looks at financial factors.
- With the overall increase in awareness, and with regulations moving in this direction, investors are re-evaluating traditional approaches and considering the impact of their decisions on the planet.
- As ESG funds gain momentum in India, companies will be forced to improve governance and ethical practices, and act with greater social and environmental responsibility.
- As the policy framework changes, companies that do not alter business models or become more environmentally sustainable, could have their revenue and profits impacted in the long term.
- Globally, many pension funds and sovereign wealth funds do not invest in companies that are seen as polluting or socially not responsible.

**Unified License Agreement:**

Context – Citing security, Centre asks phone firms to keep call records for two years

Concept –

- The Department of Telecommunications (DoT) has amended the Unified License Agreement asking telecom and Internet service providers as well as all other telecom licensees to maintain commercial and call detail records for at least two years, instead of the current one-year practice.
  - The additional time, was based on requests from multiple security agencies.
- DoT has said all call detail record, exchange detail record, and IP detail record of communications “exchanged” on a network must be archived for two years or until specified by the government for “scrutiny” for security reasons.
- Internet service providers will also have to maintain details of “internet telephony” in addition to the usual IP detail record for a period of two years.
- Under Clause No. 39.20 of the licence agreement that the DoT has with the operators, the latter have to preserve records including CDRs and IP detail records (IPDR), for at least one year for scrutiny by the Licensor (which is DoT) for “security reasons,” and the Licensor “may issue directions/instructions from time to time” with respect to these records.
- The licence condition also goes on to mandate that CDRs be provided by mobile companies to law-enforcement agencies and to various courts upon their specific requests or directions, for which there is a laid-down protocol.

**Three Decades of the Economic Reforms in India:**

Context – Reforms, growth, equity the only way to sustain high growth rate: C Rangarajan

Concept –

- In 1980, per capita income of India and China was similar, but by 2020, China’s was \$10,500 as against India’s \$1,900.
- India’s GDP growth increased to 6.2 per cent between 1992-93 and 2000-01 from earlier levels of 3.5 per cent.



- Between 2005-06 and 2007-08, it even touched a high 9.4 per cent.
- On the balance of payment (BoP) front, the 10-year itch (of going to IMF for bail out) vanished.
- Between 1993-94 and 2004- 05, poverty rates fell from 45.3 per cent to 37.2 per cent. In 2011-12, it fell further to 21.9 per cent.
- India should grow its economy at 8-9 per cent for the next 21 years to become a developed nation.
- Even to achieve its target of a \$5-billion economy from \$2.7 billion now, it will have to grow at 8-9 per cent for five consecutive years.

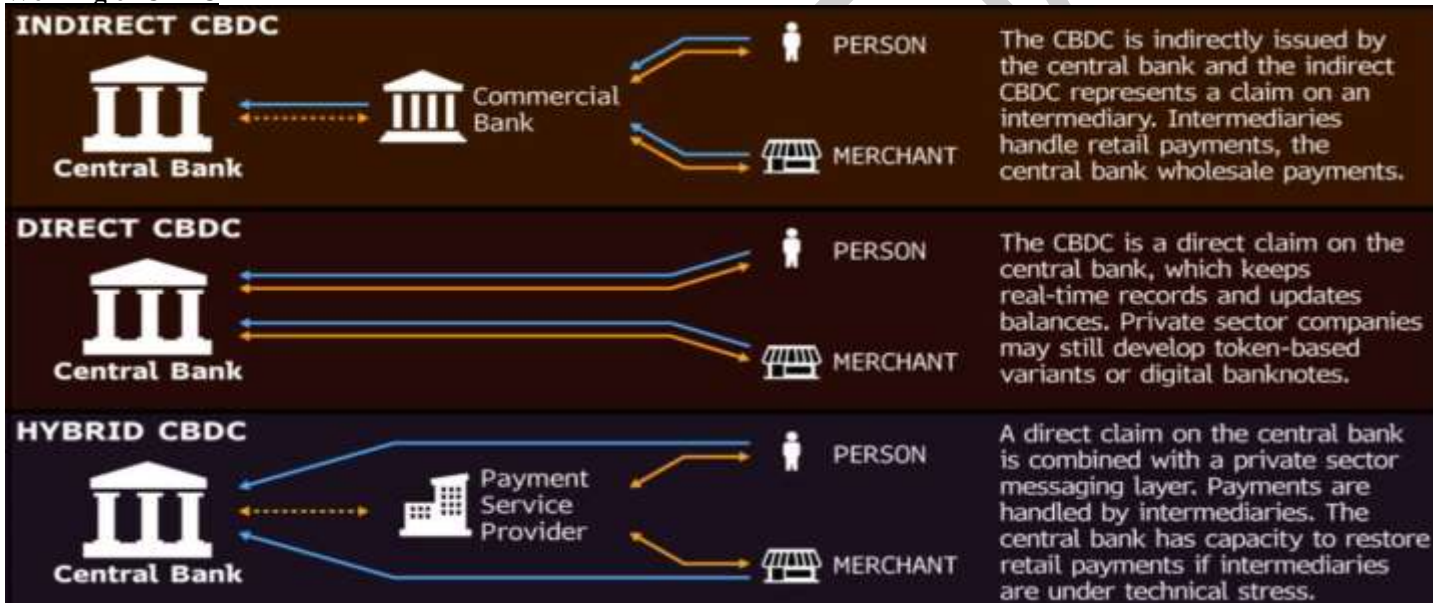
**Central Bank Digital Currency (CBDC):**

Context – RBI board discusses private cryptos, central bank digital currency

Concept –

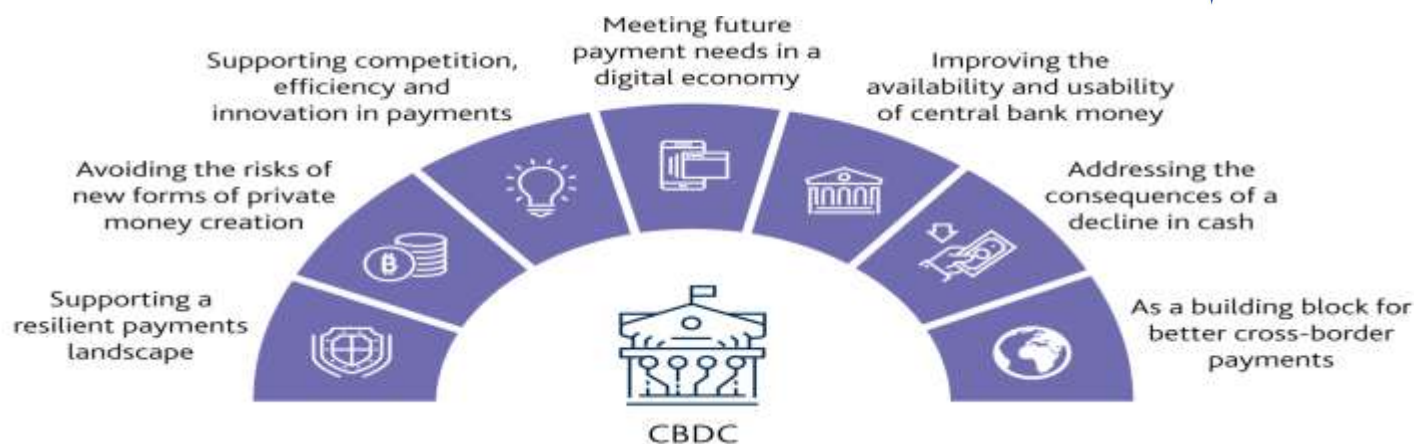
- The term central bank digital currency (CBDC) refers to the virtual form of a fiat currency.
- A CBDC is an electronic record or digital token of a country's official currency.
- As such, it is issued and regulated by the nation's monetary authority or central bank. As such, they are backed by the full faith and credit of the issuing government.
- CBDCs can simplify the implementation of monetary and fiscal policy and promote financial inclusion in an economy by bringing the unbanked into the financial system.
- Because they are a centralized form of currency, they may erode the privacy of citizens.
- Although they aren't formally being used, many countries are exploring the introduction and use of CBDCs in their economy.

**Working of CBDC**



**Advantages of CBDC**





### US fed Tapering its Impact on Rupee:

Context – Rupee plunges to 18-month low ahead of US inflation data

Concept –

#### What is tapering?

- Tapering refers to the **policy of gradually withdrawing the monetary stimulus** by the US Federal Reserve.
- The Fed purchased massive Treasuries and mortgage-backed securities since the outbreak of Covid, to help the economy deal with its impact.

#### What was the impact of taper in 2013?

- The phenomenon, popularly known as **taper tantrum**, disrupted the markets in 2013.
- Emerging economies witnessed huge capital outflows and a corresponding rise in inflation.
- The policy of quantitative easing was adopted by the Fed during the financial crisis of 2008. As part of it, benchmark interest rate was reduced to virtually zero.
- It was a way for the US to continue to provide credit to the economy and further lower borrowing costs for companies and consumers. By buying assets, their price goes up, which lowers their yield or interest rate.

#### How will it affect consumers?

- Benchmark interest rates have remained at near zero levels for better part of the last 13 years.
- However, with Fed cutting back on its purchases, there are expectations that interest rates might go up -- even if marginally.
- The Fed also changed its timetable for interest rate increases to 2022 from 2023. So, the hike may happen sooner than expected.
- Eventually, it may become costlier to buy a car, home or even to start a business as the cost of borrowing for mortgages and loans will go up.

#### What will be the impact on India?

- The Indian economy is in a much better position today as compared to the global financial crisis.
- Even though the Covid-19 pandemic battered growth in 2020, the economy recovered sharply to register its best ever quarterly growth in gross domestic product (GDP) in the April-June period.
- The stock markets have also witnessed a stellar performance ever since its pandemic-induced slump in March 2020.
- Investors have gained over Rs 90 lakh crore in the past one year with the market capitalisation of BSE listed companies jumping nearly Rs 100 lakh crore in the same period.
- Besides, the Reserve Bank of India (RBI) has also cut its key lending rate to record lows and infused massive liquidity into the banking system to shore up the pandemic-hit economy. It also oversaw the quick rescue of troubled lenders.
- India has also accumulated sufficient foreign exchange reserves worth \$642.019 billion as of October-end.
- So, even if the markets experience some outflows in the short-term, it is unlikely that the impact will be very significant and difficult to recover from -- given the strong fundamentals of the economy

### Debt Sustainability of States:

Context – RBI report says combined debt-to-GDP ratio is worryingly high at 31 per cent

Concept –



- The report “State Finance: Study of Budgets” noted that the combined debt-to-GDP ratio of States, which stood at **31 per cent** at end-March 2021, is expected to remain at that level by end-March 2022 and is worryingly **higher than the target of 20 per cent** to be achieved by 2022-23, as per the recommendations of the Fiscal Responsibility and Budget Management (FRBM) Review Committee, chaired by NK Singh.
- In view of the pandemic-induced slowdown, the 15th Finance Commission expects the debt-GDP ratio to peak at 33.3 per cent in 2022-23 (given the higher deficits since 2020-21), and gradually decline to reach 32.5 per cent by 2025-26.
- States have preferred to borrow from the financial accommodation provided by the RBI through short-term borrowing via the special drawing facility (SDF) and ways and means advances (WMA).
- Additionally, in recent years, the States have been accumulating sizeable cash surpluses in the intermediate treasury bills (ITBs) and auction treasury bills (ATBs), although they involve a negative carry of interest rates for the States.

### FRBM Act

- The Fiscal Responsibility and Budget Management (FRBM) Act, 2003, **intends to bring transparency and accountability** in the conduct of the fiscal and monetary actions of the government.
- The central government agreed to the following fiscal indicators and targets, subsequent to the enactment of the FRBMA
- **Revenue deficit to be eliminated by the 31st of March 2009. A minimum annual reduction of 0.5% of GDP.**
- **Fiscal Deficit to be brought down to at least 3% of GDP by 31st of March 2008. A minimum annual reduction – 0.3% of GDP.**
- The FRBM Act made it mandatory for the government to place the following along with the Union Budget documents in Parliament annually:
  - Medium Term Fiscal Policy Statement
  - Macroeconomic Framework Statement
  - Fiscal Policy Strategy Statement
- The FRBM Act proposed that revenue deficit, fiscal deficit, tax revenue and the total outstanding liabilities be projected as a percentage of gross domestic product (GDP) in the medium-term fiscal policy statement.
- Several years have passed since the FRBM Act was enacted, but the Government of India has not been able to achieve targets set under it. The Act has been amended several times.
- In 2013, the government introduced a change and introduced the concept of effective revenue deficit.
- This implies that effective revenue deficit would be equal to revenue deficit minus grants to states for the creation of capital assets.
- In 2016, **a committee under N K Singh was set up to suggest changes to the Act.**

### **Lesser Duty Rule (LDR):**

Context – India also follows the Lesser Duty Rule (LDR) while pursuing anti-dumping measures.

Concept –

- The Agreement on Implementation of Article VI of the General Agreement on Tariffs and Trade 1994 (the “AD Agreement”) governs the application of anti-dumping measures by Members of the WTO.
- Article 9 establishes the general principle that imposition of anti-dumping duties is optional, even if all the requirements for imposition have been met, and establishes the desirability of application a “lesser duty” rule
- India also follows the Lesser Duty Rule (LDR) while pursuing anti-dumping measures.
- Under this, authorities impose duties at a level lower than the margin of dumping if this level is adequate to remove injury.
- The removal of lesser duty rule will help in checking undisciplined exporters.

### **E-commerce at WTO:**

Context – WTO Ministerial Conference (MC12) got postponed due to the outbreak of the Covid-19 pandemic

Concept –

- When e-commerce was still at a nascent stage, in September 1998, the work programme on e-commerce was adopted by the General Council of the WTO.
  - The programme was largely exploratory in nature, focussing on examining all trade issues relating to global e-commerce, considering the economic, financial and development needs of developing countries.
- Under the programme, WTO members agreed to continue the practice of not imposing Customs duties on electronic transmissions.



- Also known as “**moratorium on Customs duties**”, this has been renewed regularly at each Ministerial Conference and many WTO members, led by the US wanted, the moratorium to continue in MC 12. With the postponement of MC12, this is likely to continue.
- One of the reasons for implementing the moratorium is that it is technically not possible for Customs to collect duties on digitalised products like software.

### Change in stance

- India’s position has changed over time. India, with a vibrant software industry, was a proponent of liberalisation of Mode 1 or cross-border trade.
- However, with the growth of e-commerce, there is a fear that developing countries, including India, are importers and thereby losing out on Customs duty.
- On March 10, 2020, India and South Africa circulated a paper on the need to understand the scope and impact of the moratorium.
  - Citing UNCTAD studies, it presented the potential tariff revenue losses from goods that have become digitised, and which are digitisable.
  - Based on a limited number of digitised goods, namely, films, printed matter, video games, software and music, the UNCTAD study estimated a loss of tariff revenue of more than \$10 billion globally because of the moratorium, 95 per cent of which is borne by developing countries.
- The study did not consider that with growing trade agreements, tariffs are reducing.
- India itself announced Early Harvest with key trading partners like the UK and Australia in March 2022 and relaunched the India-US Trade Policy Forum and, hence, the country is open to tariff reduction.

### Basic terms and concepts:

#### **Rupee Depreciation:**

Context – FPI outflow, fears over US Fed taper pull Re below 76-mark

Concept –

- Currency depreciation is a fall in the value of a currency in a floating exchange rate system.
- In a floating exchange rate system, market forces (based on demand and supply of a currency) determine the value of a currency.
- Rupee depreciation means that rupee has become less valuable with respect to dollar.
- Some of the factors that influence the value of a currency:
  - Inflation
  - Interest rates
  - Trade deficit
  - Macroeconomic policies
  - Equity market
- Currency depreciation increases a country’s export activity as its products and services become cheaper to buy.
- The RBI intervenes in the currency market to support the rupee as a weak domestic unit can increase a country’s import bill.

In News –

- The rupee fell below the 76 per US dollar level as foreign fund outflows intensified following global strengthening of the US dollar ahead of the US Federal Reserve meet.
- According to analysts, the rupee weakened as the dollar index surged after wholesale price in the US rose to record highs.
- The rupee fall is expected to push up import costs while exporters may benefit from the dollar’s rise.
- The rate hike could spur capital outflows from emerging markets like India and weigh on the local unit.

#### **Base Rate:**

Context – SBI lifts base rate a tad, to affect pre-2019 loans

Concept –

- Base rate is the minimum rate set by the Reserve Bank of India below which banks are not allowed to lend to its customers.
- Base rate is decided in order to enhance transparency in the credit market and ensure that banks pass on the lower cost of fund to their customers. Loan pricing will be done by adding base rate and a suitable spread depending on the credit risk premium.





**Factors that determine the base rate**

- Each bank can determine their base rate in accordance with the norms given by the RBI. According to the RBI, Base Rate shall include all those elements of the lending rates that are common across all categories of borrowers.
- The base rate may differ from one bank to the other. But the following four components usually determine the base rate of particular bank. These components are:
  - Cost for the funds (interest rate given for deposits),
  - Operating expenses,
  - Minimum rate of return (profit), and
  - Cost for the CRR (for the four percent CRR, the RBI is not giving any interest to the banks)
- The base rate of one bank may differ from another bank due to difference in one these factors most probably due to difference in interest rate.

**Expenditure Reforms Commission (ERC)**

- Set up in 2000.
- Under the chairmanship of KP Geethakrishnan
- Objective - to find a solution to the problem of high rate of growth of non-developmental expenditure by the government, and to begin the process of downsizing the government in a systematic way towards reducing the role and administrative structure of the government.

**PANEX21**

It is a disaster management exercise of the multilateral grouping Bay of Bengal Initiative for Multi Sectoral Technical and Economic Cooperation (BIMSTEC).

**WPI Inflation:**

Context – WPI inflation surges to 14.23% in Nov

Concept –

- It is the **most widely used inflation indicator** in India.
- Published by the **Office of Economic Adviser, Ministry of Commerce and Industry.**
- All transactions at the first point of bulk sale in the domestic market are included.
- Major criticism for this index is that the general public does not buy products at wholesale price.
- The base year of All-India WPI has been revised from 2004-05 to **2011-12** in 2017.
- WPI includes three components viz,
  - Manufactured products - 64.2%
  - Primary articles - 22.6%
  - Fuel and power - 13.1%

**CPI vs. WPI**

- WPI, tracks inflation at the producer level and CPI captures changes in prices levels at the consumer level.
- WPI does not capture changes in the prices of services, which CPI does.

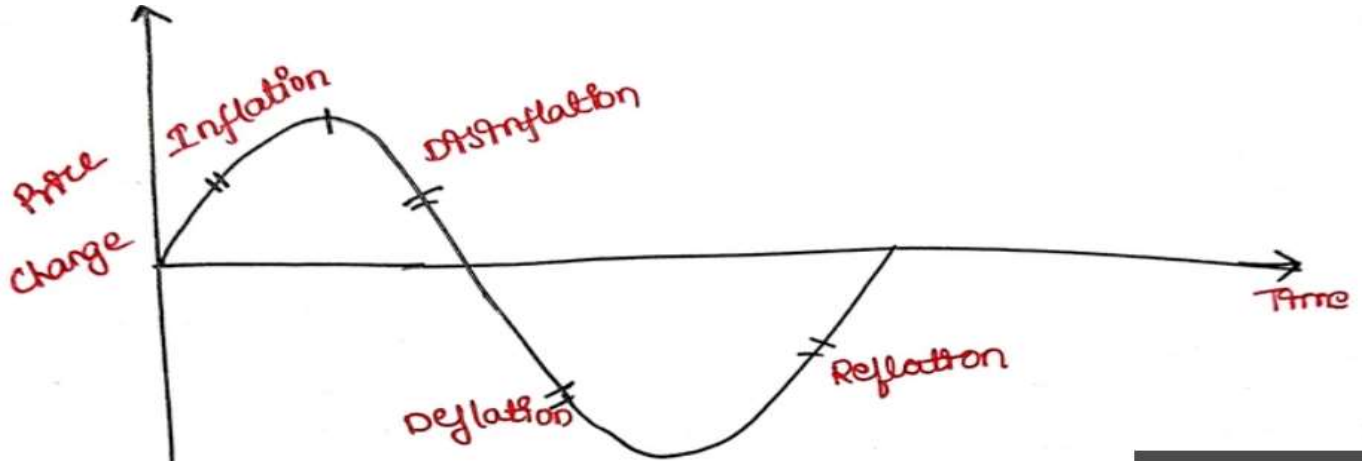
**Disinflation**

- Disinflation is a situation of decrease in the rate of inflation over successive time period. It is simply slowing of inflation.
- Central banks will fight disinflation by expanding its monetary policy and lowering interest rates.

**Deflation**

- Deflation is a decrease in general price levels throughout an economy.
- Deflation, which is the opposite of inflation, is mainly caused by shifts in supply and demand.





### Imported Inflation

- When the general price level rises in a country because of the rise in prices of imported commodities, inflation is termed as imported.
- Two key contributors to India's imports are: Crude Oil and Gold. Rise in prices of these two products lead to rise in the import bill of the country.
  - Fuel and power has 14.91% weightage in the Wholesale Price Index in India.
- However, inflation may also rise due to the depreciation of the domestic currency, which pushes up the rupee cost of imported items.

### Structural inflation

- Structural inflation is the one prevailing in most developing countries.
- The situation is due to the operation of the structural weakness (supply bottleneck, lack of infrastructure, etc.) existing in a developing economy.
- Lack of adequate supply responses or production to increase in demand is the cause of structural inflation.
- The Structuralist argues that the economies of developing countries like, Latin America and India are structurally underdeveloped as well as highly volatile due to the existence of weak institutions and imperfect working of markets.
- Such economies face the problem of both shortages of supply, underutilisation of resources as well as excessive demand in some sectors.
- For example
  - Under developed transportation sector will increase logistic cost and will result in overall increase in prices of commodities
  - Similarly, structural bottlenecks in agricultural sector such as APMCs, involvement of middlemen, imperfect price discovery leads to rise in food prices
  - Resource constraints (such as government Budget constrain) to finance infrastructure development.

### Currency in Circulation (CiC):

Context – CiC to GDP ratio remains high at 14.5% for FY21: Currency-in-circulation growth falls

Concept –

- Cash-to-GDP Ratio or Currency in Circulation (CIC) to GDP Ratio or simply currency-to-GDP ratio shows the value of cash in circulation as a ratio of GDP.
- Currency in circulation (currency with the public) comprises of:
  - currency notes and coins with the public
  - cash in hand with banks.
  - It is a major liability component of a central bank's balance sheet.
- As per the RBI's definition, currency with public is arrived at after deducting cash with banks from total CiC. CIC refers to cash or currency within a country that is physically used to conduct transactions between consumers and businesses.
- The growth in CiC has fallen to 7.9 per cent (Rs 2.14 lakh crore) in November 2021 as against 22.2 per cent (over Rs 5 lakh crore) growth in the same month a year ago.



- However, more than five years after demonetisation, CiC has risen steadily every year, with the CiC to GDP ratio having now surged to 14.5 per cent in 2020-21 from 8.7 per cent in 2016-17.
  - CiC to GDP ratio is now ever higher than that in the pre-demonetisation period.
- Demand for currency depends upon several macro-economic factors including economic growth and level of interest rate.

**Gross Fixed Capital Formation:**

Context – Gross fixed capital formation rate sees decline in 2020-21

Concept –

- Gross fixed capital formation (GFCF), which is an indicator of the level of investments in the country, fell by 10.8 percent during the financial year 2020-21 as compared to a rise of 5.4 percent during the previous fiscal.
- Gross fixed capital formation (GFCF) refers to the net increase in physical assets (investment minus disposals). It does not account for the consumption (depreciation) of fixed capital.
- As per RBI, Gross capital formation refers to the ‘aggregate of gross additions to fixed assets (that is fixed capital formation) plus change in stocks during the counting period.’
  - Fixed asset refers to the construction, machinery and equipment.
- It is a component of expenditure approach to calculating Gross Domestic Product (GDP).
- GFCF is not a measure of total investment, because only the value of net additions to fixed assets is measured, and all kinds of financial assets, as well as stocks of inventories and other operating costs are excluded.
- GFCF is an indicator for gauging the fixed capital formation. A downward trajectory in gross fixed capital formation would indicate that the fixed capacities are not being ramped up.

**INTERNATIONAL RELATIONS AND ORGANISATIONS**

**Summits and conferences:**

**Global Gateway Plan:**

Context – EU plans €300 billion infra fund to counter China’s BRI

Concept –

- The European Commission announced on Wednesday a plan to mobilise €300 billion (\$340 billion) in public and private infrastructure investment around the world, a move seen as a response to China’s Belt and Road strategy.
- Global Gateway will aim at mobilising investments of up to 300 billion euros between 2021 and 2027... bringing together resources of the EU, member states, European financial institutions and national development finance institutions.
- The Global Gateway plan does not mention China’s rival and longer-standing international infrastructure strategy by name — but EU chief Ursula von der Leyen called it a “roadmap for major investment in infrastructure development around the world.”
- The money to be made available will not come from EU and member state coffers, and the plan will need funding from international institutions and from the private sector if it is to get anywhere near its target.

**International Maritime Boundary Line (IMBL):**

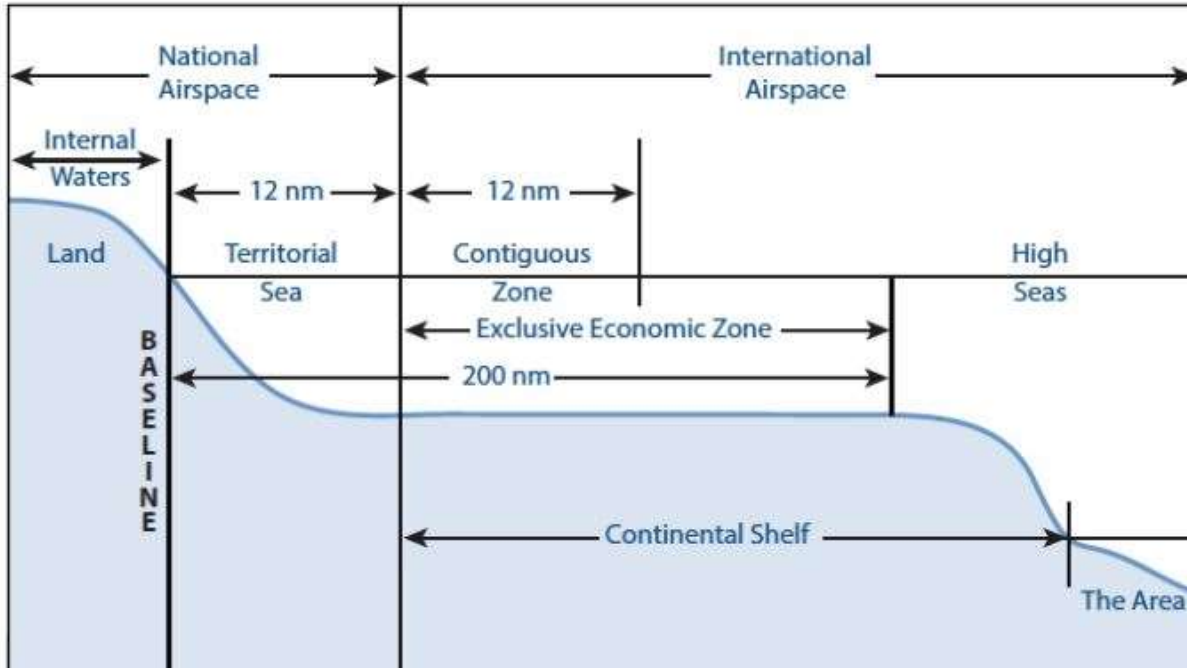
Context – Sri Lanka detains 13 more Indian fishermen

Concept –

- A maritime boundary is a conceptual division of the Earth’s water surface areas using physiographic or geopolitical criteria.
- As such, it usually bounds areas of exclusive national rights over mineral and biological resources, encompassing maritime features, limits and zones.
- Generally, a maritime boundary is delineated at a particular distance from a jurisdiction’s coastline.
- Although in some countries the term maritime boundary represents borders of a maritime nation that are recognized by the United Nations Convention on the Law of the Sea.
- The terminology does not encompass lake or river boundaries, which are considered within the context of land boundaries.

**UNCLOS Maritime Zones**





### Observer Status on Solar Alliance:

Context – UN confers Observer Status on Solar Alliance

Concept –

- The UN General Assembly has conferred Observer Status on the International Solar Alliance (ISA), a historic decision which India said would help provide for a well-defined cooperation between the alliance and the UN that would benefit global energy growth and development.
- The ISA was conceived as a joint effort by India and France to mobilise efforts against climate change through the deployment of solar energy solutions.
- It was presented by the leaders of the two countries at the 21st Conference of Parties (COP21) to the United Nations Framework Convention on Climate Change (UNFCCC) held in Paris in 2015.
- The granting of Observer Status to ISA in the General Assembly would help provide for regular and well-defined cooperation between the Alliance and the United Nations that would benefit global energy growth and development.
- Observers have the right to speak at United Nations General Assembly meetings, but not to vote on resolutions.

### International Solar Alliance (ISA)

- The ISA is an intergovernmental treaty-based organisation with a global mandate to catalyse solar growth by helping to reduce the cost of financing and technology.
- ISA is the nodal agency for implementing One Sun One World One Grid (OSOWOG), which seeks to transfer solar power generated in one region to feed the electricity demands of others.
- The Headquarters is in India with its Interim Secretariat being set up in Gurugram.
- United States of America has become the 101st member country to join the International Solar Alliance (ISA).

### International organizations:

#### **International Monetary Fund (IMF):**

Context – Gita Gopinath to take No.2 role at IMF as First Deputy Managing Director

Concept –

- The International Monetary Fund, or IMF, promotes international financial stability and monetary cooperation.
- It also facilitates international trade, promotes employment and sustainable economic growth, and helps to reduce global poverty.



- The IMF is governed by and accountable to its 190 member countries.

**Primary aims:**

- Promote international monetary cooperation;
- Facilitate the expansion and balanced growth of international trade;
- Promote exchange stability;
- Assist in the establishment of a multilateral system of payments; and
- Make resources available (with adequate safeguards) to members experiencing balance-of-payments difficulties.

## Fast Facts About the IMF

**1944** Year the IMF was established

**\$1 trillion** Total amount the IMF is able to lend to its member countries

**190** Member countries

**29** Current lending arrangements

**150** Nationalities represented by staff

**80** Countries that received emergency financing as of January 29

**24** Executive Directors representing 190 member countries

**0%** Interest rate on loans to low-income countries

**\$303 million** For hands-on technical advice, policy-oriented training, and peer learning

- **Financial assistance:** Providing loans to member countries that are experiencing actual or potential balance-of-payments problems is a core responsibility of the IMF.
- **Surveillance:** In order to maintain stability and prevent crises in the international monetary system, the IMF monitors member country policies as well as national, regional, and global economic and financial developments through a formal system known as surveillance.
- **SDRs:** The IMF issues an international reserve asset known as Special Drawing Rights, or SDRs, that can supplement the official reserves of member countries participating in the SDR Department (currently all members of the IMF).
- **Resources:** Member quotas are the primary source of IMF financial resources. A member's quota broadly reflects its size and position in the world economy. The IMF regularly conducts general reviews of quotas.
- **IMF Members:** Any other state, whether or not a member of the UN, may become a member of the IMF in accordance with IMF Articles of Agreement and terms prescribed by the Board of Governors.
  - Membership in the IMF is a prerequisite to membership in the IBRD.

**Governance and organization:**

- The IMF is accountable to its member country governments.
- At the top of its organizational structure is the **Board of Governors**, consisting of one governor and one alternate governor from each member country, usually the top officials from the central bank or finance ministry.
  - The Board of Governors meets once a year at the IMF–World Bank Annual Meetings.
  - Twenty-four of the governors serve on the International Monetary and Financial Committee, or IMFC, which advises the IMF's Executive Board on the supervision and management of the international monetary and financial system.
- The day-to-day work of the IMF is overseen by its 24-member **Executive Board**, which represents the entire membership and supported by IMF staff.
- The **Managing Director** is the head of the IMF staff and Chair of the Executive Board and is assisted by four **Deputy Managing Directors**.
  - First Deputy Managing Director is the second top post in IMF next to the Managing Director.



- The First Deputy Managing Director in the IMF takes lead on conducting surveillance, flagship publications and oversee researches.

**G20's Troika:**

Context – India joins G20's Troika with Indonesia and Italy

Concept –

- India on Wednesday joined the G20 'Troika'. With this move, India has started the procedure for taking over the G20 presidency next year.
- Troika refers to the top grouping within the G20 that consists of the current, previous and the incoming presidencies — Indonesia, Italy and India.
- India will assume the G20 presidency on December 1, 2022 from Indonesia, and will convene the G20 Leaders' Summit for the first time in India in 2023.

**Bank for International Settlements (BIS):**

Context – Omicron shows policymakers can't let guard down: BIS

Concept –

- Established in 1930, the BIS is owned by 60 central banks, representing countries from around the world that together account for about 95% of world GDP.
- Its head office is in Basel, Switzerland.
- The Bank for International Settlements is often called the "central bank for central banks" because it provides banking services to institutions such as the European Central Bank and Federal Reserve.
- Its mission is to serve central banks in their pursuit of monetary and financial stability, to foster international cooperation in those areas and to act as a bank for central banks.
- The Basel Committee for Banking Supervision (BCBS), while technically separate from the BIS, is a closely associated international forum for financial regulation that is housed in the BIS' offices in Basel, Switzerland.
  - The BCBS is responsible for the Basel Accords, which recommend capital requirements and other banking regulations that are widely implemented by national governments.
- The BIS also conducts research into economic issues and publishes reports.

**Office of the United Nations High Commissioner for Human Rights (OHCHR):**

Context – The Government on Thursday took strong exception to the UN Human Rights agency's criticism of the arrest of Kashmiri activist Khurram Parvez, accusing the Geneva-based Office of the High Commissioner of Human Rights (OHCHR) of "bias" for referring banned terror organisations in Jammu and Kashmir as "armed groups".

Concept –

- The Office of the United Nations High Commissioner for Human Rights, commonly known as the Office of the High Commissioner for Human Rights (OHCHR) or the United Nations Human Rights Office, is a department of the Secretariat of the United Nations that works to promote and protect human rights that are guaranteed under international law and stipulated in the Universal Declaration of Human Rights of 1948.
- The office was established by the United Nations General Assembly on 20 December 1993 in the wake of the 1993 World Conference on Human Rights.
- The office is headed by the High Commissioner for Human Rights, who co-ordinates human rights activities throughout the United Nations System and acts as the secretariat of the Human Rights Council in Geneva, Switzerland.
- It is an ex officio member of the Committee of the United Nations Development Group.
- The mandate of OHCHR derives from Articles 1, 13 and 55 of the Charter of the United Nations, the Vienna Declaration and Programme of Action and General Assembly 48/141 of 20 December 1993, by which the Assembly established the post of United Nations High Commissioner for Human Rights.

**United Nations Human Rights Council**

- The Human Rights Council is an inter-governmental body within the United Nations system responsible for strengthening the promotion and protection of human rights around the world.
- The Council was created by the United Nations General Assembly in 2006. It replaced the former United Nations Commission on Human Rights.
- The Office of the High Commissioner for Human Rights (OHCHR) serves as the Secretariat of the Human Rights Council.
- OHCHR is headquartered in Geneva, Switzerland.



- It is made up of 47 United Nations Member States which are elected by the UN General Assembly (UNGA).

### WTO TRIPS:

Context – PepsiCo Controversy: Globally, India Has Always Refused to Give in on IPR on Plant Varieties

Concept –

- India is a member of multilateral trade rules, the World Trade Organisation (WTO), since 1995.
- One of the WTO agreements, namely the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), introduced the idea of intellectual property rights (IPR) on life forms as a global minimum standard.
- It was due to the push of the seed, pharma and biotech corporations that the TRIPS Agreement was put in the WTO.
- The move had no social backing in India, particularly from farmers.
  - While the TRIPS Agreement still came to be, we chose to opt out of patents on plants, using Article 27(3)(b) of TRIPS that allows WTO members to exclude plants from patentability.
- Section 3(j) of the Indian Patents Act makes it clear that plants, including seeds, varieties and species, and essentially biological processes for production or propagation of plants are not inventions.
- India therefore does not subscribe to patents on plants and provides for IPR through plant variety protection (PVP) instead. That is the point of genesis of the Protection of Plant Varieties and Farmers' Rights Act, 2001, which is an IPR law.

### The International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA)

- The International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) is the international law that recognises farmers' contributions in PGR for food and farming.
- The treaty entered into force in 2004.
- It has specific provisions on Farmers' Rights in Article 9.
- India is a member of the seed treaty and has provided for farmers' rights in its domestic legislation.
  - The Registrar General of the PPV&FR Authority is a co-chair of the Technical Expert Group set up under the treaty to give guidance to member countries on how to effectively implement farmers' rights.
  - The Registrar General is also the registrar in charge of farmer rights in the country.

### Peasant declaration

- Pushed by its Human Rights Council, in December 2018, the UN General Assembly adopted a declaration on the rights of peasants and other people working in rural areas.
- This was the result of a 17-year-long process, initiated by the **international peasant movement La Via Campesina**, supported by numerous social movements and allied organisations.
- Article 19 of the declaration is dedicated to farmers' seed rights. This includes the right to save, use, exchange and sell their farm-saved seed or propagating material.
- Under the declaration, states have to ensure that seed policies, plant variety protection and other intellectual property laws, respect and take into account the rights, needs and realities of smallholder farmers.
- The Indian government voted for this declaration.

### Treaty on Transnational Corporation (TNC's)

- This alliance for a binding treaty on Transnational Corporation (TNC's) gathers global networks and alliances, which collectively represent more than 500 groups world-wide who are determined to stop corporate human rights violations.
- In 2014, the United Nations Human Rights Council adopted a resolution "to establish an open-ended intergovernmental working group on transnational corporations and other business enterprises with respect to human rights, whose mandate shall be to elaborate an international legally binding instrument to regulate, in international human rights law, the activities of transnational corporations and other business enterprises."
- The Indian delegation, which includes the Ministry for Corporate Affairs, has studied the zero draft in detail and is of the opinion that thorough and detailed deliberations on various elements of the draft are required.
- Nonetheless, it has expressed commitment to the negotiations.

### World Gold Council (WGC):

Context – Imports made up 86% of gold supply in 2016-20, says WGC

Concept –

- The World Gold Council is the market development organisation for the gold industry.





- Its purpose is to stimulate and sustain demand for gold, provide industry leadership, and be the global authority on the gold market.
- It is a nonprofit association of the world's leading gold producers.
- Headquartered in London, the WGC covers the markets which comprise about three-quarters of the world's annual gold consumption.
- It is a market development organization for the gold industry which includes 25 members and many gold mining companies as well.

**Organisation of Islamic Cooperation (OIC):**

Context – Islamic countries scrambled to find ways to help Afghanistan avert an imminent economic collapse

Concept –

- The Organisation of Islamic Cooperation (OIC) is the second largest intergovernmental organization after the United Nations with a membership of 57 states.
- It is the collective voice of the Muslim world. It endeavors to safeguard and protect the interests of the Muslim world in the spirit of promoting international peace and harmony among various people of the world.
- It was established upon a decision of the historical summit which took place in Rabat, Kingdom of Morocco on the 25th of September 1969.
- Headquarters: Jeddah, Saudi Arabia.
- India is not a member of the OIC. However, India was invited as a guest of honour at 46th Session of the Council of Foreign Minister in 2019. 2019 is the 50th anniversary of OIC.
- The OIC has permanent delegations to the United Nations and the European Union.
- Its official languages are Arabic, English and French.

**World Economic Forum:**

Context – Davos World Economic Forum called off due to Covid: Report

Concept –

- The World Economic Forum is the International Organization for Public-Private Cooperation.
- The Forum engages the foremost political, business, cultural and other leaders of society to shape global, regional and industry agendas.
- It was established in 1971 as a not-for-profit foundation and is headquartered in Geneva, Switzerland. It is independent, impartial and not tied to any special interests.
- The WEF is mostly known for its annual meeting at the end of January in Davos, a mountain resort in the eastern Alps region of Switzerland. The meeting brings together some 3,000 paying members and selected participants – among which are investors, business leaders, political leaders, economists, celebrities and journalists – for up to five days to discuss global issues across 500 sessions.

**Reports by WEF –**

- Global Human Capital Index
- Global Information Technology Report
- Travel and Tourism Competitiveness Report
- Global Competitiveness Report
- Global Enabling Trade Report
- Global Energy Architecture Performance Index Report
- Global Environment Performance Index
- World Power Language Index
- Inclusive Development Index
- Global Gender Gap Index
- Global Risk Report
- Energy Transition Index
- Future of Jobs Report
- Global Manufacturing Index



## SCIENCE AND TECHNOLOGY

### Computers and Information technology:

#### **Pacific Light Cable Network:**

Context – U.S. recommends approving Google, Meta undersea data cable to Asia

Concept –

- The Biden administration recommended Alphabet's Google and Facebook parent Meta get permission to use an undersea cable system to handle growing internet traffic with Asia.
- The administration urged the Federal Communications Commission (FCC) to grant licenses for the companies to send and receive data on the existing 8,000-mile **Pacific Light Cable Network**.
  - The undersea fiber-optic cable system connects the United States, Taiwan, the Philippines and Hong Kong.
- Undersea cables transmit nearly all the world's internet data traffic.

#### **About Pacific Light Cable Network**

- Pacific Light Cable Network (PLCN) connects Hong Kong, Taiwan, the Philippines and the US.
- PLCN offers the first direct submarine cable connectivity between Hong Kong and Los Angeles, the US, spanning approximately 13000 km. PLCN offers the shortest RTD between Hong Kong and Los Angeles.
- PLCN is the first and currently the only submarine cable system in the world to deploy with C+L band optical technology. C+L band technology had been technically feasible when PLCN project was launched in the end of 2015.



#### **Private Cryptocurrencies:**

Context – The ‘Cryptocurrency and Regulation of Official Digital Currency Bill, 2021’ seeks to prohibit all private cryptocurrencies in India

Concept –

- When we say private cryptocurrency, we can either say it is one of the two methods.
  - One is to say that anything that is not given out from the government or Reserve Bank of India will be a private cryptocurrency which means Bitcoins, Ether and everything else will become private currency.



- But on the other hand, if the cryptocurrency is managed or governed by a specific set of developers or community, then it can be termed as private.
- Even as the definition of private cryptocurrencies has not been defined by the government, Bitcoin, Ethereum and many other crypto tokens are based on public blockchain networks, as the transactions made by the networks are said to be traceable while still providing a degree of anonymity to users.
  - Bitcoin, Ether etc. are public crypto built on public blockchains and have their own specific use cases. They are needed to run smart contract and write to the distributed ledger that they're built on top of. People cannot use INR or USDT to pay for fees on the Bitcoin or Ethereum Blockchain.
- On the other hand, private cryptocurrencies could refer to Monero, Dash, Zcash and other such digital tokens are built on public blockchains, obfuscate the transaction information to offer privacy to users like not saving transaction history as they are routed through multiple networks.

#### Difference between private and public cryptocurrencies

- The best-known cryptocurrencies like Bitcoin, Ether, Dogecoin, Shiba Inu and others are public as their transactions are completely transparent. Although these cryptocurrencies offer some degree of anonymity to users as they allow them to operate under pseudonyms, all transactions on the blockchain can be viewed by any person who has access to the said blockchain.
- By design, transactions of these cryptocurrencies are linkable and traceable. Therefore, organisations dealing with sensitive information—like commercial contracts or individuals' personal information—prefer to join a private blockchain. Private blockchains include Monero, Particl, Dash, and ZCash. These platforms allow users to transact without making the data public.
- While these "private" blockchains also have public open ledgers, they allow different levels of permissions for users. Thus, the access can be restricted and transaction information can be encrypted to protect confidentiality.

#### **Omicron Cryptocurrency:**

Context – Omicron cryptocurrency price shoots up 10 times in two days

Concept –

- A relatively lesser known cryptocurrency token named after the Greek letter Omicron saw its price surge more than 10 times in a matter of two days outperforming top digital currencies like Bitcoin and Ethereum, soon after the World Health Organization (WHO) named the latest Covid-19 variant of concern Omicron.
- The WHO is following the **Greek alphabet to name significant Covid-19 variants**, and the next Greek letter Pi also has a cryptocurrency named after it.

#### **Superconducting Fault Current Limiter (SFCL):**

Context – An innovation by researchers from IIT Kanpur, that can better protect power grids

Concept –

- Researchers from Indian Institute of Technology (IIT) Kanpur have come up with an innovation that can help protect power grids against sudden, unexpected current surges.
- An innovative variation of the superconducting fault current limiter (SFCL), this smart SFCL not only shields the grid from large current surges and consequent fire accidents, it can also sense when the current surges will happen and warn the system about it.

## Capping fault currents | Current surges can damage power grids and new technology uses superconductors to control this



**Heart of the matter:** The smart SFCL (green portion) superconductor with an array of micro hall sensors distributed around it. ■ SATYAJIT BANERJEE

■ Earlier this used to be controlled by using **circuit breakers**, which suffered from limitations of slow response and lack of automatic reversal

■ A new way to tackle this situation is by using **superconducting fault current limiters (SFCL)**

■ In its **superconducting state**, the material of-

fers zero resistance to current flow. But during a current surge, it rapidly switches to high resistance mode, preventing the damage

■ The **array of Hall sensors** placed around the SFCL can help detect a fault situation even while it is developing and help prevent it

■ The sensors also can sense in advance the **internal thermal instabilities** that all SFCLs are susceptible to

■ Further innovations possible are in developing high temperature superconducting materials with **larger critical currents**, as this will allow the SFCL to operate up to higher currents

### Digital Histopathology:

Context – AI tool to simplify identification of cancerous tissue in tumours

Concept –

- Indian Institute of Technology Madras researchers use a combination of deep learning techniques and traditional machine learning to develop a tool that can diagnose cancer by looking at whole slide images of the tumour.
- The tool has been tested on datasets of breast, liver and colon cancer tissue images.
- It is economical in terms of the time required to process the images and analyse them.
- Traditionally, histopathologists slice the tumour tissue into approximately 20-micron-thick slices which they put on slides.
  - They look at enlarged images of the slides and go over it cell by cell to manually classify it as cancerous or otherwise.
  - This is highly time-consuming, and it is to alleviate this burden that digital histopathology developed.
- In this, after preparing the slides, the entire slide is scanned using a high-resolution microscope and digitised. This is then analysed using computerised tools.

### 5G Interfering with Aircraft:

Context – FAA to prohibit many flight operations due to risk of '5G' wireless interference

Concept –

- **Altimeters** are the instruments that pilots use to determine an aircraft's altitude or height.
- The airliners have two types of altimeters on board: a barometric altimeter and a radio altimeter.
  - Pilots use the **barometric altimeter** almost exclusively, and it's used to determine altitude above mean sea level.
  - The other type of altimeter is called the **radio (or radar) altimeter**. This altimeter determines an aircraft's precise height by bouncing radio waves off the terrain below. It only works from the ground up to a few thousand feet.
- Pilots use radio altimeters when conducting approaches to airports in low visibility.
- These approaches are predicated on a minimum height at which pilots must see at least the approach lighting system — it's called the **decision height**. If they don't see the lights or runway, they must execute a missed approach and wait until the weather improves, and if it doesn't improve, must divert to an alternate airport.
- For these types of low-visibility approaches, pilots use the radio altimeter to provide precise guidance on exactly how high they are, since they often won't be able to see anything until seconds before touchdown.

### The issue

- A study conducted last year shows that 5G transmissions in C-Band spectrum interfere with radio altimeters on aircraft, saying there is a "major risk" that these systems "will cause harmful interference to radar altimeters on all civil aircraft."
- These radio altimeters operate in an adjacent spectrum to 5G C-Band and are susceptible to interference.



- The Federal Aviation Administration views this as a major safety issue, and, formally published what's known as an **airworthiness directive, or AD** — a formal order requiring operators to take action for safety reasons.
  - This AD says that the FAA will publish **Notices to Air Missions**, or NOTAMs — important, time- and safety-critical information that's related to operations at a specific airport — when it's determined that 5G C-Band towers will be in the vicinity of an airport.
  - Those NOTAMs will prohibit certain operations requiring radio altimeter data at those airports.
- To be clear, the FAA is taking issue with 5G C-Band towers, and not passenger cell phones. While your personal phones should always be in airplane mode, and the captain can order all devices turned off if any sort of interference is detected, the FAA views towers as the threat, as they can't easily be turned off like a personal device.

### Space and space technology:

#### **Magnetars:**

Context – Study of distant magnetar reveals facets of the exotic star

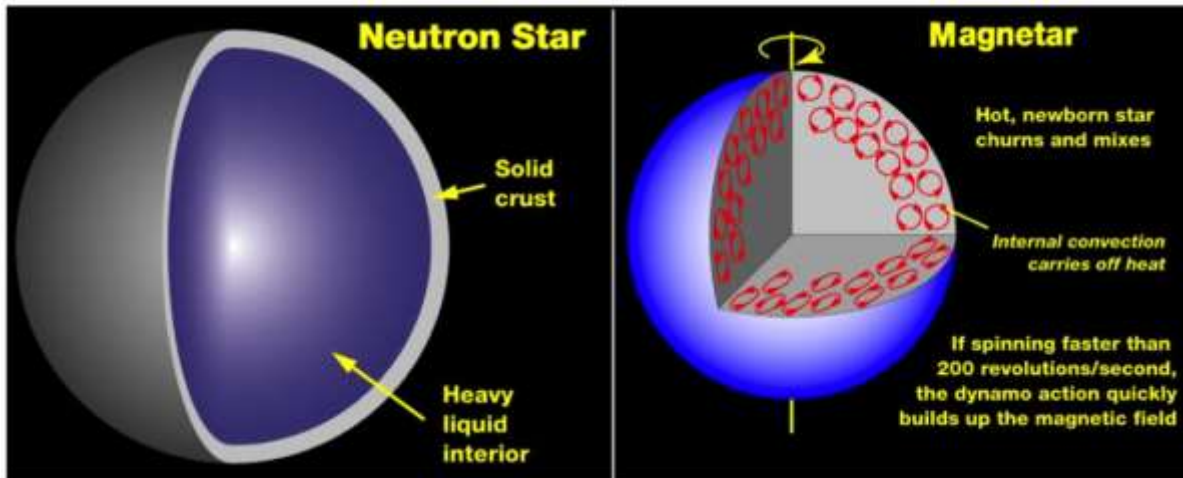
Concept –

- A magnetar is a type of neutron star believed to have an extremely powerful magnetic field.
  - Neutron stars are formed when the largest stars in the universe reach the end of their lives. When these stars run out of fuel, their core collapses causing outer layers to come crashing in towards the centre.
- The magnetic-field decay powers the emission of high-energy electromagnetic radiation, particularly X-rays and gamma rays.
- A magnetar is a rare compact type of neutron star teeming with energy and magnetism.
- Magnetars are relatively rare objects, with only about thirty having been spotted within the Milky Way so far.

#### **How magnetars form?**

- During the course of their evolution, massive stars – with masses around 10-25 times the mass of the Sun – eventually collapse and shrink to form very compact objects called neutron stars. A subset of these neutron stars are the so-called magnetars which possess intense magnetic fields.
- These are highly dense and have breathtakingly high rotation speeds – they have rotational periods that can be just 0.3 to 12.0 seconds.
- Magnetars have high magnetic fields in the range of  $10^{15}$  gauss and they emit energy in the range given by luminosities of  $10^{37}$  –  $10^{40}$  joules per second.
  - Compare this to the luminosity of the sun which is in the order of  $10^{26}$  joules per second – a factor of at least  $10^{11}$  lower.
- Further, these magnetars emit violent flares.
- Eruptions in magnetars are believed to be due to instabilities in their magnetosphere, or “starquakes” produced in their crust - a rigid, elastic layer about one kilometre thick. This causes waves in the magnetosphere, and interaction between these waves causes dissipation of energy.
- Magnetars are very difficult to observe when they are silent. It is only during a flare that they can be observed, and these flares are so short-lived that it presents a formidable problem.
- They are mostly observed or seen in active transient phases which are very short in duration and are very faint in general for any available instruments or telescopes.
- The active life of a magnetar is short. Their strong magnetic fields decay after about 10,000 years, after which activity and strong X-ray emission cease.



**In News –**

- An international group of researchers has succeeded in measuring for the first time the characteristics of a flare on a distant magnetar.
- The magnetar they have studied is about 13 million light years away, in the direction of the NGC 253, a prominent galaxy in the Sculptor group of galaxies.
- The flare, which spewed within a few tenths of a second as much energy as the Sun would shed in 100,000 years, was captured accidentally on April 15, 2020, by the Atmosphere-Space Interactions Monitor instrument (ASIM) of the International Space Station.
- The present magnetar is only the second one to be studied which is located outside the galaxy and is also the furthest, at 13 million light years distance.

**Stellar fireworks**

The study characterised a short-lived flare which briefly lit up this star

■ Stars having around 10-25 times the solar mass eventually shrink to form neutron stars

■ A small number of neutron stars become the so-called magnetars which possess intense magnetic fields

■ Magnetars are relatively rare objects, with only about thirty having been spotted within the Milky Way so far

■ Magnetars emit violent flares. It is only during a flare that they can be observed, and these flares are so short-lived that it presents a major challenge

■ The observed giant flare lasted approximately 160 milliseconds and during this time the flare spewed as much energy that our Sun will radiate in 1,00,000 years



**Distant star:** An artist's illustration of the magnetar which is about 13 million light years away, in the direction of NGC 253, a prominent galaxy in the Sculptor group of galaxies.

■ BIRKELAND CENTRE FOR SPACE SCIENCE, UNIVERSITY OF BERGEN AND MOUNT VISUAL

**Chondrules in Meteorites:**

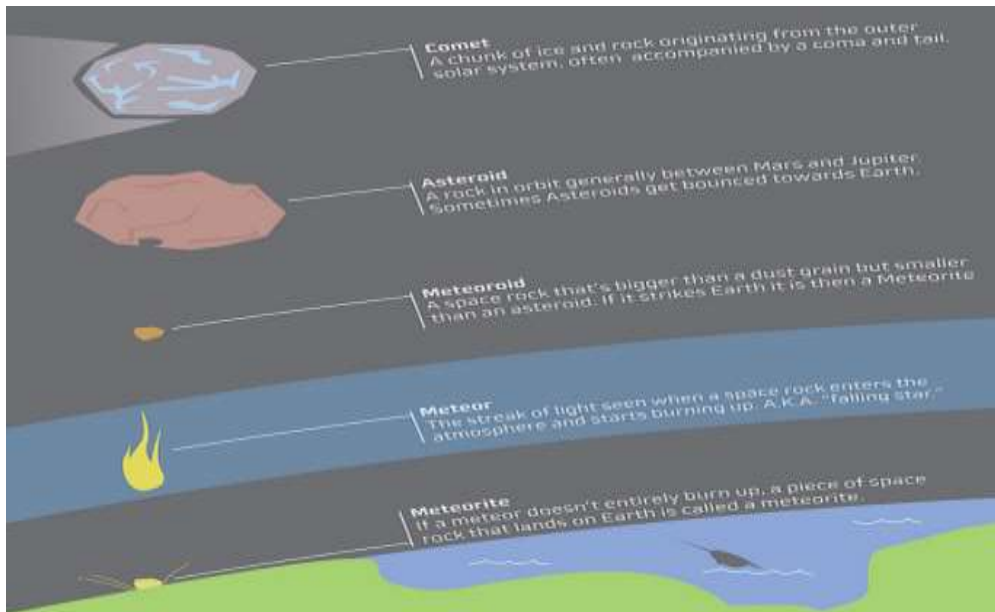
Context – Scientists with Chicago University have published an analysis of how beads in meteorites came to be

Concept –

- Most meteorites contain tiny beads of glass that date back to the earliest days of the solar system, before planets formed.
- Now, scientists with Chicago University have published an analysis of how these beads came to be, and what they can tell us about the early solar system.
- The beads of glass inside these meteorites are called chondrules. But what exactly caused the formation of these chondrules remains unclear.
- Scientists can find clues about the early days of the solar system by looking at the types of a given element in a rock.



- Elements can come in several different forms, called isotopes, and the proportion in each rock varies according to what happened when that rock was born, how hot it was, whether it cooled slowly or was flash-frozen.
- From there, scientists can piece together a history of likely events. Scientists at the University of Chicago measured the concentrations and isotopes of two elements that are depleted in meteorites, potassium and rubidium.
- The team pieced together what must have been happening as the chondrules formed.
- The elements would have been part of a clump of dust that got hot enough to melt, and then to vaporize. Then, as the material cooled at a rate of around 500 degrees C per hour, some of that vapour coalesced back into chondrules.
- They theorise that massive shockwave passing through the early nebula could have been sudden and violent enough to cause this extreme heating and cooling.



### Galaxy with no Dark Matter:

Context – Astronomers led by researchers from the Netherlands have found no trace of dark matter in the galaxy AGC 114905

Concept –

- Astronomers led by researchers from the Netherlands have found no trace of dark matter in the galaxy AGC 114905.
- An ultra-diffuse dwarf galaxy, AGC 114905, is about 250 million light-years away. The word dwarf here refers to its luminosity (MNRAS).
- The researchers collected data on the rotation of gas in AGC 114905 for 40 hours with the Very Large Array telescope.

### Dark Matter

- Dark matter, though never detected, is believed to be present in the entire universe, its existence presumed because a number of observable celestial phenomena could not be possible if the universe did not have much more matter in it than is seen.
- It is believed to make up more than 95% of all universe.
- Dark matter is composed of particles that do not absorb, reflect, or emit light, so they cannot be detected by observing electromagnetic radiation.
- Its gravitational force prevents stars in our Milky Way from flying apart.
- However, attempts to detect such dark matter particles using underground experiments, or accelerator experiments including the world's largest accelerator, the Large Hadron Collider (LHC), have failed so far.

### Differences between Webb and Hubble telescopes:

Context – The James Webb Space Telescope, NASA's most powerful telescope, is scheduled to be rocketed into orbit no earlier than December 22.

Concept –

- Though Webb is often called the replacement for the Hubble Space Telescope, NASA said it prefers to call it a successor.



- Launched into low Earth orbit in 1990, the Hubble Space Telescope has made more than 1.4 million observations, including tracking interstellar objects, capturing a comet colliding with Jupiter, and discovering moons around Pluto.
  - Hubble has captured galaxies merging, probed supermassive black holes and has helped us understand the history of our universe.

<u>Parameter</u>	<u>James Webb</u>	<u>Hubble</u>
Wavelength	<ul style="list-style-type: none"> <li>• Observe primarily in the infrared range.</li> <li>• (The infrared region of the electromagnetic spectrum covers the wavelength range from approximately 0.7 to a few 100 microns)</li> </ul>	See mainly in the ultraviolet and visible part of the spectrum
Size	<ul style="list-style-type: none"> <li>• Webb's primary mirror has a diameter of 6.5 metres.</li> <li>• Webb also carries a large sun shield.</li> </ul>	Hubble's mirror was much smaller – 2.4 metres in diameter.
Orbit	Webb will not orbit the Earth. It will orbit the sun at about 1.5 million kilometres away from Earth.	Hubble orbits around the Earth at an altitude of ~570 km.
How far can the telescope see?	<ul style="list-style-type: none"> <li>• Webb Telescope will be able to see “baby galaxies”.</li> <li>• Webb's near- and mid-infrared instruments will help study the first formed galaxies, exoplanets and birth of stars.</li> </ul>	Hubble can see the equivalent of “toddler galaxies”

### Webb vs Herschel Space Observatory

- In 2009, the European Space Agency launched an infrared telescope named the Herschel Space Observatory.
- It also orbits the Sun similar to how Webb would. The primary difference between Webb and Herschel is the wavelength range: Webb goes from 0.6 to 28 microns, while Herschel covers 60 to 500 microns.
- Also, Herschel's mirror is smaller than Webb's. It is 3.5 metres in diameter, while Webb's primary mirror has a diameter of 6.5 metres.

### **Dhawan-1:**

Context – Hyderabad's rocket men aim for the stars. Their start-up test-fired India's first privately built fully cryogenic engine last month

Concept –

- Hyderabad-based Skyroot Aerospace successfully test-fired Dhawan-1 last month, it became the country's first privately developed, fully cryogenic rocket engine running on two high-performance rocket propellants — liquid natural gas (LNG) and liquid oxygen (LoX).
- The engine was developed using 3D printing with a superalloy.

### **Vertical Launch Short Range Surface to Air Missile (VL-SRSAM):**

Context – The Vertical Launch Short Range Surface to Air Missile (VL-SRSAM) designed for Indian Naval warships was successfully flight tested earlier this week by India

Concept –





- VL-SRSAM has been designed and developed jointly by three facilities of the Defence Research and Development Organisation for deployment of Indian Naval warships.
- The missile has the capability of neutralising various aerial threats at close ranges including sea-skimming targets.
- The tactic of sea skimming is used by various anti-ship missiles and some fighter jets to avoid being detected by the radars onboard warships.
- For this, these assets fly as close as possible to sea surface and thus are difficult to detect and neutralise.
- RDO officials have said its design is based on Astra missile which is a Beyond Visual Range Air to Air missile.
- VL-SRSAM is a canisterised system, which means it is stored and operated from specially designed compartments.
  - In the canister, the inside environment is controlled, thus making its transport and storage easier and improving the shelf life of weapons

**“Challenge” Feature Length Film:**

Context – Billionaire Japanese entrepreneur Yusaku Maezawa reached the International Space Station (ISS) for a 12-day trip, during which time he will complete 100 tasks in space, including playing a game of badminton.

Concept –

- The Challenge or Doctor's House Call is an **upcoming Russian space drama film** by Klim Shipenko.
- It is the **first feature-length fiction film shot in outer space**.

**James Webb Space Telescope:**

Context – NASA has announced the launch of the James Webb Space Telescope (JWST) at 7.20 am EST (5.50 pm India time) on December 24.

Concept –

- Webb, the world's premier space science observatory, will succeed the Hubble Space Telescope, NASA's flagship telescope that has been in service for more than three decades now.
- **WAVELENGTH:**
  - Webb's four instruments to capture images and spectra of astronomical objects will provide wavelength coverage from 0.6 to 28 microns (the infrared part of the electromagnetic spectrum is from about 0.75 microns to a few hundred microns);
  - the instruments on Hubble can observe mainly in the ultraviolet and visible parts of the spectrum from 0.1 to 0.8 microns.
  - Infrared observations are important because light at this wavelength can penetrate the dust that shrouds newly formed stars and planets, and make them visible.
- **SIZE:**
  - Webb's primary mirror is approximately 6.5 metres in diameter, giving it a significantly larger collecting area than the mirrors of the current generation of space telescopes.
  - Hubble's mirror has a diameter of 2.4 metres, which means Webb's collecting area is around 6.25 times that of Hubble's.
  - Webb will cover more than ~15 times the field of view covered by Hubble's NICMOS camera.
  - Webb's sunshield is about 22 m by 12 m, a little less than the size of a tennis court.
- **ORBIT:**
  - Hubble orbits the Earth at an altitude of ~570 km.
  - Webb will not orbit the Earth, instead it will sit at the Earth-Sun L2 Lagrange point, 1.5 million km away.
  - This means that Webb will orbit the Sun along with the Earth, but will stay fixed at the same spot in relation to the Earth and the Sun.
  - At the L2 point, Webb's solar shield will block the light from the Sun, Earth, and Moon, which will help it stay cool — important for an infrared telescope.
- **HOW FAR:**
  - Because light takes time to travel, the farther away an object is, the farther back in time we are looking.
  - Thus, while Hubble can see the equivalent of “toddler galaxies”, Webb will be able to see “baby galaxies”.



- This is also because Webb is an infrared telescope, and can see distant objects which are very dim at visible wavelengths of light.

**NASA's new communications system LCRD:**

Context – NASA launched its new Laser Communications Relay Demonstration (LCRD)

Concept –

- NASA launched its new Laser Communications Relay Demonstration (LCRD) — the agency's first-ever laser communications system.
- The LCRD will help the agency test optical communication in space.
- Currently, most NASA spacecraft use radio frequency communications to send data. Optical communications will help increase the bandwidth 10 to 100 times more than radio frequency systems.
- The LCRD payload is hosted onboard the US Department of Defense's Space Test Program Satellite 6 (STPSat-6).
- It will be in a geosynchronous orbit, over 35,000km above Earth.

**Laser VS radio**

- Laser communications and radio waves use different wavelengths of light.
- Laser uses infrared light and has a shorter wavelength than radio waves. This will help the transmission of more data in a short time.

**Advantages of optical communications**

- Optical communications systems are smaller in size, weight, and require less power compared with radio instruments.
- A smaller size means more room for science instruments.
- Less weight means a less expensive launch.
- Less power means less drain on the spacecraft's batteries.
- With optical communications supplementing radio, missions will have unparalleled communications capabilities.

**Crypto as Securities of Special Class:**

Context – Treat crypto as securities of special class, says CII

Concept –

- The term "security" refers to a fungible, negotiable financial instrument that holds some type of monetary value.
- It represents an ownership position in a publicly-traded corporation via stock; a creditor relationship with a governmental body or a corporation represented by owning that entity's bond; or rights to ownership as represented by an option.
- Securities are tradable financial instruments used to raise capital in public and private markets.
- There are primarily three types of securities: **equity**—which provides ownership rights to holders; **debt**—essentially loans repaid with periodic payments; and **hybrids**—which combine aspects of debt and equity.
- Publicly traded securities are listed on stock exchanges, where issuers can seek security listings and attract investors by ensuring a liquid and regulated market in which to trade.

**What are government securities?**

- Government securities or G-Secs are essentially debt instruments issued by a government.
- These securities can be issued by both the central government and the state governments of India.

**Basic concepts in science:****Shirodhara:**

Context – Ongoing research at IIT Madras is looking closely at this ayurvedic therapy

Concept –

- Shirodhara comes from the two Sanskrit words “shiro” (head) and “dhara” (flow). It's an Ayurvedic healing technique that involves having someone pour liquid — usually oil, milk, buttermilk, or water — onto your forehead.
  - The treatment involves the low-velocity impact of a medicinal liquid dropping on the forehead from a specific height, at a controlled temperature, for 30-60 minutes, for a defined number of days.
- It's often combined with a body, scalp, or head massage.
- Shirodhara is said to have relaxing, soothing, and calming effects on the body and mind.
- Research also suggests that shirodhara may help:
  - improve sleep quality
  - manage insomnia



- lessen anxiety (when combined with yoga)
- reduce stress
- Shirodhara is a non-invasive brain relaxation therapy, comparable to the effects produced by yoga and meditation. However, unlike the other two, it does not require any effort from the patient.

#### Science behind it –

- It holds that a falling liquid on the forehead produces a vibration, which generates electromagnetic waves.
- These are transferred to the cerebral cortex and hypothalamus, which has an impact on the brain and the central nervous system.
- This could reduce stress and, hence, hypertension.

#### **Olfactory Organ:**

Context – Researchers at Karolinska Institutet in Sweden have found that negative smells associated with unpleasantness or unease are processed earlier than positive smells and trigger a physical avoidance response.

Concept –

- The olfactory system, or sense of smell, is the sensory system used for smelling (olfaction).
- Researchers in Sweden have found that negative smells associated with unpleasantness or unease are processed earlier than positive smells and trigger a physical avoidance response.
- The olfactory organ takes up about 5% of the human brain and enables us to distinguish between many million different smells. In humans, the olfactory sense seems particularly important for detecting and reacting to potentially harmful stimuli.
- The researchers have for the first time made it possible to measure signals from the human olfactory bulb, which processes smells and in turn can transmits signals to parts of the brain that control movement and avoidance behaviour.
- The bulb reacts specifically and rapidly to negative smells and sends a direct signal to the motor cortex within about 300 milliseconds.

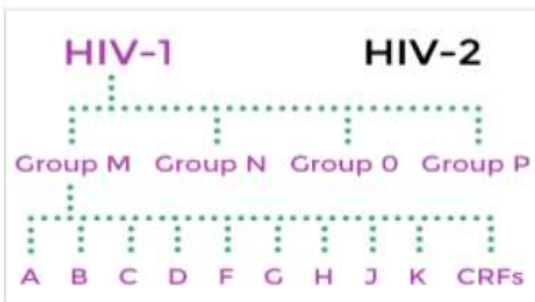
#### **HIV Strains and Types:**

##### HIV-1 and HIV-2

- HIV-1 and HIV-2 are two distinct viruses.
- Worldwide, the predominant virus is HIV-1. HIV-1 accounts for around 95% of all infections worldwide.
- HIV-2 is estimated to be more than 55% genetically distinct from HIV-1.
- The relatively uncommon HIV-2 virus is concentrated in West Africa but has been seen in other countries with links to West Africa. It is less infectious and progresses more slowly than HIV-1, resulting in fewer deaths.
- However, without treatment, most people living with HIV-2 will eventually progress to AIDS and die from the disease.
- While many commonly used antiretroviral drugs are active against HIV-2, non-nucleoside reverse transcriptase inhibitors (NNRTIs) like nevirapine and efavirenz do not work against it.
- The best way to treat HIV-2 has been less clearly defined than HIV-1.

##### Groups within HIV-1

- The strains of HIV-1 can be classified into four groups.



**HIV-1 Group M** is the strain of HIV that is responsible for the global HIV epidemic.

- Of these, M is the 'major' group and is responsible for the majority of the global HIV epidemic.
- Within group M there are known to be at least nine genetically distinct subtypes of HIV-1. These are subtypes A, B, C, D, F, G, H, J and K.

### Hydrogen sulphide suppresses HIV:

Context – Researchers at the Indian Institute of Science (IISc.) and their collaborators have identified a key role played by hydrogen sulphide (H<sub>2</sub>S) gas in suppressing the Human Immunodeficiency Virus (HIV)

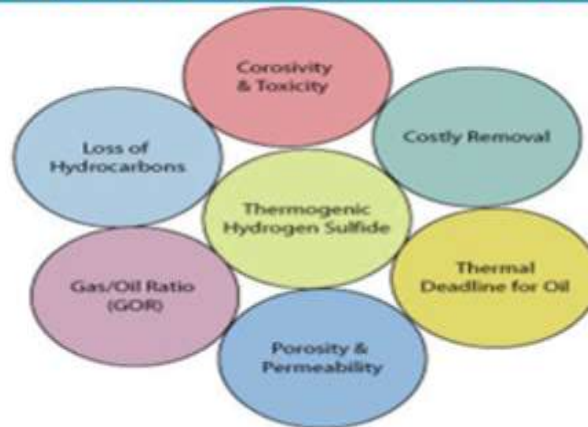
Concept –

- Researchers at the Indian Institute of Science (IISc.) and their collaborators have identified a key role played by hydrogen sulphide (H<sub>2</sub>S) gas in suppressing the Human Immunodeficiency Virus (HIV).
- Increased H<sub>2</sub>S was found to have a direct effect on reducing the rate at which the virus multiplies in HIV-infected human immune cells.
- Current state-of-the-art combined antiretroviral therapy (cART) is not a cure for HIV. It can only suppress the virus by causing it to become latent.

### About Hydrogen sulphide

- Hydrogen sulfide is a chemical compound with the formula H<sub>2</sub>S.
- It is a colorless chalcogen hydride gas with the characteristic foul odor of rotten eggs. It is poisonous, corrosive, and flammable.
- Hydrogen sulfide is often produced from the microbial breakdown of organic matter in the absence of oxygen, such as in swamps and sewers; this process is commonly known as anaerobic digestion which is done by sulfate-reducing microorganisms.
- H<sub>2</sub>S also occurs in volcanic gases, natural gas, and in some sources of well water.
- The human body produces small amounts of H<sub>2</sub>S and uses it as a signaling molecule.
- When high amounts of this chemical are found in the human body, damage to organs can occur with symptoms ranging from breathing difficulties to convulsions and even death.
- Hydrogen sulfide is slightly denser than air. A mixture of H<sub>2</sub>S and air can be explosive.
- Hydrogen sulfide burns in oxygen with a blue flame to form sulfur dioxide (SO<sub>2</sub>) and water.
- In general, hydrogen sulfide acts as a reducing agent.
- Hydrogen sulfide is slightly soluble in water and acts as a weak acid.
- Hydrogen sulfide reacts with metal ions to form metal sulfides, which are insoluble, often dark colored solids.

## THE SIGNIFICANCE OF HYDROGEN SULFIDE



### Assisted Reproductive Technology (ART) and Surrogacy:

Context – Lok Sabha passed the Assisted Reproductive Technology Regulation Bill, 2020, which makes provisions for the safe and ethical practice of assisted reproductive technology (ART) services in the country.

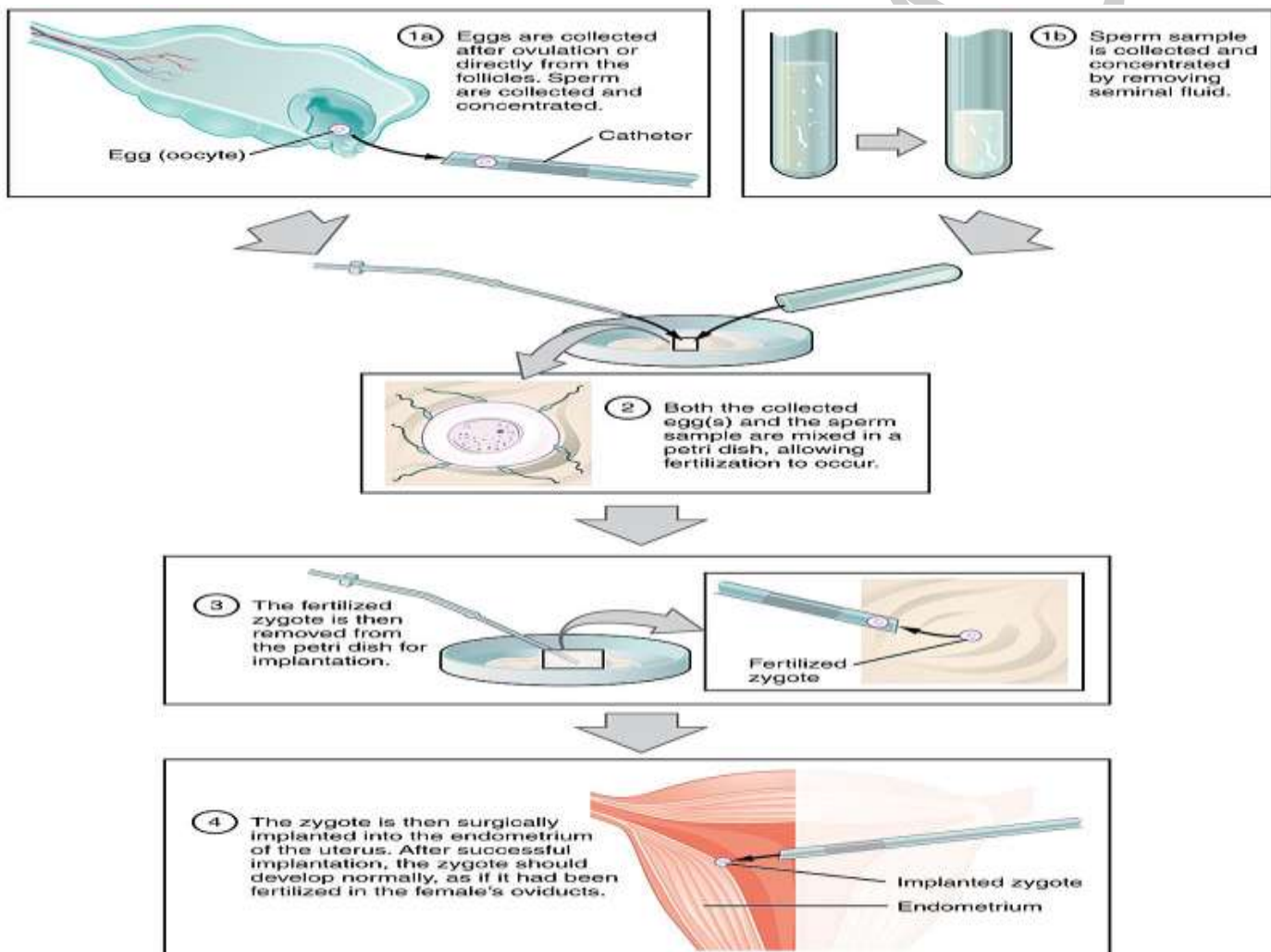
Concept –

- The Surrogacy (Regulation) Bill relates to surrogacy, an infertility treatment, where a third person, a woman, is the surrogate mother.
  - In ART, treatments can be availed by the commissioning couple themselves and it is not always necessary that a third person is involved.
- Surrogacy is allowed for only Indian married couples.
  - ART procedures are open to married couples, live-in partners, single women, and also foreigners.

- A 2015 notification prohibits commissioning of surrogacy in India by foreigners or OCI or PIO cardholders, but NRIs holding Indian citizenship can avail surrogacy.
  - Foreigners can visit India under medical tourism to avail ART services.
- Under the Surrogacy Bill, there will be a National Surrogacy Board that will be involved in policymaking, and act as a supervisory body, and State Boards that will act as executive bodies.
  - The ART Bill provides for a National Board, with the powers vested in a civil court under the Code of Civil Procedure.
- According to the Health Ministry, the estimated number of clinics practising surrogacy in India is likely less than 1,000, while that of those practising ART is likely more than 40,000.

**ART bank**

- Under the Bill, ART will include all techniques that attempt to obtain a pregnancy by handling the sperm or the oocyte outside the human body, and transferring the gamete or the embryo into the reproductive system of a woman.
- It defines an ART bank as an organisation set up to supply sperm or semen, oocytes, or oocyte donors to ART clinics or their patients.
- ART services will apply to women above the legal age of marriage and below 50, and to men above the legal age of marriage and below 55.

**Biomarker:**

Context – Australia's Queensland state has found a new omicron lineage in a traveller who arrived from South Africa

Concept –



- In medicine, a biomarker is a **measurable indicator of the severity** or presence of some disease state.
  - More generally a biomarker is anything that can be used as an indicator of a particular disease state or some other physiological state of an organism.
- According to the WHO, **the indicator may be chemical, physical, or biological in nature** - and the measurement may be functional, physiological, biochemical, cellular, or molecular.
- A biomarker may be used to see how well the body responds to a treatment for a disease or condition.
- Also called molecular marker and signature molecule.
- Biomarkers help in diagnosing, treating and tracking disease progress. They are important to safeguard health of an individual and provide them with proper treatment.

### Chaperones in Biology:

Context – chaperone proteins work to maintain normal cellular function

Concept –

- DNA is a linear chain of nucleotides, portions of which are faithfully transcribed into linear messenger RNA. The message in this RNA is translated into strings of amino acids - proteins.
- Proteins need to take a precise three-dimensional shape to become functional entities. This protein folding does not happen all by itself, at least most of the time.
- A special bunch of proteins called molecular chaperones assist in correctly folding the protein.
- Without chaperones, newly synthesised proteins would soon become a tangled mess of insoluble aggregates, hindering cellular processes.
- Misfolding of proteins can cause a number of diseases. Alpha-synuclein protein, present in neurons, is wrongly folded in Parkinson's disease.
  - Brains of Alzheimer's patients have plaques formed from aggregates of amyloid beta-peptide.
- This accumulation of amyloid fibrils is toxic, leading to widespread destruction of neurons – a 'neurodegenerative' disorder.

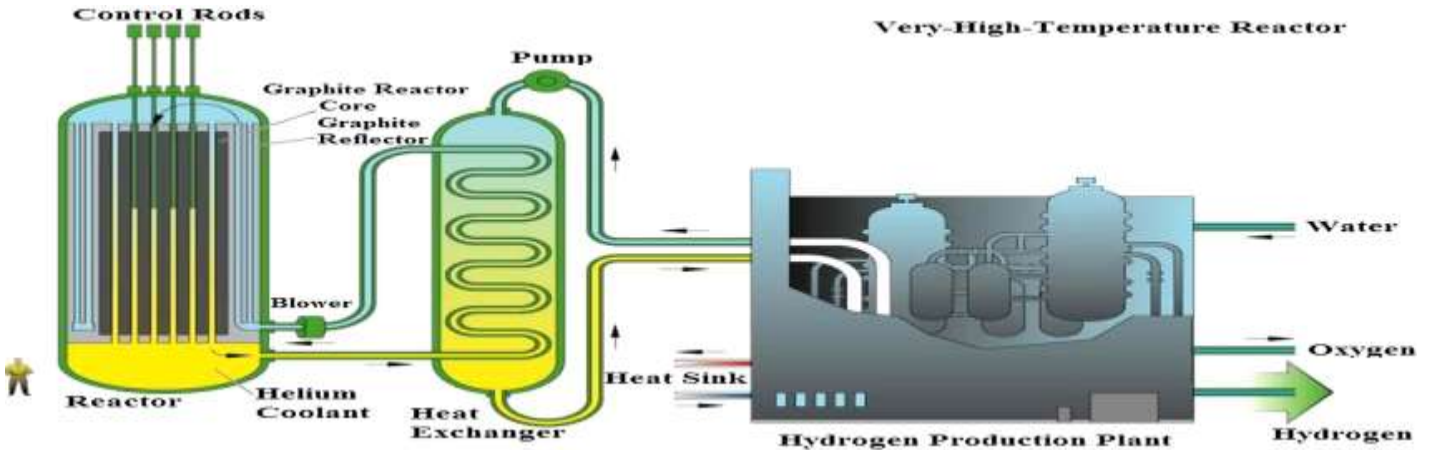
### High-Temperature Reactors for Green Hydrogen:

Context –

Concept –

- High temperature nuclear reactors (HTRs) represent a novel way to produce hydrogen at large scale with high efficiency and less carbon footprint.
- High Temperature Reactor (HTR) technology has been developed from the late 1940s in US and Germany.
- The present Very High Temperature Reactor (VHTR), operating at >7500 C, has over the years, evolved into a new reactor concept, designed to be a very efficient and safe system.
- It is a helium-gas cooled, graphite-moderated, thermal neutron spectrum reactor, which can provide electricity and process heat for wide-ranging applications, including hydrogen production.
- Hydrogen production through fossil fuels entails CO<sub>2</sub> emissions. Therefore splitting of water to produce hydrogen is a better alternative.
- There are several methods to extract hydrogen from water and two of the highly used processes are
  - 1.High Temperature Electrolysis (HTE) and
  - 2.Thermo-chemical cycles.
 Both these processes require very high temperatures, which can be provided by the VHTRs.





### Indian HTR

- Indian HTR development programme has two elements:
  - a 100 kW (thermal), 1,000 degrees C portable ‘compact high-temperature reactor’ (CHTR) for technology demonstration;
  - a 600 MW (thermal), 1,000 degrees C ‘Indian high-temperature reactor/hydrogen’, or IHTR-H.
- These two reactors would be powered by ‘TRISO-coated particle’ fuel. TRISO — ‘tristructural isotropic’ — comprises uranium, carbon and oxygen, all of which India can make.
- The IHTR-H is designed to produce about 7,000 kg of hydrogen, 18 MWhr (thermal) of energy per hour and 9 million litres of water a day.

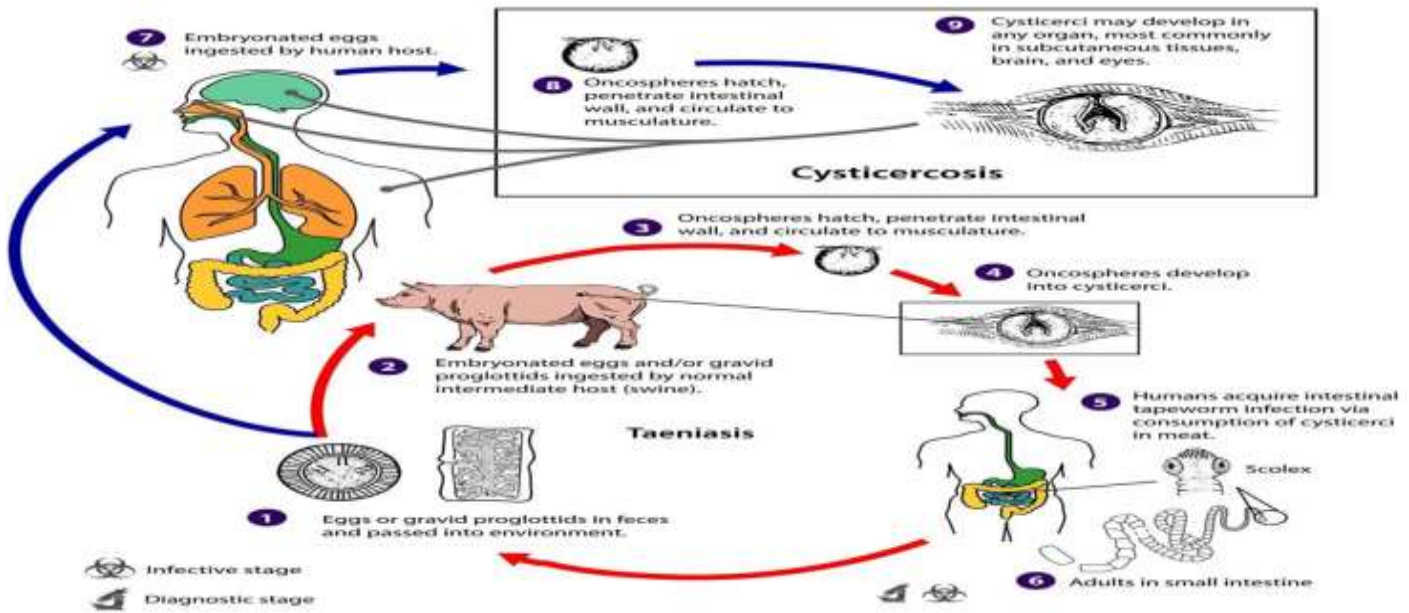
### Neurocysticercosis (NCC):

Context – Worms thriving in brains, Assam’s tea garden workers lose lives, livelihoods

Concept –

- Neurocysticercosis (NCC) is a preventable disease that wreaks havoc among Assam’s pig-rearing communities among others.
- The disease, which can result in adult-onset epilepsy, is caused when a human consumes meat from — or is indirectly in contact with — a pig infected with tapeworm.
- The eggs of the tapeworm invade the muscles of the human body to make cysts. Sometimes these cysts get into people’s brains, triggering epileptic seizures, headaches, difficulty with balance and excess fluid around the brain.
- Assam is the world’s largest tea growing region, with over 800 estates producing half of India’s tea.
- The life cycle of a pork tapeworm (*taenia solium*) takes it from pigs to humans and vice-versa.
- Tapeworm eggs are spread through food, water, or surfaces contaminated with faeces. Humans swallow the eggs when they eat contaminated food or put contaminated fingers in their mouth.
- Humans are the only definitive host for the parasite to complete its life cycle. This spillover from pigs to humans and vice-versa makes NCC a zoonotic disease.





### Covid 19 and related news:

#### Protein-based Vaccines:

Context – Indonesia’s recent approval for emergency use of the first protein-based vaccine developed by Novavax is welcome news  
 Concept –

- Unlike the never-used-before platforms of the mRNA and viral vector vaccines, recombinant protein-based technology is time-tested and widely used for many viral diseases. Protein-based vaccines, while **slow to develop**, are **more stable at higher temperatures**, easy to scale up, **highly cost-effective, safe**, and efficacious.
- The first protein-based vaccines relied on natural sources of antigens. In this regard, the first hepatitis B vaccine is unique in using a human source (plasma) for the vaccine antigen.

#### Subunit Vaccines

- Rather than injecting a whole pathogen to trigger an immune response, subunit vaccines (sometimes called **acellular vaccines**) contain **purified pieces** of it, which have been specially selected for their ability to stimulate immune cells.
- Because these fragments are incapable of causing disease, subunit vaccines are considered **very safe**.
- There are several types:
  - **Protein subunit vaccines** contain specific isolated proteins from viral or bacterial pathogens;
  - **Polysaccharide vaccines** contain chains of sugar molecules (polysaccharides) found in the cell walls of some bacteria;
  - **Conjugate subunit vaccines** bind a polysaccharide chain to a carrier protein to try and boost the immune response.
- Only protein subunit vaccines are being developed against the virus that causes COVID-19.

#### Blood Clots After Oxford Vaccine:

Context – Study finds mechanism of blood clots after giving Oxford vaccine

Concept –

- The journal Science Advances has revealed for the first time the mechanism responsible for blood clots arising from thrombosis with thrombocytopenia syndrome (TTS) following vaccination with AstraZeneca vaccine.
- Thrombocytopenia syndrome causes low platelet count.
- A low number of platelets – blood cells that help prevent blood loss when vessels are damaged – can result in no symptoms or can lead to an increased risk of bleeding or, in some cases, clotting.





- Thrombosis with thrombocytopenia syndrome is a very rare serious adverse effect following vaccination using chimpanzee adenovirus Y25 (ChAdOx1), human adenovirus type 26 (HAdV-D26), and human adenovirus type 5 (HAdV-C5).
- AstraZeneca vaccine and the Indian counterpart Covishield use the chimpanzee adenovirus Y25, while Johnson & Johnson vaccine uses the human adenovirus type 26.
  - The Sputnik vaccine uses both human adenovirus type 26 and human adenovirus type 5 as vectors to ferry the spike protein into certain cells.
- The researchers found that all three adenoviruses used in a few COVID-19 vaccines as vectors bind to platelet factor 4 (PF4). They found that adenoviruses form stable complexes with PF4.

### What is Thrombosis?

- Thrombosis is the formation of a blood clot, known as a thrombus, within a blood vessel. It prevents blood from flowing normally through the circulatory system.
- Blood clotting, also known as coagulation, is the body's first line of defense against bleeding. When we hurt ourselves, our clotting system forms a "plug" or "seal" to protect us from losing too much blood.
- Our bodies often break down the clot after we've healed – but sometimes, clots form inappropriately or fail to dissolve after an injury. A blood clot that forms and stays in a blood vessel is called a thrombus.
- Other medical terms used to describe blood clots include:
  - **Thrombosis:** When a thrombus forms in a blood vessel.
  - **Embolus or Embolism:** A clot that detaches and travels through blood vessels to another part of the body.

### **EU Regulators give Approval to Mix Vaccines:**

Context – European Union regulators endorsed the mixing two different Covid shots for initial vaccine schedules and boosters

Concept –

- European Union regulators endorsed the mixing two different Covid shots for initial vaccine schedules and boosters, saying hybrid approaches can increase governments' flexibility in responding to the new omicron variant.
- Combining viral vector vaccines such as AstraZeneca with mRNA jabs such as Pfizer generates a good level of antibodies against Covid and a higher T-cell response, another part of a person's immune defense, compared to giving doses of the same shot, according to data analysed by the European Medicines Agency and the European Center for Disease Prevention and Control.
- Mix-and-match shot combinations are already used in a number of countries, including in the UK's booster program, and can provide countries with flexibility when managing vaccine stockpiles and shortages as the new variant spreads.

### **WHO's latest report on Omicron variant:**

Context – WHO has presented an update on the current situation on Omicron

Concept –

- WHO said that given the predominant circulation of the Delta variant in many countries, it is too early to draw a conclusion on the impact of the new Omicron variant on the global epidemiology of Covid-19.
- At the same time, WHO has also presented an update on the current situation on four key issues on Omicron — transmissibility, clinical severity, risk of reinfection and the potential impact of the vaccines.
- WHO said that at present, while "there seems to be evidence that the Omicron may have a growth advantage over other circulating variants, it is unknown whether this will translate into increased transmissibility".
- WHO underlined that currently only limited data are available on clinical severity making it "challenging to assess any changes in disease severity with the Omicron variant".
- WHO said that initial modelling studies from South Africa have found an increased risk of re-infection, adding, this information only offers an initial assessment of the risk of re-infection.
- WHO reiterated that Interleukin-6 Receptor Blockers and corticosteroids are expected to continue to be effective in the management of patients with severe diseases.

### **'Booster' Dose:**

Context – Health Ministry said India is still examining the possibility of administering booster shots of the Covid-19 vaccine

Concept –



- Most Covid vaccines are administered in two doses, with a few given as a single dose. A booster is an additional shot given after the protection provided by the original shot(s) has begun to decrease over time, so that people can maintain their level of immunity for longer.
- Antibodies decay over time, and even memory T-cells will die after a few years or months.
- In the past, boosters were recommended for **smallpox prevention** every three to five years. **Tetanus toxoid boosters** are also recommended today for adults and pregnant women after childhood vaccination.
- If community transmission is high, boosters would help in controlling viral spread.

#### Case of Omicron Variant

- Omicron — the fifth variant of concern declared by the World Health Organization (WHO) — has a greater ability than previous variants to partially escape protection from Pfizer Inc vaccine.
- The “escape” was incomplete in vaccinated participants who had a previous infection, the paper noted.
- Previous infection, followed by vaccination or booster is likely to increase the neutralisation level and confer protection from severe disease in Omicron infection.
- A vaccine imitates an infection — it activates the body’s immune system to produce antibodies and memory T-cells without causing illness. Antibodies are the body's first response to fight on getting infected, while T-cells protect against severe disease.

#### The different types of COVID-19 vaccines

Subject – S&T

Context – World Health Organization (WHO) recommended that immunocompromised individuals or those inoculated with inactivated virus vaccine should be given a booster

Concept –

#### There are three main approaches to designing a vaccine

There are three main approaches to making a vaccine:



Using a whole virus or bacterium



Parts that trigger the immune system

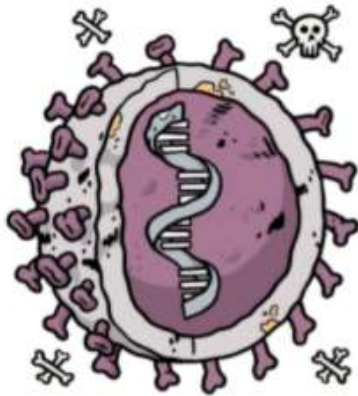


Just the genetic material

#### The whole-microbe approach



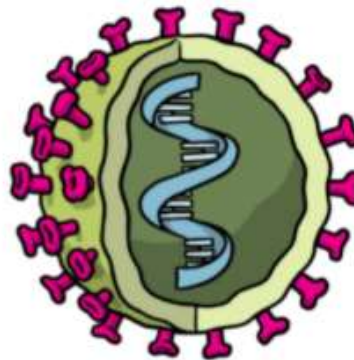
## The whole-microbe approach



Inactivated vaccine



Live-attenuated vaccine



Viral vector vaccine

### Inactivated vaccine

- The first way to make a vaccine is to take the disease-carrying virus or bacterium, or one very similar to it, and inactivate or kill it using chemicals, heat or radiation.
- This approach uses technology that's been proven to work in people – this is the way the flu and polio vaccines are made – and vaccines can be manufactured on a reasonable scale.
- However, it requires special laboratory facilities to grow the virus or bacterium safely, can have a relatively long production time, and will likely require two or three doses to be administered.

### Live-attenuated vaccine

- A live-attenuated vaccine uses a living but weakened version of the virus or one that's very similar.
- The measles, mumps and rubella (MMR) vaccine and the chickenpox and shingles vaccine are examples of this type of vaccine.
- This approach uses similar technology to the inactivated vaccine and can be manufactured at scale.
- However, vaccines like this may not be suitable for people with compromised immune systems.

### Viral vector vaccine

- This type of vaccine uses a safe virus to deliver specific sub-parts – called proteins – of the germ of interest so that it can trigger an immune response without causing disease.
- To do this, the instructions for making particular parts of the pathogen of interest are inserted into a safe virus.
- The safe virus then serves as a platform or vector to deliver the protein into the body. The protein triggers the immune response.
- The Ebola vaccine is a viral vector vaccine and this type can be developed rapidly.

## 1. The subunit approach



## The subunit approach

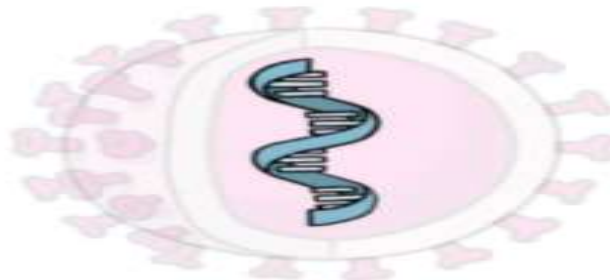


Only uses the very specific parts (the subunits) of a virus or bacterium that the immune system needs to recognize.

- A subunit vaccine is one that only uses the very specific parts (the subunits) of a virus or bacterium that the immune system needs to recognize. It doesn't contain the whole microbe or use a safe virus as a vector.
- The subunits may be proteins or sugars.
- Most of the vaccines on the childhood schedule are subunit vaccines, protecting people from diseases such as whooping cough, tetanus, diphtheria and meningococcal meningitis.

### 3. The genetic approach (nucleic acid vaccine)

## The genetic approach (nucleic acid vaccine)



Uses the genetic material for specific proteins - the DNA or RNA.

- Unlike vaccine approaches that use either a weakened or dead whole microbe or parts of one, a nucleic acid vaccine just uses a section of genetic material that provides the instructions for specific proteins, not the whole microbe.
- DNA and RNA are the instructions our cells use to make proteins. In our cells, DNA is first turned into messenger RNA, which is then used as the blueprint to make specific proteins.
- The nucleic acid approach is a new way of developing vaccines. Before the COVID-19 pandemic, none had yet been through the full approvals process for use in humans, though some DNA vaccines, including for particular cancers, were undergoing human trials.

### **Pandemic Waves:**

Context – Past episodes teach us that pandemic always ebbs and flows in waves, warning us against any premature celebration of its defeat

Concept –

- The three pandemics between 1817 and 1920 show they stay for a while and come in waves before dying down.



- Chronicles cholera (1817), plague (1894) and influenza (1918), which collectively claimed over 72 million lives globally — 40 million in India.
- Past episodes teach us that pandemic always ebbs and flows in waves, warning us against any premature celebration of its defeat.
- From past experiences, the policy focus should have been on anticipating a mutation of the virus.

### S-gene Drop Out:

Context – WHO has also recommended that certain commonly used COVID-19 detection tests, with ‘S-gene dropout’ capabilities, can be used to quickly screen for an Omicron infection.

Concept –

- Tests usually look for three target genes related to parts of the virus: S (spike), N2 (nucleocapsid or inner area) and E (envelope or outer shell).
- The S-gene refers to the gene that codes for the spike protein, or the most distinctive part of the coronavirus. The SARS-CoV-2, like many other coronaviruses, has key protein-regions that define its structure: The envelope protein (E), the nucleocapsid protein (N), the membrane protein (M) and the spike protein (S).
- To accurately identify the virus, diagnostic tests are made that can identify characteristic genes that make these proteins.
- To maintain the balance between cost, turn-around time and efficiency, makers of diagnostic kits usually target 1-3 genes on these regions.
- The SARS-CoV-2 virus incidentally has one of the largest genomes in the coronavirus family.
- One popular kit, called the TaqPath COVID-19 assays, identifies three gene targets from three regions one of which is the S region to confirm or rule out the presence of the coronavirus.
- Some versions of the coronavirus, notably B.1.1.7, known as the Alpha variant, and the Omicron variant (B.1.1.529), have characteristic amino acids missing on the S protein. Amino acids are the building blocks of protein.
- When tests designed to look for the ‘S’ gene encounter these coronaviruses with the missing amino acids, they show up as negative for the S gene and this is called the S Gene Targeted Failure or popularly S-gene drop out.
- Despite the negative ‘S’, the test will return positive in case of the presence of the SARS-CoV-2 virus because the genes on the ‘E’ and ‘N’ will likely signal a match.
- Some parts of the coronavirus are more conserved, or don’t change too much, and make for more reliable test targets.
- The spike protein can change a lot—the coronavirus is continually evolving, trying to adapt to antibodies created from vaccines or prior infections—and tests too must keep changing to find appropriate targets.

### S-gene Target Failure (SGTF) Test:

Context – Union health ministry said the Omicron variant will be identified only through genome sequencing and through S-gene target failure,

Concept –

- The World Health Organization has said the **S gene is not present in the Omicron variant**. This is the result of the multiple mutations that the variant has undergone and is a marker to identify the variant.
- RT-PCR tests in India, as of now, only focus on the E, N and RdRp genes and the S test was not required.
- S gene drop detecting kits can be used for early detection of Omicron. This way, Omicron can be detected even before genome sequencing. This is known as a proxy test.
- SGTF was defined as non-detection of the S-gene target among samples that tested positive (cycle threshold <37) for both the N-gene and ORF1ab gene targets.

### Cellular Immunity:

Context – ‘AstraZeneca/Covishield kept death rate low in UK’

Concept –

- Cell-mediated immunity is an immune response that does not involve antibodies. Rather, cell-mediated immunity is the **activation of phagocytes, antigen-specific cytotoxic T-lymphocytes**, and the release of various cytokines in response to an antigen.
- Cellular immunity protects the body through:



- **T-cell mediated immunity** or T-cell immunity: activating antigen-specific cytotoxic T cells that are able to induce apoptosis in body cells displaying epitopes of foreign antigen on their surface, such as virus-infected cells, cells with intracellular bacteria, and cancer cells displaying tumor antigens;
- **Macrophage and natural killer cell action:** enabling the destruction of pathogens via recognition and secretion of cytotoxic granules (for natural killer cells) and phagocytosis (for macrophages);
- **Stimulating cells to secrete a variety of cytokines** that influence the function of other cells involved in adaptive immune responses and innate immune responses.

### Parvovirus:

Context – Nearly 2,000 pet and stray dogs in Amravati city were affected by canine parvovirus virus last month with veterinarians cautioning pet owners against a severe outbreak.

Concept –

- It is a highly contagious viral disease that can also be life-threatening in puppies and dogs.
- Parvovirus affects the intestinal tract of canines with puppies being more susceptible.
- Bloody diarrhoea, vomiting, drastic weight loss, dehydration and lethargy are some of the symptoms.
- The virus has reported a 90 per cent mortality rate.
- Experts have stated suspect that the recent rise in cases of Parvovirus in pets is due to the Covid-19 pandemic that compelled many pet owners to avoid timely vaccination of their dogs.

### How does the virus spread in dogs?

- The highly contagious virus spreads through direct contact with an infected dog or by indirect contact with a contaminated object, including the hands and clothing of people who handle infected dogs.
- The dogs can get exposed to the parvovirus every time it sniffs, licks, or consume infected faeces.
- Indirect transmission occurs when a person who has recently been exposed to an infected dog touches the puppy, or when a puppy encounters a contaminated object, like food or water bowl, collars and leashes.

### How to keep canines safe from infection?

- Parvovirus has no cure and inoculating a puppy or a dog gives them a fighting chance against the infection.
- The first dose is given at 45 days old and the second 21 days after the first dose.
- To properly protect canines, it is necessary to administer the vaccine to them while they are puppies and then continue to do the same every year.

### Bird Flu:

Context – Bird flu triggers alert in Alappuzha

Concept –

- Avian influenza (AI) is a highly contagious viral disease affecting several species of food-producing birds (chickens, turkeys, quails, guinea fowl, etc.), as well as pet birds and wild birds.
- Occasionally mammals, including humans, may contract avian influenza.
- Influenza A viruses are classified into subtypes based on two surface proteins, Hemagglutinin (HA) and Neuraminidase (NA). For example, a virus that has an HA 7 protein and NA 9 protein is designated as subtype H7N9.
- Avian influenza virus subtypes include A(H5N1), A(H7N9), and A(H9N2).
  - HPAI A(H5N1) virus occurs mainly in birds and is highly contagious among them.
  - HPAI Asian H5N1 is especially deadly for poultry.
- **Prevention:** Strict biosecurity measures and good hygiene are essential in protecting against disease outbreaks.
- **Eradication:** If the infection is detected in animals, a policy of culling infected and contact animals is normally used in an effort to rapidly contain, control and eradicate the disease.

### Highly Pathogenic Avian Influenza (HPAI):

- The two virus types identified so far in the outbreaks — H5N1 and H5N8 come under the category of Highly Pathogenic Avian Influenza (HPAI), which is of major concern to those keeping birds, because it leads to disease and death of fowl and causes economic havoc. H5N1 is a known threat to humans as well
- Out of the three types of influenza viruses (A, B, and C), influenza A virus is a zoonotic infection with a natural reservoir almost entirely in birds. Avian influenza, for most purposes, refers to the influenza A virus.
- Though influenza A is adapted to birds, it can also stably adapt and sustain person-to-person transmission.

### Mode of transmission:



- Avian influenza is most often spread by contact between infected and healthy birds, though can also be spread indirectly through contaminated equipment.
- The virus is found in secretions from the nostrils, mouth, and eyes of infected birds as well as their droppings.
- HPAI infection is spread to people often through direct contact with infected poultry, such as during slaughter or plucking.

**Is this influenza airborne?**

- Though the virus can spread through airborne secretions, the disease itself is not an airborne disease.

**Human to human transmission:**

- In its present form, human-to-human infection is not known — human infections have been reported only among people who have handled infected birds or carcasses.

OPTIMIZE IAS

**ENVIRONMENT AND ECOLOGY****Pollution:****Flying Squads:**

Context – 17 flying squads constituted to implement anti-pollution measures in Delhi-NCR, Centre tells SC

Concept –

- The Supreme Court today approved measures proposed by the centre on forming a new Enforcement Task Force and flying squads to ensure implementation of air pollution norms across Delhi and NCR region.
- The centre has now formed a five-member Enforcement Task Force and has constituted 17 flying squads. The centre plans to increase the number of flying squads to 40 over the next 24 hours. The government informed the court today that flying squads have so far inspected 25 sites across Delhi-NCR.



- Flying squads will make surprise visits and inspections and will **comprise officials of the Central Pollution Control Board (CPCB)**. They will ensure compliance with rules such as ban on construction, limited functioning hours for industrial units, controlling road dust etc. They will **report to the Enforcement Task Force**, which will meet daily at 6 pm, either physically or via video conferencing.
- Based on the report of the flying squads, the Enforcement Task Force will have the power to order closures, seizures and issue financial penalties for non-compliance.
- Controlling the number of vehicles will be the state government's responsibility.

### Climate change mitigation and adaptation:

#### **Article 6 of the Paris Agreement:**

Context – Parties in Glasgow finally adopted the long pending Article 6 rulebook.

Concept –

- Article 6 of the Paris Agreement provides for market and nonmarket approaches in achieving Nationally Determined Contributions (NDCs).
- On markets, Article 6 has been finally resolved in a balanced manner that takes into account the concerns of developing countries.
- India, along with other developing countries, managed to convince developed countries to agree for a transition of pre2020 projects/activities, and units from the Clean Development Mechanism under the Kyoto Protocol.
- The Article 6 market mechanisms will play a crucial role in driving investments from private and public enterprises into India and help us achieve our mitigation and adaptation targets.
- Under **Article 6.2**, India set the terms for accounting of units outside the NDC.
  - Our call for countries to have flexibility in defining what is inside and outside our country's NDC was accepted, and corresponding adjustments based on the authorisation of projects helps us, as it gives us additional flexibility while maintaining the quality of units.
- Under **Article 6.4**, we were able to secure the transition of CDM projects, activities and units.
- Under **Article 6.8**, the adoption of work programme for nonmarket approaches will help developing countries in relation to, inter alia, mitigation, adaptation, finance, technology development and transfer, and capacity-building.

#### **Global Environment Facility (GEF)**

- The Global Environment Facility (GEF) is a multilateral financial mechanism that provides grants to developing countries for projects that benefit the global environment and promote sustainable livelihoods in local communities.
- It was setup as a fund under World Bank in 1991
- In 1992, at the Rio Earth Summit, the GEF was restructured and moved out of the World Bank system to become a permanent, separate institution.
- Since 1994, however, the World Bank has served as the Trustee of the GEF Trust Fund and provided administrative services.
- GEF was reestablished during the Rio Earth Summit of 1992.
- It is based in Washington, D.C., United States.
- The GEF is jointly managed by the United Nations Development Programme (UNDP), the World Bank, and the United Nations Environment Programme (UNEP).
- 183 nations are united under GEF in partnership with civil society organizations (CSOs), international institutions, private sector, etc. to address the environmental issues across the globe.
- It addresses six designated focal areas:
  - biodiversity,
  - climate change,
  - international waters,
  - ozone depletion,
  - land degradation and
  - Persistent Organic Pollutants.
- GEF also serves as a financial mechanism for the following conventions:
  - United Nations Convention on Biological Diversity (UNCBD)
  - United Nations Framework Convention on Climate Change (UNFCCC)
  - United Nations Convention to Combat Desertification (UNCCD)
  - Stockholm Convention on Persistent Organic Pollutants (POPs)





- Minamata Convention on Mercury.
- India is both a donor and a recipient of funding from the GEF. The political focal point for GEF in India is the Finance Ministry while the operational focal point is the Environment Ministry.

### Enhanced Transparency Framework (ETF)

- The Enhanced Transparency Framework (ETF) for action and support is a central component to the design, credibility and operation of the Paris Agreement.
- The framework specifies how parties to the agreement must report on progress in climate change mitigation, adaptation measures and support provided or received.
- It also provides for international procedures for the review and evaluation of those reports.
- Transparency Framework is of central importance. Parties must report regularly on their progress in implementing their NDC targets and goals, and the reports are subject to international peer review.
- The Transparency Framework thus creates the basis for the global public to publicly name and denounce those states that have failed to meet their self-imposed targets and goals. This procedure, known as “naming and shaming”, could offset the lack of binding NDC achievement and is thus a central pillar of the Paris regime.

### **Climate Change-Related Discussions at the UN Security Council:**

Context – India on Monday voted against a draft resolution seeking to create a formal space for climate change-related discussions at the UN Security Council.

Concept –

- India and Russia were the only countries to have opposed the draft resolution; China abstained.
  - The resolution fell through following a veto from Russia.
  - India, China and Russia had been opposing this move from the beginning, arguing that Security Council interventions on climate change will undermine the UNFCCC process, and provide disproportionate influence to a handful of developed countries on climate change decision-making.
- The draft resolution, sponsored by **Ireland and Nigeria**, sought to enable the Security Council to take up routine discussions on climate change from the perspective of its impact on peace and conflicts worldwide.
- As of now, the appropriate UN forum to discuss all matters on climate change is the UN Framework Convention on Climate Change (UNFCCC), whose more than 190 members meet multiple times every year, including at a two-week annual conference towards the end of the year.

### UNSC Resolutions

- United Nations resolutions are **formal expressions of the opinion or will of United Nations organs**.
- A United Nations Security Council resolution is a United Nations resolution **adopted by the fifteen members** of the Security Council (UNSC).
- The UN Charter specifies (in Article 27) that a draft resolution on non-procedural matters is **adopted if nine or more of the fifteen Council members vote for the resolution**, and if it is **not vetoed by any of the five permanent members**.
- Draft resolutions on “procedural matters” can be adopted on the basis of an affirmative vote by any nine Council members.
- The **term “resolution” does not appear in the text of the United Nations Charter**.
- Resolutions by the Security Council are **legally binding**.
- If the council cannot reach consensus or a passing vote on a resolution, they may choose to produce a **non-binding presidential statement** instead of a Resolution. These are adopted by consensus. They are meant to apply political pressure—a warning that the Council is paying attention and further action may follow.

### **Nairobi Declaration:**

Context – Nairobi Declaration set to fast track disaster risk reduction work

Concept –

- The Nairobi Declaration, adopted by African ministers and heads of delegations November 19, 2021, underlined the need to deliver commitments on the Programme of Action (PoA) **for implementing the Sendai Framework in Africa**.
- This included the action plans under the PoA, to implement Sendai Framework for Disaster Risk Reduction (SFDRR), 2015-2030.
- The PoA outlines how Africa aims to implement SFDRR on the continent.
- Towards Disaster Risk-Informed Development for a Resilient Africa in a COVID-19 Transformed World was the theme of the virtual meet.



- It was **organised by the United Nations Office for Disaster Risk Reduction (UNDRR)**, in collaboration with the African Union Commission and the Intergovernmental Authority on Development.
- Sendai Framework is aimed towards “substantial reduction in disaster risk and losses in lives, livelihoods and health and in the economic, physical, social, cultural and environmental assets of persons, businesses, communities and countries”.
- Implementation of the Sendai Framework is expected to contribute to UN-mandated Sustainable Development Goals and to achieving Agenda 2063 commitment “The Africa we want”.
- **Tunis declaration** was adopted at the Africa Arab Platform for Disaster Risk Reduction held in Tunis from October 9-13, 2018.

**Green Yodha program:**

Context –

‘Ambition to achieve net-zero emissions by 2050 would be paved through an All-Electric All-Digital world’

Concept –

- Energy is responsible for about 80% of the world’s carbon emissions, as per the estimate by the International Energy Agency.
- To combat this and contribute to India’s recently announced COP26 ambitions, Schneider Electric is launching the Green Yodha program on 25th November to support citizens and enterprises embark on the Sustainability journey and **reduce their carbon footprint by adopting energy-efficient practices**.
- The Green Yodha program aims to build a community of eco-warriors (comprising citizens, businesses, associations, institutions, and others) who are ready to unite and take action to reduce the risks of climate change for people and the planet.
- Green Yodha is a sustainability initiative by Schneider Electric that aims to build a community of conscious citizens, businesses, and institutions to unite for a collective action towards the **adoption of practices in energy efficiency, renewables and solar, automation, digitalization**, and a new world of electricity to meet both individual and corporate sustainability goals.

**Climate Change in Arctic:**

Context – The Arctic Circle has continued to warm at more than twice the rate as the rest of the world through 2021

Concept –

- People living in the cold but rapidly warming Arctic region seem to be trapped between two crises: The novel coronavirus disease (COVID-19) pandemic and a changing climate.
- “The COVID-19 pandemic has exacerbated existing challenges for Alaska natives in accessing traditional foods,” said the Arctic Report Card published recently by the Arctic Program of the National Oceanic and Atmospheric Administration.
- It was only “the strength of indigenous cultural and economic practices such as food sharing networks that helped mitigate these challenges,” found the report.
  - One such network is the **Indigenous Food Knowledges Network**, which operates in the Arctic and the United States mid-west, bridging the two diverse regions.
- The Arctic Ocean is acidifying faster than the rest of the global oceans, which threatens the entire ecosystem that the ocean supports.
- The Arctic Circle, one of the most climatologically important regions on the planet, has continued to warm at more than twice the rate as the rest of the world through 2021.
- The warming has also caused major disruptions in the ecology of the Arctic region. Scientists observed a higher ocean primary productivity than the long-term average between 2003 and 2020.
  - Ocean primary productivity is measured in terms of the extent of phytoplankton in the oceans, which form the first link in the food web of most marine ecosystems.

**The Climate Action Tracker:**

Context – COP 26 and climate change

Concept –

- The Climate Action Tracker is an independent scientific analysis that tracks government climate action and measures it against the globally agreed Paris Agreement aim of “holding warming well below 2°C, and pursuing efforts to limit warming to 1.5°C.”
- A collaboration of two organisations, Climate Analytics and New Climate Institute, the CAT has been providing this independent analysis to policymakers since 2009.
- CAT quantifies and evaluates climate change mitigation targets, policies and action.



- It also aggregates country action to the global level, determining likely temperature increases during the 21st century using the MAGICC climate model.
- CAT further develops sectoral analysis to illustrate required pathways for meeting the global temperature goals.
- The Climate Action Tracker is made possible due to generous support from foundations and governments, including the European Climate Foundation (aviation, shipping, Thailand, Iran, Nigeria, Colombia, Germany, UK, Vietnam, Kenya, governments reactions to the COVID-19 pandemic and climate governance) and the German Ministry for Environment, Nature Conservation and Nuclear Safety (BMU) via the International Climate Initiative (other elements).

### The Compensatory Afforestation Fund Management and Planning Authority (CAMPA):

Context – The Compensatory Afforestation Fund Management and Planning Authority (CAMPA) has so far disbursed ₹48,606 crore to 32 States

Concept –

- Whenever forest land is diverted for non-forest purposes, it is **mandatory under the Forest (Conservation) Act, 1980 that an equivalent area of non-forest land has to be taken up for compensatory afforestation.**
- In addition to this, funds for raising the forest are also to be imposed on whomsoever is undertaking the diversion. The land chosen for afforestation, if viable, must be in close proximity of reserved or protected forest for ease of management by forest department.
- In 2002, the **Supreme Court (SC) ordered that a Compensatory Afforestation Fund** had to be created in which all the contributions towards **compensatory afforestation and net present value of land had to be deposited.**
- In April 2004, Ministry of Environment and Forests **constituted Compensatory Afforestation Fund Management and Planning Authority (CAMPA)** to overlook and manage the Compensatory Afforestation Fund (CAF) as directed by the SC. The authority was termed as the ‘custodian’ of the fund.
- Further in 2009, the government ordered that **State CAMPAs had to be set up** to boost compensatory afforestation at state level and also manage Green India Fund.
- Despite all these efforts, CAG report in 2013 revealed that the **CAMPA funds remained unutilized.** The report stated that between 2006 and 2012, CAF with ad hoc CAMPA grew from ₹ 1,200 crores to ₹ 23,607 crores.

### Statutory backing

- **Compensatory Afforestation Fund Act, 2016 came into force from 2018.** The Act established a **National Compensatory Afforestation Fund** under the **Public Account of India** and State Compensatory Afforestation Fund under the Public Account of each state.
- The payments made for compensatory afforestation, net present value and others related to the project will be deposited in the fund.
- The **State Funds will receive 90% of the payments while National Fund will receive remaining 10%.** These funds will be regulated by State and National CAMPA.
- The Ministry also stressed that the **fund had to be used for important needs such as Compensatory Afforestation, Catchment Area Treatment, Wildlife Management, Assisted Natural Regeneration, Forest Fire Prevention and Control Operations, Soil and Moisture Conservation Works in the forest, Improvement of Wildlife Habitat, Management of Biological Diversity and Biological Resources, Research in Forestry and Monitoring of CAMPA works and others.**

### Ban on Single-Use Plastic:

Context – The year 2022 is the deadline set by the government to phase out single-use plastic.

Concept –

### Single Use Plastics

- Single-use plastics, or **disposable plastics**, are used **only once** before they are thrown away or recycled.
- Plastic is **so cheap and convenient** that it has replaced all other materials from the packaging industry but it takes **hundreds of years to disintegrate.**
- If we look at the data, out of **46 million tonnes of plastic waste** generated every year in our country, 43% is single use plastic.
- Further, **Petroleum-based plastic is non biodegradable** and usually goes into a landfill where it is buried or it gets into the water and finds its way into the ocean.
- Pollution due to single use plastic items has become an **important environmental challenge** confronting all countries and India is committed to take action for mitigation of pollution caused by littered Single Use Plastics.
- The Prime Minister of India was also conferred the **“champions of the earth” award** by the **United Nations Environment Programme (UNEP)** in 2018 for pledging to eliminate all single-use plastic by 2022.



### Plastic Waste Management Amendment Rules, 2021

- Plastic Waste Management Amendment Rules, 2021 amend the 2016 rules.
- The manufacture, import, stocking, distribution, sale and use of the identified single-use plastic will be prohibited with effect from the 1st July, 2022.
- The ban will not apply to commodities made of compostable plastic.
- For banning other plastic commodities in the future, other than those that have been listed in this notification, the government has given industry ten years from the date of notification for compliance.
- The permitted thickness of the plastic bags, currently 50 microns, will be increased to 75 microns from 30th September, 2021, and to 120 microns from the 31st December, 2022.
- Plastic bags with higher thickness are more easily handled as waste and have higher recyclability.
- Currently, the Plastic Waste Management Rules, 2016, prohibits manufacture, import, stocking, distribution, sale and use of carry bags and plastic sheets less than 50 microns in thickness in the country.
- The Central Pollution Control Board, along with state pollution bodies, will monitor the ban, identify violations, and impose penalties already prescribed under the Environmental Protection Act, 1986.
- The plastic packaging waste, which is not covered under the phase out of identified single use plastic items, shall be collected and managed in an environmentally sustainable way through the Extended Producer Responsibility (EPR) of the Producer, importer and Brand owner (PIBO), as per Plastic Waste Management Rules, 2016.

### **2020 heat record in Siberian town:**

Context – WMO confirms 2020 heat record in Siberian town

Concept –

- Verkhoyansk, a town in Siberia, recorded a temperature of 38 degrees Celsius on June 20, 2020. It was then pushed as the highest temperature ever recorded in the Arctic region.
- The World Meteorological Organization (WMO) has now confirmed that the Siberian town, 115 kilometres north of the Arctic Circle, did experience the highest temperature ever recorded in the Arctic region.
- The Arctic region is warming at more than twice the rate as the rest of the world, mainly because of human-made greenhouse gas emissions. The increased rate of warming is because of a phenomenon known as **Arctic amplification**, wherein the melting ice hastens the process of warming by exposing areas that are not good at reflecting back heat into the atmosphere.
- The impact of warming on the region is such that the WMO has added a new category — “highest recorded temperature at or north of 66.5° C, the Arctic Circle” — to its international Archive of Weather and Climate Extremes.

### Siberia

- Is an extensive geographical region, constituting all of North Asia, from the Ural Mountains in the west to the Pacific Ocean in the east.
- It has been a part of Russia since the latter half of the 16th century, after the Russians conquered lands east of the Ural Mountains.
- Siberia is vast and sparsely populated.
- The river Yenisey divides Siberia into two parts, Western and Eastern.
- Siberia stretches southwards from the Arctic Ocean to the hills of north-central Kazakhstan and to the northern parts of Mongolia and China.
- Siberia is known worldwide primarily for its long, harsh winters, with a January average of  $-25^{\circ}\text{C}$ .
- It is geographically situated in Asia; however, due to it being colonized and incorporated into Russia, it is culturally and politically a part of Europe.

### International Archive of Weather and Climate Extremes

- The WMO Archive maintains official records of the world, hemispheric and regional extremes associated with a number of specific types of weather.
- Presently, the Archive lists extremes for temperature, pressure, rainfall, hail, wind, and lightning as well as two specific types of storms, tornadoes and tropical cyclones.
- One common weather variable, snowfall, is not listed because of potential issues in consistent official measurement around the world.



**Sequester CO<sub>2</sub> and produce Natural Gas:**

Context – IIT-Madras professor finds a way to tackle climate change while, at the same time, secure our energy requirement

Concept –

- The professor has shown it is possible to first separate carbon dioxide, in an almost pure form, from the flue gases of industries, particularly coal-fired thermal plants.
- The next step is to inject the carbon dioxide into the gas hydrate zones, where upon the carbon dioxide molecules push out the resident methane molecules and take their place. The methane can be tapped off.
- Hydrates are a mixture of water and a gas, defined as “a solid, ice-like form of water that contains gas molecules in its molecular cavities”.
- For separating carbon dioxide from flue gases — cool it to 1.5 degrees Centigrade and pressurise it to 30 bars, and let it react with water. Carbon dioxide will separate out to form carbon dioxide hydrates.
- Next, if you depressurise the chamber, (nearly) pure carbon dioxide will separate from the hydrates.
- India has mind-boggling amounts of natural gas in the form of hydrates — of the order of 2,000 trillion cubic feet. The Krishna-Godavari basin alone has about 134 tcf.
- Methane is the best among all fossil fuels — far better than coal. Carbon dioxide capture and storage is a costly affair.
- In a coal-fired thermal power plant, it could take up 25 per cent of the power produced by the plant.
- Methane mined from gas hydrates can pay for it. But, importantly, the net carbon dioxide emission will be less than the unabated emissions from thermal plants.
- The conventional way of carbon capture and sequestration has been through the use of chemicals called amines. The problem here is that you have to spend a lot of energy to recover the amines. In contrast, separating carbon dioxide from carbon dioxide hydrates costs practically nothing.

**Species in news:****Lantana:**

Context – Plans afoot to uproot lantana from BRT reserve, Bandipur

Concept –

- It is a genus of about 150 species of perennial flowering plants in the verbena family, Verbenaceae.
- They are native to tropical regions of the Americas and Africa but exist as an introduced species in numerous areas, especially in the Australian-Pacific region, South and North-eastern part of India.
- Some species are invasive, and are considered to be noxious weeds, such as in South Asia, Southern Africa and Australia.
- It is generally deleterious to biodiversity and is an agricultural weed.
- Lantana is toxic for most livestock to graze.

**Biligiri Rangaswamy Temple (BRT) Tiger Reserve**

- Situated between the Western and Eastern Ghats the Biligiri Rangaswamy Temple (BRT) Tiger Reserve is based in south eastern Karnataka, at the border of Tamil Nadu.
- It has been named after the Rangaswamy temple that is embellished with a whitish rock at the helms of the sanctuary.
- It was declared as a protected reserve in the Wildlife Protection Act of 1972.
- This unique sanctuary exhibits scrub, dry deciduous, moist deciduous, evergreen, semi evergreen and shola forests.
- It is widely known for its many endemic species of plants including valuable medicinal ones.

**Kyhytysuka Sachicarum:**

Context – An international team of researchers has discovered a new marine reptile. The specimen, a metre-long skull, has been named Kyhytysuka sachicarum.

Concept –



- An international team of researchers has discovered a **new marine reptile**. The specimen, a metre-long skull, has been named *Kyhytysuka sachicarum*.
- The name translates to ‘the one that cuts with something sharp’ in an indigenous language from the region in **central Colombia** where the fossil was found, to honour the ancient Muisca culture that existed there for millennia.

**Chocolate Bordered Flitter:**

Context – Chocolate-bordered Flitter, new butterfly species discovered by chance via photos

Concept –

- This butterfly species was previously unknown in India and was a new species. The
- The new species of butterfly, now named the Chocolate-bordered Flitter, also carries the scientific name *Zographetus dzonguensis*, after Dzongu in north Sikkim, the place where it was discovered.
- Its closest relatives are *Zographetus pangi* in Guangdong, and *Zographetus hainanensis* in Hainan, both in southeastern China, close to Hong Kong.
- The physical appearance of the species differ slightly and the internal structures of the males also differ slightly.

**Western Honey Bees:**

Context – Research led by York University has shown that a species of honey producing bee called the western honey bee (*Apis mellifera*) most likely originated in Asia, settling the hotly debated topic for decades

Concept –

- Research led by York University has shown that a species of honey-producing bee called the western honey bee (*Apis mellifera*) most likely originated in Asia, settling the hotly debated topic for decades.
- Until recently, it was believed that these bees had originated in Africa.
- The study (Science Advances) found that the western honey bees expanded independently from Asia into Africa and Europe creating seven separate geographically and genetically distinct evolutionary lineages traceable back to Western Asia.
- The western honey bee is used for crop pollination and honey production throughout most of the world, and has a remarkable capacity for surviving in vastly different environments – from tropical rainforest, to arid environments, to temperate regions with cold winters. It is native to Africa, Europe and Asia.

**Two plant species now extinct in wild:**

Context – ‘Two plant species now extinct in the wild’

Concept –

- Two species of plants first collected by botanists more than 125 years ago from Meghalaya and the Andaman Islands are now extinct in the wild.
- Classified under the genus *Boesenbergia*, the species belong to the family of Zingiberaceae, the ginger family of flowering plants. *Boesenbergia rubrolutea* was first collected from the Khasi Hills, Thera, in Meghalaya on October 10, 1886. Specimens of *Boesenbergia albolutea* were collected from the Andamans and sent to the Royal Botanic Gardens, Kew, England, in 1889.
- Possible reasons for their disappearance include climate change, human interference and overexploitation or natural calamities.
- Endemic to the locations of their discovery, *Boesenbergia albolutea* and *Boesenbergia rubrolutea* are also among the least explored species of the genus *Boesenbergia*.
- The authors have recommended listing them as ‘Extinct in the Wild (EW) (IUCN 2019)’ under the IUCN Red List category on the basis of field visits, examination of databases of various herbaria, and available literature.

**Black Clam:**

Context – CMFRI’s efforts to increase clam catch in Kerala’s Vembanad lake yield results

Concept –

- *Villorita cyprinoides*, the black clam, is found in the backwaters of Kerala, mainly in Vembanad backwaters.
- It does not show sex reversal or hermaphroditism.
- It spawns twice a year.
- A change in salinity is the most important factor that triggers spawning, while temperature is not a factor.
  - The optimum salinity for spawning is about 10–12 ppt.





### Gharials:

Context – After 50 years, gharials alive and kicking in Beas Reserve

Concept –

- Gharials, sometimes called gavials, are a type of Asian crocodylian distinguished by their long, thin snouts which resembles a pot (ghara in Hindi).
- Population of Gharials are a good indicator of clean river water.
- Gharials are a type of Crocodylians that also includes crocodiles, alligators, caimans, etc. India has three species of Crocodylians namely:
  - Gharial (*Gavialis gangeticus*): International Union for Conservation of Nature (IUCN)- Critically Endangered.
  - Mugger crocodile (*Crocodylus palustris*): IUCN- Vulnerable
  - Saltwater crocodile (*Crocodylus porosus*): IUCN- Least Concern
- In comparison to Crocodiles, Gharials are very shy and unharmed species.

### Gharial reintroduction in the Beas Conservation Reserve

- The Beas Conservation Reserve is a 185-kilometre stretch of the Beas River located primarily in the north-west of the State of Punjab.
- The gharial reintroduction in the Beas Conservation Reserve is an ambitious programme of the Punjab government.
- The reptiles were commonly sighted in the Beas River till the 1960s but later became extinct.
- The gharial can be found in north Indian rivers such as the Ganga, Yamuna and Chambal and their tributaries.
- The Reserve also hosts the only known population in India of the endangered Indus river dolphin (*Platanista gangetica minor*).
- Further threatened species include the endangered masheer (*Tor putitora*) and hog deer (*Axis porcinus*) as well as the vulnerable smooth-coated otter (*Lutrogale perspicillata*).
- In 2017, a programme was initiated to re-introduce the critically endangered gharial (*Gavialis gangeticus*) with 47 individuals released into the River 30 years after their disappearance.

### Beas River

- The Beas originates near the Rohtang Pass, at a height of 4,062 m above sea level, on the southern end of the Pir Panjal Range, close to the source of the Ravi.
- It is a tributary of Indus river.
- It meets the Satluj river at Harike in Punjab.
- It is a comparatively small river which is only 460 km long but lies entirely within the Indian territory.
- The river flows through Kullu Valley.
- It forms a gorge at Kati and Lurgi in the Dhauladhar range.
- Harike wetland is a Ramsar site, a wetland of international importance.

### Ambergris, The Floating Gold:

Context – The Crime Branch of the Pimpri Chinchwad police has arrested two persons in Pune and seized 550 grams of ambergris, also known as ‘floating gold’

Concept –

- It is generally referred to as whale vomit.
- It is a solid waxy substance that floats around the surface of the water body and at times settles on the coast.
- A sperm whale eats several thousand squid beaks a day and a beak makes its way to the whale’s stomach and into its looping convoluted intestines where it becomes ambergris.



- It was called as “preternaturally hardened whale dung” by a German physician Franz Schwediawer in 1783.
- It is produced only by an estimated one per cent of sperm whales.
- It contains alkaloids, acids, and a specific compound called ambreine, which is similar to cholesterol.

#### Value of Ambergris

- It is referred to as floating gold because 1 kg of ambergris is worth Rs 1 crore in the international market.
- The reason for its high cost is its use in the perfume market, especially to create fragrances like musk.
- It is believed to be in high demand in countries like Dubai that have a large perfume market.
- The ancient Egyptians used it as incense and it is also believed to be used in some traditional medicines.

#### Laws governing trade of Ambergris

- The sperm whale is a protected species and hunting of the whale is not allowed.
- The buying or selling of ambergris in India is prohibited under the Wildlife Protection Act 1972.

#### Sperm Whale

- They are the largest of the toothed whales and have one of the widest global distributions of any marine mammal species.
- They are found in all deep oceans, from the equator to the edge of the pack ice in the Arctic and Antarctic.
- They are named after the waxy substance i.e. spermaceti, found in their heads.
- It is listed as ‘Vulnerable’ under the IUCN Red List of Threatened Species.
- They inhabit all of the world’s oceans.

#### Environment and bio diversity:

##### **Mangroves:**

Context – Deepen understanding of Indian mangrove ecosystems, says mangrove scientist

Concept –

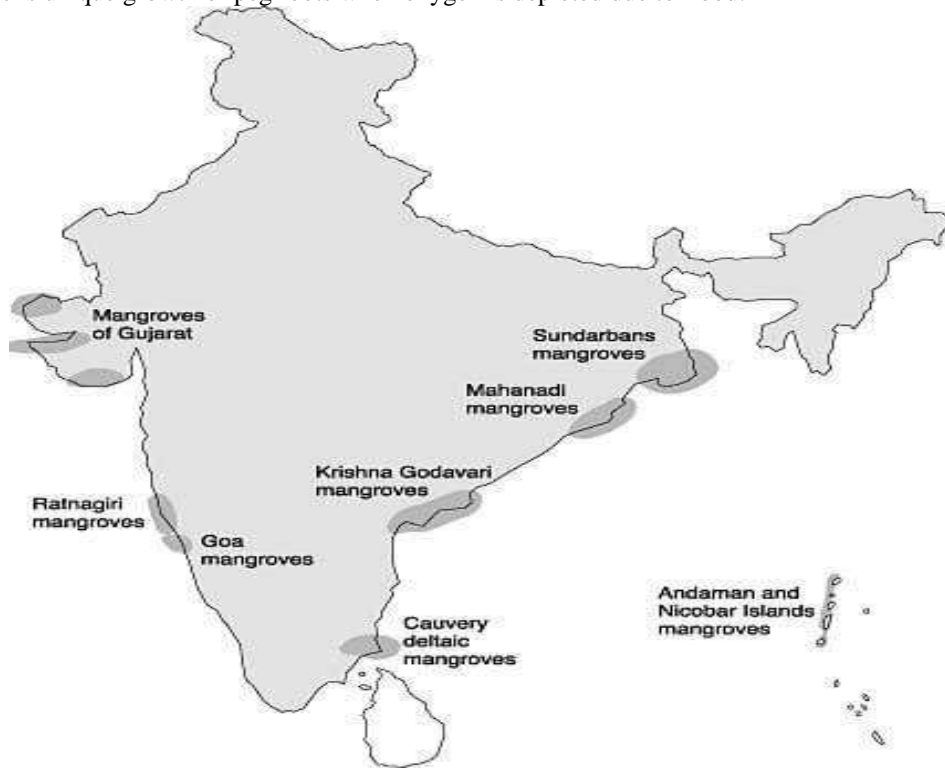
- Mangroves are the plant communities occurring in inter-tidal zones along the coasts of tropical and subtropical countries.
- Mangrove forests perform multiple ecological functions such as production of woody trees; provision of habitat, food, and spawning grounds for fin-fish and shellfish; provision of habitat for birds and other valuable fauna; protection of coastlines and accretion of sediment to form new land.
- Mangrove plants have several unique adaptations that allow them to survive in harsh environment. Mangroves are extremely important to the coastal ecosystems they inhabit.
- Physically, they serve as a buffer between marine and terrestrial communities. They protect coastlines from damaging winds, waves, and floods.
- Mangrove has an important role in improving water quality by filtering pollutants and trapping sediments from the land. They reduce coastal erosion.
- Ecologically, they provide habitat for a diverse array of terrestrial and marine organisms.
- The area of mangroves has greater species diversity as it is the junction of terrestrial and marine ecosystems.
- They have very high salt tolerance and so some species which require this ambience also thrive upon mangroves.
- According to one of its oft-quoted definition, “Mangroves represent a characteristic littoral (near the sea shore) forest ecosystem and they are mostly evergreen forests that grow in sheltered low lying coasts, estuaries, mudflats, tidal creeks backwaters (coastal waters held back on land), marshes and lagoons of tropical and subtropical regions”.
- Mangrove Forests trees project different types of roots:
  - Prop – They are down into the water
  - Air – They are vertically configured up from the mud
  - Stilt – These roots emerge from the main trunk of the tree; also called adventitious roots.
- According to the Forest Survey of India, 2019, Mangroves’ cover in the country increased by 54 sq km (91.10 percent) in comparison to the 2017 assessment.
- Mangrove Cover in India is 4975 sq km (0.15 percent of the total geographical area.)
- The protection or restoration of **blue carbon** — organic carbon sequestered and stored over long timescales by coastal vegetated ecosystems such as mangrove forests, seagrasses, and saltmarshes — is steadily gaining prominence as a key natural climate solution.
- Mangrove cover is divided as:
  - Very Dense – 1476 sq km (29.66 percent)
  - Moderately Dense – 1479 sq km (29.73 percent)
  - Open Mangroves – 2020 sq km (40.61 percent)





There are three important types of mangroves:

- **Red mangroves:** They grow along coastlines and are the hardiest of the three major mangrove plant types.
- **Black mangroves:** They are named so because of their dark bark. They usually grow at slightly higher elevations than red mangroves. They have access to more oxygen because the roots are more exposed.
- **White mangroves:** They grow at higher elevations than red and black mangroves. Generally they do not have aerial roots. But sometimes there is unique growth of peg roots when oxygen is depleted due to flood.



### Pulicat Lake:

Context – Lime shell mining activities carried out in and around Pulicat Lake are destroying the wetland's mudflat habitats.

Concept –

- Pulicat Lake is a unique waterbody that is situated along the east coast of India and sprawls across Andhra Pradesh and Tamil Nadu.
  - It lies majorly in Andhra Pradesh.
- More than 600 years old, the lake has a strong association with the cultural heritage and socio-economic status of both States.
- Buckingham Canal traverses in a north to the south direction at the lake's eastern edge, along Sriharikota Island.
  - The barrier island of Sriharikota separates the lake from the Bay of Bengal and is home to the Satish Dhawan Space Centre.
- The rivers Swarnamukhi and Kalangi in the north and the Arani and the Korttalaiyar (as the Kosasthalaiyar is referred to in old British era documents) in the south drain into Pulicat Lake during the monsoon.
- In the dry season, water is generally present only in the southern areas and near the lake's two inlets.
- The lake receives fresh water through the rivers and canals draining into it and marine water through the inlet mouth connected to the Bay of Bengal.
- It is the second-largest brackish water ecosystem in the country after the Chilika Lake (Odisha).
- The large varieties of birds like grey pelicans, painted storks, visit the site annually.
  - Grey Pelican and Painted Stork both are near-threatened species under IUCN Red List of Threatened Species.
- The lake encompasses the Pulicat Lake Bird Sanctuary.
- Flamingo Festival is held every year to promote tourism in Pulicat and Nelapattu.

**Chillai Kalan:**

Context – ‘Chillai kalan’ puts Kashmir in a deep freeze

Concept –

- The 40-day intense winter period “chillai kalan” started in Kashmir valley on 21st December with sub-zero night temperatures across the region.
- It will continue till January 31.
- Chillai Kalan is followed by Chillai-Khurd and Chillai-Bachha.
  - **Chillai Khurd** (small cold) is a 20-day long period which starts from January 31 to February 19.
  - **Chillai-Bachha** (baby cold), a 10-day long period which occurs between February 20 and March 2.
- Considered to be the core of winter, Chillai Kalan usually brings snowfall, sub-zero temperatures causing freezing of water bodies including the Dal lake, closure of highways, etc.
- During Chillai-Kalan, the weather in Kashmir valley continues to remain dry and cold with minimum temperatures hovering below the freezing point.

**Gadchiroli's first Jumbos:**

Context – Cautious welcome for Gadchiroli’s first jumbos

Concept –

- The herd of 22 wild elephants that has been in Kanker, Balod, Gariaband, and Dhamtari districts of Chhattisgarh for the last nine years, has successfully surmounted the last natural barrier to settle down in its new habitat in Gadchiroli district of Maharashtra.
- Gadchiroli district in Maharashtra is categorised as tribal dominated with about 76% of its area is covered with forest.
- The main river basin of the district is the Godavari, while Vainganga, Pranhita and Dina are three other major rivers flowing through the district.
- However, the district does not have any records of regular and resident elephants.
- Gadchiroli is known for its forests. Teak is grown commercially and bamboos are used for various crafts.

**Sacred Groves:**

Context – Punjab’s sacred groves, hosting native flora and fauna, and associated with people’s beliefs and traditions, need urgent attention.

Concept –

- Sacred groves are communally protected forests which usually have a significant religious connotation for the protecting community.
- The Sacred Groves comprises of patches of forest or natural vegetation that are usually dedicated to local folk deities.
- Indian sacred groves are often associated with temples, monasteries, shrines or with burial grounds.
- Hunting and logging are usually strictly prohibited within these patches.
- Other forms of forest usage like honey collection and deadwood collection are sometimes allowed on a sustainable basis.
- The introduction of the protected area category community reserves under the Wild Life (Protection) Amendment Act, 2002 has introduced legislation for providing government protection to community held lands, which include sacred groves.
- Among the largest sacred groves of India are the ones in Hariyali, near Gauchar in Chamoli District of Uttarakhand, and the Deodar grove in Shipin near Shimla in Himachal Pradesh.
- In India, there are over a lakh sacred groves across different states called by different names like Kaavu in Malayalam, Koyil kaadu in Tamil, Orans in Rajasthan, Devara kaadu in Karnataka, and Sernas in Madhya Pradesh.

**Orchids:**

Context – In Arunachal’s Sessa Orchid Sanctuary communities collaborate with forest officials to conserve orchids

Concept –

- The **Sessa Orchid Sanctuary**, located in the West Kameng district of Arunachal Pradesh, was the first, and until recently the only, protected area in the country dedicated to the preservation of naturally growing orchids.



- Notified in 1989, Sessa Orchid Sanctuary is home to 236 orchid species, several of them rare and endemic, with unique botanical value, and the sanctuary has also been used as an ex-situ conservation site for threatened orchids.
- The **Arunachal Himalayas** (formerly called Assam Himalayas) have been described by botanists as a treasure trove of orchids.
- Indeed, Arunachal Pradesh, with around 622 recorded orchid species which is 40% of the total orchid species found in the country, is known as the '**Orchid Paradise of India**'.

**Orchids in India**

- The 1,256 species or taxa of orchids belong are found in India.
- 388 species of orchids are endemic to India of which about one-third (128) endemic species are found in Western Ghats.
- While north-east India rank at the top in species concentration, the Western Ghats have high endemism of orchids.
- The highest number of orchid species is recorded from Arunachal Pradesh with 612 species, followed by Sikkim 560 species and West Bengal.
- Among the 10 bio geographic zones of India, the Himalayan zone is the richest in terms of orchid species followed by Northeast, Western Ghats, Deccan plateau and Andaman & Nicobar Islands.

**Categories**

- Orchids can be broadly categorised into three life forms: (1) epiphytic, (2) terrestrial and (3) mycoheterotrophic.
- About 757 species or 60% of all orchids found in the country are epiphytic, 447 are terrestrial and 43 are mycoheterotrophic.

**Economic importance**

- The only commercially important product derived from orchids is vanilla. Most vanilla is produced from one species, *Vanilla planifolia*.
  - The principal vanilla-growing areas are Madagascar, Mexico, French Polynesia, Réunion, Dominica, Indonesia, the West Indies, Seychelles, and Puerto Rico.
- Various other orchids are used for a variety of folk medicines and cures.

**Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES):**

Context – Forests Minister Bhupender Yadav Friday introduced in Lok Sabha the Wildlife Protection (Amendment) Bill to ensure that the original 1972 Act complies with the requirements of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

Concept –

- CITES is a multilateral treaty to protect endangered species. One of its main aims is to regulate the international trade of animals and plants so that it does not threaten their survival.
- Convention on International Trade in Endangered Species (CITES) is part of a multilateral treaty that includes plant, animals and birds under varying categories of threat of extinction and which will be jointly protected by members of the International Union for Conservation of Nature (IUCN).
- India is a signatory to CITES.
- CITES entered into force in July 1975. Currently there are 183 Parties (include countries or regional economic integration organizations).
- Aim is to ensure that international trade in specimens of wild animals and plants does not threaten their survival.
- The CITES Secretariat is administered by UNEP (The United Nations Environment Programme) and is located at Geneva, Switzerland.
- The Conference of the Parties to CITES, is the supreme decision-making body of the Convention and comprises all its Parties.
- Although CITES is legally binding on the Parties, it does not take the place of national laws. Rather, it provides a framework to be respected by each Party, which has to adopt its own domestic legislation to ensure that CITES is implemented at the national level.
- Appendices I, II and III to the Convention are lists of species afforded different levels or types of protection from over-exploitation.

**Appendix I**

- It lists species that are the most endangered among CITES-listed animals and plants.
- Examples include gorillas, sea turtles, most lady slipper orchids, and giant pandas. Currently 931 species are listed.

**Appendix II**

- It lists species that are not necessarily now threatened with extinction but that may become so unless trade is closely controlled.
- Most CITES species are listed in this Appendix, including American ginseng, paddlefish, lions, American alligators, mahogany and many corals. Currently 34,419 species are listed.



**Appendix III**

- It is a list of species included at the request of a Party that already regulates trade in the species and that needs the cooperation of other countries to prevent unsustainable or illegal exploitation.
- Examples include map turtles, walrus and Cape stag beetles. Currently 147 species are listed.

**Biological Diversity Act, 2002:**

Context – Congress Rajya Sabha MP Jairam Ramesh Friday asked Lok Sabha Speaker Om Birla to ensure that the Biological Diversity (Amendment) Bill, 2021 — tabled in the Lower House on Thursday — is referred to the Standing Committee on Environment rather than a Select Committee.

Concept –

- The Biological Diversity Act, 2002 was born out of India's attempt to realise the objectives enshrined in the United Nations Convention on Biological Diversity (CBD) 1992 which recognizes the sovereign rights of states to use their own Biological Resources.
- The act was enacted in 2002, it aims at the conservation of biological resources, managing its sustainable use and enabling fair and equitable sharing benefits arising out of the use and knowledge of biological resources with the local communities.
- The Act prohibits the following activities without the prior approval from the National Biodiversity Authority.
- The act envisaged a three-tier structure to regulate the access to biological resources:
  - The National Biodiversity Authority (NBA)
  - The State Biodiversity Boards (SBBs)
  - The Biodiversity Management Committees (BMCs) (at local level)
- The act stipulates all offences under it as cognizable and non-bailable.
- Any grievances related to the determination of benefit sharing or order of the National Biodiversity Authority or a State Biodiversity Board under this Act, shall be taken to the National Green Tribunal (NGT).

**Exemptions from the Act**

- The Act excludes Indian biological resources that are normally traded as commodities. Such exemption holds only so far the biological resources are used as commodities and for no other purpose.
- The act also excludes traditional uses of Indian biological resources and associated knowledge and when they are used in collaborative research projects between Indian and foreign institutions with the approval of the central government.
- Uses by cultivators and breeds, e.g. farmers, livestock keepers and bee keepers and traditional healers e.g. vaid and hakims are also exempted.

**Tropical Savannah Ecosystems:**

Context – Climate mitigation should not come at cost of biodiversity conservation, warns tropical savanna ecologist

Concept –

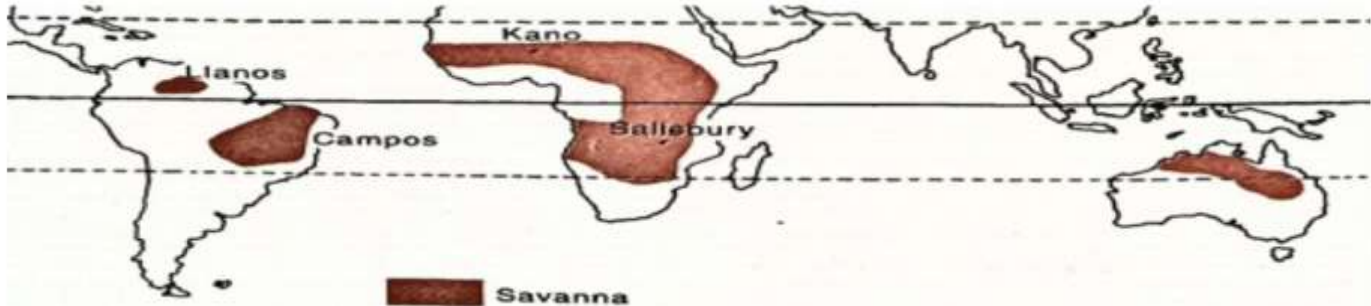
- A grassland ecosystem is a dry area of land dominated by grasses. Huge trees and shrubs are very rarely found in these regions, which is mainly because of the climatic conditions and other environmental factors, which do not withstand the plant's requirements.
- Grasslands are also called transitional landscape.
- These ecosystems are mainly found in regions, where there is a scarcity of water and not enough and regular rainfall to support the growth of plants and forests. The grassland ecosystem lies between the deserts and the forest ecosystems.
- Savanna grasslands and temperate grasslands are some examples of grassland ecosystems. Grasslands of South America are known as pampas and central Eurasian grasslands are referred to as steppes and so on.

**Tropical Grasslands**

- Savanna climate is also known as Sudan climate. It is a transitional type of climate which can be found in the region between equatorial rainforests and hot deserts of the subtropics.
- Tropical grasslands have dry and wet seasons that remain warm all the time. These regions are warm throughout the year, followed by dry and wet seasons.
  - A typical characteristic feature of Savanna climate is the extreme diurnal range of temperature.
- Tropical Grasslands are the ones which receive 50 cm to 130 cm rain.
  - All the rainfall in the region is concentrated during the summer.
- It is situated within the tropical latitudes on either side of the equator. It is well developed in Sudan, and hence the name, where there are distinct wet and dry seasons.
- Trade-winds are the prevailing winds of the region which bring rainfall in the coastal areas. They are easterly winds - flow from east to west, hence the rainfall is maximum on the east coasts.



- Also, the tropical grasslands contain quite short plants which makes it an excellent hunting ground.
- The tropical grassland is a home for elephants, giraffes, lions, cheetahs, zebras, and other spectacular species.
- Tropical Grasslands are:
  - East Africa- Savanna
  - Brazil- Campos
  - Venezuela- Llanos



### Temperate Grasslands

- These grasslands are similar to tropical grasslands, except for the climatic conditions. They have cold winters and warm summers with 25 cm and 75 cm. of annual rainfall. Shrublands are the best example of temperate grasslands.
- Moreover, these grasslands suffer extreme climates. In the cold season, the temperature can reach up to 0 degrees Fahrenheit. While in the summer season it reaches up to 90 degrees in some areas.
- The precipitation in these grasslands is mostly in the form of dew and snow.
- Some vegetation that grows here are, cacti, sagebrush, perennial grasses, buffalo grass clovers, and wild indigos, etc.
- Temperate Grasslands are:
  - Argentina- Pampas
  - America- Prairie
  - South Africa- Veld
  - Asia- Steppe
  - Australia- Down



### **Hornbill Festival:**

Context – Nagaland civilian deaths cast shadow on Hornbill Festival

Concept –

- Nagaland is known as the land of festivals as each tribe celebrates its own festival with dedication and passion.
- To encourage inter-tribal interaction and to promote cultural heritage of Nagaland, the Government of Nagaland organizes the Hornbill Festival every year in the first week of December. It is also called the '**Festival of Festivals**'.
- Organized by the State Tourism and Art & Culture Departments, Hornbill Festival showcases a mélange of cultural displays under one roof.
- This festival usually takes place between the 1st and the 10th of December every year in Kohima.



- All the tribes of Nagaland take part in this festival.
- The festival is named after the bird – Hornbill which is the most revered and admired bird for the Nagas.
  - The festival is a tribute to this bird, known for its qualities of grandeur and alertness.

**Energy Conservation Day:**

Context – In India, National Energy Conservation Day is observed every year on 14th December to raise awareness about the significance of energy and the need of conserving energy by using less energy.

Concept –

- The National Energy Conservation Day is organized on 14th December every year by the Bureau of Energy Efficiency (BEE) with an aim to showcase India's achievements in energy efficiency and conservation.
- Energy conservation is an important factor in lessening climate change. It helps the replacement of non-renewable resources with renewable energy.
- Energy conservation is frequently the most cost-effective solution to energy shortages, as well as a more ecologically friendly option than increasing energy output.
- The National Energy Conservation Awards are given on the occasion.
- It is different from the term 'energy efficiency', which is using technology that requires less energy to perform the same function.

**Energy Conservation Act, 2001**

- The Act provides for the legal framework, institutional arrangement and a regulatory mechanism at the Central and State level to embark upon energy efficiency drive in the country.
- Five major provisions of EC Act relate to
  - Designated Consumers,
  - Standard and Labelling of Appliances,
  - Energy Conservation Building Codes,
  - Creation of Institutional Set up (BEE)
  - Establishment of Energy Conservation Fund.
- The Bureau of Energy Efficiency (BEE) was set up as the statutory body in 2002 at the central level to facilitate the implementation of the EC Act. It functions under the Ministry of Power.

**National Energy Conservation Awards**

- On this day, National Energy Conservation Awards are given away to honour innovation and accomplishments in energy conservation by industries, buildings, and manufacturers of BEE star labelled appliances, as well as raise awareness that energy conservation is an important part of India's response to reducing global warming through energy savings.
- The awards also honour their demonstrated commitment to energy efficiency and conservation.

**Bureau of Energy Efficiency**

- The BEE is a statutory body established through the Energy Conservation Act, 2001 under the Union Ministry of Power.
- It assists in developing policies and strategies with the primary objective of reducing the energy intensity of the Indian economy.
- BEE coordinates with designated consumers, designated agencies, and other organizations to identify and utilize the existing resources and infrastructure, in performing its functions.

**Mapping of Fungal Networks:**

Context – Scientists to map fungal networks, determine climate role

Concept –

- Scientists from the United States and Europe announced plans to create the biggest map of underground fungal networks, arguing they are an important but overlooked piece in the puzzle of how to tackle climate change.
- By working with local communities around the world the researchers said they will collect 10,000 DNA samples to determine how the vast networks that fungi create in the soil are changing as a result of human activity — including global warming.
- Fungi are invisible ecosystem engineers, and their loss has gone largely unnoticed by the public.
- Experts agree that tracking how fungal networks, also known as mycelia, are affected by climate change is important for protecting them — and ensure they can contribute to nature's own mechanisms for removing carbon dioxide, the main greenhouse gas, from the air.
- Fungi can do this by providing nutrients that allow plants to grow faster, for example, or by storing carbon in the trillions of miles of root-like mass they themselves weave underground.



- Some fungi actually produce carbon dioxide as they break down organic matter for food — potentially contributing to global warming if they release more CO<sub>2</sub> into the atmosphere than they capture.

#### About Fungi –

- Fungi are among the most primitive members of the plant kingdom. Study of the fungi is called mycology.
- The fungi are non-chlorophyllous, nucleated, non-vascular, thallophytic micro organism and due to lack of chlorophyll they do not prepare their own food.
- Fungi are eukaryotic organisms that include microorganisms such as yeasts, moulds and mushrooms. These organisms are classified under kingdom fungi.
- They are classified as heterotrophs among the living organisms.
- The fungi are among the thallophytes or plants with a thallus, which are simple plants, have no roots, stems, flowers and seeds- structures we commonly associate with higher plants.
- The thallus of a fungus is usually made of branching threads called hyphae.

Difference Between Algae and Fungi	
Algae	Fungi
The term originated from Latin and it means “ <b>Seaweed</b> ”	Originated in Latin and it means “ <b>mushroom</b> ”
Algae belong to the Kingdom Protista	Fungi were once classified under Kingdom Protista, but are now classified under their own kingdom – Fungi
Algae are autotrophic organisms	Are usually heterotrophic. They prefer dead organic matter.
Strictly exists in bodies of water or any environment with high moisture content	Found almost everywhere, including deserts and frigid environments
Are not parasitic	Some members are parasitic

#### **Kasturirangan Committee on Western Ghats:**

Context – Karnataka Chief Minister informed the Centre that the state is opposed to the Kasturirangan Committee report on Western Ghats.

Concept –

#### **Recommendations of the Kasturirangan committee report**

- The Kasturirangan committee report proposes 37 per cent of the total area of Western Ghats, which is roughly 60,000 square kilometres, to be declared as eco-sensitive area (ESA).
  - The state of Karnataka has the highest percentage of the ESA- 46.50 per cent.
- The report recommended a blanket ban on mining, quarrying, setting up of red category industries and thermal power projects.
- It also stated that the impact of infrastructural projects on the forest and wildlife should be studied before permission is given for these activities.
- It also stated that the UNESCO Heritage tag is an opportunity to build global and domestic recognition of the enormous natural wealth that exists in the Western Ghats.
  - The 39 sites are located across the Western Ghats and distributed across the states (Kerala 19), Karnataka (10), Tamil Nadu (6) and Maharashtra (4).



Gadgil Committee	Kasturirangan Committee
The entire Western Ghats is an "Ecologically Sensitive Area".	Only approximately 37% of the entire Western Ghats is an "Ecologically Sensitive Area".
Recommends a bottom-up approach to conservation with Gram Sabhas playing a crucial role in decision-making.	Envisages decision-making as a responsibility that lies primarily with the government and the bureaucracy (such as forest officials).
Recommends the recognition of three grades of Ecologically Sensitive Zones and the complete ban on the construction of high-capacity storage dams and sand mining in ESZ-1 areas.	Hydroelectric power plants to be permitted in ESAs only after a detailed study. Recommends a complete ban on quarrying, mining, and sand mining in ESAs.
Constitute the Western Ghats Ecology Authority under the MoEF to regulate and oversee the conservation of the Western Ghats.	Strengthen the current legal framework (such as the State Pollution Control Boards and the State Biodiversity Boards) .

### Exotic Animals:

Context – Recent trends suggest that smugglers of exotic wildlife species might be trying to take advantage of the advisory brought out by the Ministry of Environment, Forest & Climate Change (MoEF&CC) to regulate the growing market of exotic animals in the country.

Concept –

- The term exotic does not have a set definition but it usually refers to a wild animal or one that is **more unusual and rarer** than normal domesticated pets like cats or dogs.
- These are those species which are **not usually native to an area** and are introduced to an area by humans.
- With a complete ban on wildlife trade of Indian species, there has been a surge in demand in India, for exotic species from different parts of the world, noted the **Smuggling in India Report 2019-2020**, published by the **Directorate of Revenue Intelligence (DRI)**.
- Exotic animals are **not listed under the Wildlife Protection Act, 1972**, which makes it difficult to convict the smugglers.
- 'Exotic live species' will mean animals named under **Appendices I, II and III** of the Convention on International Trade in Endangered Species (**CITES**) of Wild Fauna and Flora.
- Currently, it is the **Directorate-General of Foreign Trade**, Ministry of Commerce, that oversees the trade of 'exotic wildlife species'.
- The **Wildlife Crime Control Bureau** is an organisation that is tasked with monitoring illegal trade.

### Provisions Related to Illegal Trade of Animals

- Illegally traded exotic animals are confiscated under Section 111 of the Customs Act, 1962 which is read with the provision of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (**CITES**) and the **Foreign Trade Policy (Import-Export Policy)** of India.
- Also, Sections 48 and 49 of the **Wildlife Protection Act, 1972** prohibit trade or commerce in wild animals, animal articles or trophies.

### Advisory on Importing Live Exotic Animals

- Ministry of Environment, Forest and Climate Change has issued an advisory to streamline and formalise the process of importing live exotic animals.
- Many exotic species of birds, reptiles and amphibians are imported into India for commercial purposes.





- For import and disclosure of exotic animals and their progeny already in India.
- A person trying to import a live exotic animal will have to submit an application for grant of a licence to the Director-General of Foreign Trade (DGFT), under the Ministry of Commerce and Industry.
- Earlier, these imports were happening through the DGFT but they were beyond the purview of the forest departments and the chief wildlife wardens were not aware of them.
- The importer will also have to attach a No Objection Certificate (NOC) of the chief wildlife warden of the state concerned along with the application.
- For those people who have already imported exotic animals, a declaration will have to be made within six months.
- However, if the declaration is made after six months, documents related to the provenance of the animal will have to be submitted.

### About CITES

- Convention on International Trade in Endangered Species (CITES) is part of a multilateral treaty that includes plant, animals and birds under varying categories of threat of extinction and which will be jointly protected by members of the International Union for Conservation of Nature (IUCN).
- India is a signatory to CITES.

### 10 Rare and Exotic Wildlife Species Found In India

- Nilgiri Tahr
- Greater One-horned Rhinoceros
- Asiatic Lion
- Snow Leopard
- Black Buck
- Lion-tailed Macaque
- Red Panda
- Kashmir Red Stag (Hangul)
- Indian Bison (Gaur)
- Asian Elephant

### **Reforestation:**

Context – In 2010, India had 31.3Mha of natural forest, extending over 11% of its land area. By 2020, it lost 132kha of the natural forest, equivalent to 67.3Mt of CO<sub>2</sub> of emissions, according to the Global Forest Watch, which monitors forests and provides information on changing patterns worldwide.

Concept –

- With an intent to combat high pollution levels and a sharp rise in carbon emissions, the Indian government has been pursuing reforestation through schemes such as the **National Mission on Green India**, the **National Afforestation Programme**, compensatory afforestation, and plantation drives across states.
- In the Union Budget 2020-21, the overall allocation for the Union Ministry of Environment, Forest and Climate Change, increased from Rs. 26.5 billion in the revised estimate of 2019-20 to Rs. 31 billion for 2020-21.
- Furthermore, at the UN Framework Convention on Climate Change Conference of Parties (COP 2015), India, under the Bonn Challenge, committed to restoring 13 million hectares (Mha) of degraded and deforested land by 2020 and an additional 8 Mha by 2030.

### National Mission on Green India

- The National Mission for a Green India or the commonly called Green India Mission (GIM), is one of the eight Missions under the National Action Plan on Climate Change (NAPCC).
- It was launched in February, 2014 with the objective to safeguard the biological resources of our nation and associated livelihoods against the peril of adverse climate change and to recognise the vital impact of forestry on ecological sustainability, biodiversity conservation and food-, water- and livelihood-security.
- It aims at protecting, restoring and enhancing India's diminishing forest cover and responding to climate change through adaptation and mitigation measures. It envisages a holistic view of greening that extends beyond tree planting.
- At the national level implementation is done by the Ministry of Environment and Forests.
- The State Forest Development Agency to guide the mission at the state level.
- At the district level, the implementation to be done by the Forest Development Agency.



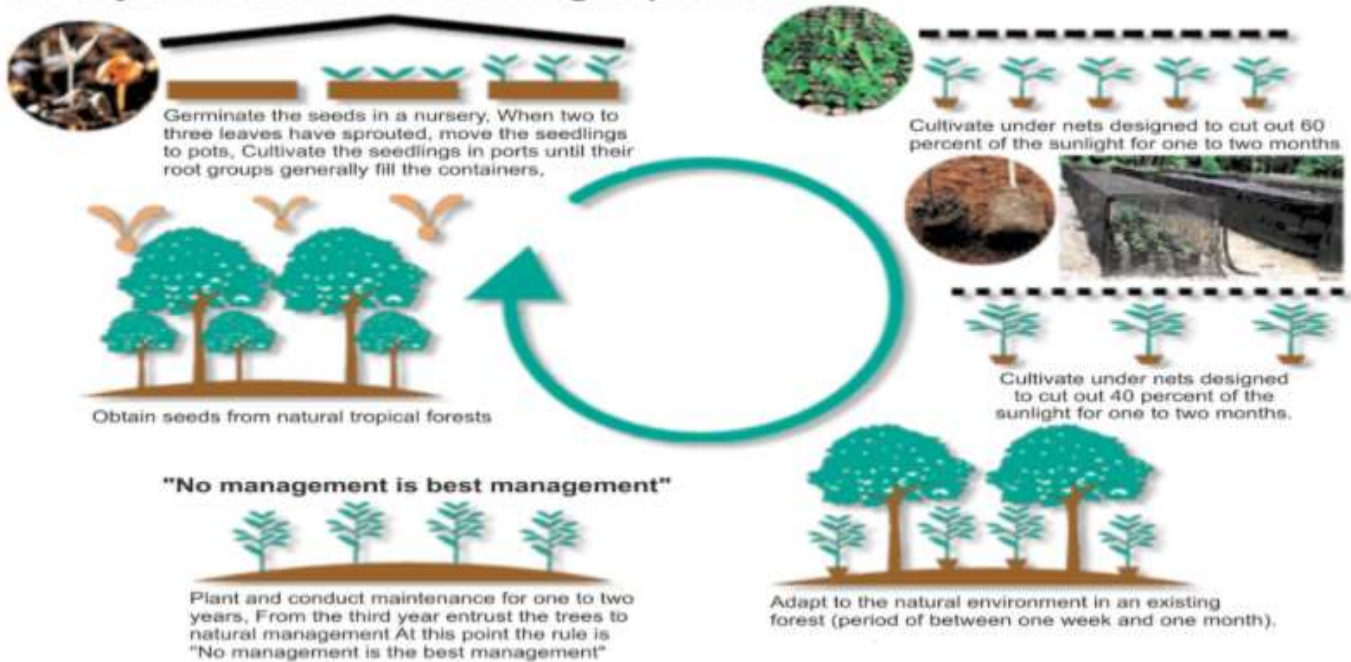
### National Afforestation Programme

- The overall objective of the National Afforestation Programme (NAP) scheme is ecological restoration of degraded forests and to develop the forest resources with peoples' participation, with focus on improvement in livelihoods of the forest-fringe communities, especially the poor.
- The scheme is implemented by three tier institutional setup through the State Forest Development Agency (SFDA) at the state level, Forest Development Agency (FDA) at the forest division level and Joint Forest Management Committees (JFMCs) at village level.
- NAP is a centrally sponsored scheme which is implemented with the fund sharing pattern of 60: 40 percent between Centre and States wherein the sharing pattern for Northeastern and hilly States is 90:10.

### Miyawaki Forests

- The Miyawaki method, developed by a Japanese botanist after whom it is named, involves planting saplings in small areas, causing them to "fight" for resources and grow nearly 10 times quicker.
- It originated in Japan, and is now increasingly adopted in other parts of the world. It has revolutionised the concept of urban afforestation by turning backyards into mini-forests.

#### The Miyawaki method for restoring tropical forests



### **Coonoor Ghat:**

Context – Chief of the Defence Staff (CDS) General Bipin Rawat, his wife Madhulika Rawat, an Army Brigadier, and 10 others were killed when an Indian Air Force helicopter carrying them crashed into a heavily wooded area of the Coonoor ghat in the Nilgiris in western Tamil Nadu

Concept –

- This is also known as the **Kallar Ghat**, as it follows the valley of the Kallar and Coonoor rivers.
- It is by far the most traveled of all the Ghat Roads as it is the main access from the home state of Tamil Nadu.
- It has 14 numbered Hairpin bends and was recently (c.2003) taken over to be owned and maintained by the National Highways Authority of India and is now part of National Highway 181.
- The ghat rises steeply from Mettupalayam. The Coonoor river flows through a deep gorge with sheer cliff faces on both sides.

### Tiger reserves and national parks:

#### **Pakke Tiger Reserve:**

Context – Over two decades since it was first documented in China, a rarely seen butterfly species has been sighted in Arunachal Pradesh.



Concept –

Name	Location	Feature
Pakke Tiger Reserve, also known as Pakhui Tiger Reserve	<ul style="list-style-type: none"> <li>In the Pakke Kessang district of <b>Arunachal Pradesh</b>.</li> <li>It falls within the Eastern Himalaya Biodiversity Hotspot.</li> </ul>	<ul style="list-style-type: none"> <li>This Tiger Reserve has won India Biodiversity Award 2016 in the category of 'Conservation of threatened species' for its Hornbill Nest Adoption Programme.</li> </ul>

Boundaries	Rivers	Species
East - Papum Reserve Forest South - Assam's Nameri National Park West - Doimara Reserve Forest and Eaglenest Wildlife Sanctuary North - Shergaon Forest Division	It is bounded by <b>Bhareli or Kameng River</b> in the west and north, and by <b>Pakke River</b> in the east.  The main perennial streams in the area are the Nameri, Khari and Upper Dikorai.	It is known for its amazing sightings of four resident hornbill species.

**Asian Tigers**

- The Four Asian Tigers are the high-growth economies of Hong Kong, Singapore, South Korea, and Taiwan.
- All four economies have been fuelled by exports and rapid industrialization, and have achieved high levels of economic growth since the 1960s.

**Buxa Tiger Reserve:**

Context – Tiger in Buxa cheers wildlife enthusiasts

Concept –

- Buxa Tiger Reserve is a tiger reserve in northern West Bengal, India.
- In altitude, it ranges from Gangetic Plains to bordering the Himalayas in the north.
- At least 284 bird species inhabit the reserve. Mammals present include Asian elephant, gaur, Sambar deer, clouded leopard, Indian leopard.
- The fragile “Terai Eco-System” constitutes a part of this reserve.
  - Buxa consists of moist, deciduous and evergreen forests.
- The Phipsu Wildlife Sanctuary of Bhutan is contiguous to the north of BTR.
- Located in the Buxa Hills of the southern hilly area of Bhutan.
- Its northern boundary runs along the international border with Bhutan.



**Parambikulam Tiger Reserve:**

Context – Policemen on duty at the Parambikulam Tiger Reserve police station faced an unusual threat on Wednesday night when a female elephant and her calf raided the premises.

Concept –

Name	Location	Features
Parambikulam Tiger Reserve	<ul style="list-style-type: none"> <li>Located in the Palakkad District of <b>Kerala</b>.</li> <li>It is a well protected ecological portion in the <b>Nelliampathy - Anamalai landscape</b> of the Southern Western Ghats in India.</li> </ul>	<ul style="list-style-type: none"> <li>It was declared as Tiger Reserve during 2008-09.</li> <li>The reserve is credited with the <b>first scientifically managed teak plantation</b> in the world which was later merged with the forest land.</li> <li>It has the world's largest and <b>oldest teak tree named "Kannimara"</b>.</li> </ul>

Tribes	Fauna
The Kadar, Malasar, Muduvar, and Mala Malasar are among the four indigenous tribes who call the sanctuary home.	Tigers, Grey-headed Fishing Eagle, the Peninsular Bay Owl, the Nilgiri Wood Pigeon, the Black-capped Kingfisher, the Great Black Woodpecker and the Lesser Grey-headed Fish Eagle.

**Kazhuveli Bird Sanctuary:**

Context – Kazhuveli notified as 16th bird sanctuary in Tamil Nadu

Concept –

- The ecologically important Kazhuveli wetlands in Villupuram district is the 16th bird sanctuary in Tamil Nadu.
- The area has adequate ecological, faunal, floral and geomorphological significance for the purpose of protecting, propagating and developing wildlife and its environment.
- As many as 13 villages fall under the sanctuary. Kazhuveli is a wetland of international importance on the East Coast.
- The sanctuary lies adjacent to the Bay of Bengal along the east coast.
- The declaration was made in exercise of the power conferred in subsection (1) of section 18 of the Wildlife (Protection) Act, 1972.
- Kazhuveli or Kaliveli wetland system is one of the largest waterfowl congregation sites in Tamil Nadu, and a well-known raptor roosting site for species like the Eastern Imperial Eagle, Greater Spotted Eagle, Red-necked Falcon and several harriers.
- The Grey-tailed Tattler, a rare migratory wader, has been recorded only here and in Pulicat across the country.
- Kazhuveli is unique as it falls in the Central Asian migratory path of birds and is home to the second-largest brackish water lake in South India.

**Facts for Prelims****GST Rates**

- GST of 12% is applied on textiles, apparel and footwear.
- GST rates for man-made fibre has been lowered to 12 per cent.

**Shri Renukaji Dam**

- The project, worth Rs 6,700 crore, on the **Giri river** (Tributary of River Yamuna) in Sirmour district, **Himachal Pradesh**, will generate 200 million units of energy in a surface power house with 40 MW installed capacity.
- It will fulfil about 40 per cent of the drinking water requirement of Delhi.
- The 90% cost of irrigation/drinking water component of the project will be provided by the Central Govt. and rest 10% of the above cost will be provided by the basin States of Haryana, UP, UK, HP, Rajasthan & NCT of Delhi in the proportion as allocated in MoU.

**Sawra-Kuddu hydro-electric project**

- On the Pabbar river in Shimla district, Himachal Pradesh

**Dhulasidh hydro-electric project**

- The project is located on the Beas river in Hamirpur and Kangra districts of Himachal Pradesh.

**Luhri hydro-electric project**

- The project is located on the Sutlej River in Shimla and Kullu districts of Himachal Pradesh.

## REPORTS AND INDICES

### World Inequality Report:

Context – Richest 1% have 38% of wealth growth globally: World Inequality Report

Concept –

- The richest 10 per cent own around 60-80 per cent of wealth and the poorest half less than 5 per cent of wealth.
- **Published by the Harvard University Press.**

#### How taxation can curb inequality?

- The report suggested developing new forms of wealth taxation on multimillionaires, including a progressive rate of wealth tax with tax rates according to the value of the total amount of wealth owned.
- Tax ranging from 1 per cent of wealth owned over \$1 million to 3 per cent for global billionaires can generate 1.6 per cent of global income.

### Global Health Security Index 2021:

Context – World unprepared for future pandemics: Global Health Security Index 2021

Concept –

- The Global Health Security Index is an assessment of global health security capabilities in 195 countries prepared by the **Johns Hopkins Center for Health Security**, the **Nuclear Threat Initiative (NTI)** and the **Economist Intelligence Unit (EIU)**.
- The world remains unprepared for future epidemic and pandemic threats. Countries across all income levels remain dangerously unprepared to meet future epidemic and pandemic threats, according to the new 2021 Global Health Security (GHS) Index released December 8, 2021.
- The world's overall performance on the GHS Index score slipped to 38.9 (out of 100) in 2021, from a score of 40.2 in the GHS Index, 2019.
- In South Asia, India, with a score of 42.8 (out of 100) too, has slipped by 0.8 points since 2019.
- In 2021, no country scored in the top tier of rankings and no country scored above 75.9, the report showed.
- It has assessed countries across six categories, 37 indicators and 171 questions, using instantly available information.

The six categories are –





PREVENT



DETECT



RESPOND



HEALTH



NORMS



RISK

### Logistics Performance Index:

Context – The laying of the foundation stone at the Jewar Airport which the Prime Minister described as the “logistics gateway to North India” is a much-needed milestone in India’s push to augment and enhance its logistics infrastructure.

Concept –

- The Logistics Performance Index (LPI), developed by the **World Bank Group**, is an interactive benchmarking tool created to help countries identify the challenges and opportunities they face in their performance on trade logistics and what they can do to improve their performance.
- The logistics performance (LPI) is the weighted average of the country's scores on the six key dimensions:
  - Efficiency of the clearance process (i.e., speed, simplicity and predictability of formalities) by border control agencies, including customs.
  - Quality of trade and transport related infrastructure (e.g., ports, railroads, roads, information technology).
  - Ease of arranging competitively priced shipments.
  - Competence and quality of logistics services (e.g., transport operators, customs brokers).
  - Ability to track and trace consignments.
  - Timeliness of shipments in reaching destinations within the scheduled or expected delivery time.

### Logistics Ease Across Different States (LEADS) Report (Index) 2021

- Released by Ministry of Commerce and Industry.
- The LEADS report is aimed at gauging the logistics performance of states and Union Territories (UT) and identifying areas where they can improve logistics performance.
- It was launched in 2018.
- States are ranked based on quality and capacity of key infrastructure such as road, rail and warehousing as well as on operational ease of logistics including security of cargo, speed of terminal services and regulatory approvals.
- The report is structured along the three dimensions which collectively influence logistics ease- Infrastructure, Services, and Operating and Regulatory Environment which are further categorised into 17 parameters.

### World Press Freedom Index:

Context – Govt. disagrees with India’s rank in World Press Freedom Index

Concept –

- The index is published each year by the international journalism not-for-profit body, Reporters Without Borders (RSF).
- India has ranked 142nd out of 180 nations in the World Press Freedom Index.
- Based in Paris, RSF is an independent NGO with consultative status with the United Nations, UNESCO, the Council of Europe and the International Organization of the Francophonie (OIF).
  - OIF is a 54 french speaking nations collective.
- The Index ranks countries and regions according to the level of freedom available to journalists. However, it is not an indicator on the quality of journalism.
- The parameters include pluralism, media independence, media environment and self-censorship, legislative framework, transparency, and the quality of the infrastructure that supports the production of news and information.
- It also includes indicators of the level of media freedom violations in each region.
- It is compiled by means of a questionnaire in 20 languages that is completed by experts all over the world. This qualitative analysis is combined with quantitative data on abuses and acts of violence against journalists during the period evaluated.
- Norway topped the index for the fifth year in a row.



### Healthcare Access and Quality (HAQ) index:

Context – As per the 2016 Healthcare Access and Quality Index (HAQ), India improved its HAQ score from 24.7 in 1990 to 41.2 in 2016

Concept –

- India was ranked 145th among 195 countries on Healthcare Access and Quality (HAQ) index in 2016.
- The index is based on 32 causes of death considered preventable with effective medical care.
- It assigns a 0-100 score to each of the 195 countries and territories assessed.
- The comprehensive index is released by **Global Burden of Disease**, funded by the Bill and Melinda Gates Foundation.
- India has seen improvement in HAQ since the year 1990. India's HAQ score 41.2 has improved from 24.7 score in the year 1990.
- India lags way behind its BRICS peers Brazil, Russia, China and South Africa on the HAQ index.

### Gender Inequality in Global Earnings:

Context – Men in India take 82% of labour income, says report

Concept –

- Men in India capture 82% of labour income, while women earn just 18%, according to the first-ever estimates of the gender inequality in global earnings presented in the World Inequality Report 2022 released earlier this week.
- The female share of the total labour income is the national aggregate labour income earned by women relative to the total aggregate of labour income within a country.
- In a country with perfect equality between women and men, the female labour income share would be 50%.
- Eastern Europe has the highest female labour income shares, with the average female share near 41%.
- Moldova has the highest female labour income in the world at 45%.

## Income inequity

Among neighbours, women's share of total labour income in India was lower compared to that of China, Sri Lanka and Nepal but higher than that of Bhutan and Bangladesh



### Health Index:

Context – Kerala best state on health parameters, Uttar Pradesh worst: Niti Aayog

Concept –

- Kerala remained the best-performing state in the health indicators for a fourth consecutive time, according to Health index which also ranked Uttar Pradesh at the bottom of the rankings although the state also saw the most progress.
- **“The Healthy States, Progressive India” report** — compiled by the **Niti Aayog, Union Health Ministry and the World Bank** for a fourth edition between 2019-2020 — surveyed 19 large states, eight small states and seven Union Territories.
  - It did not include West Bengal and Ladakh due to unavailability of adequate data.
- Among large states, Kerala and Tamil Nadu topped the list, and Telangana emerged strong on the third position in health outcomes and incremental performance.
- Among small states, Mizoram emerged as the best performer and Nagaland the worst.
- Delhi and Jammu & Kashmir were ranked the lowest among Union Territories in overall performance, but topped the list in incremental performance.



**Parameters**

- The Health Index score is prepared based on the States' performance across a large set of indicators that are divided into three broad domains — health outcomes, governance and information, and key inputs and processes.
- **Health outcomes**, include parameters such as neonatal mortality rate, under-5 mortality rate and sex ratio at birth.
- **Governance** includes institutional deliveries, average occupancy of senior officers in key posts earmarked for health.
- And the “**key inputs**” domain consists of the proportion of shortfall in healthcare providers to what is recommended, functional medical facilities, birth and death registration and tuberculosis treatment success rate.

**Facts for Prelims**

**Sugandha River** - The Sugandha is a coastal river under Jhalakathi district of Bangladesh

**DEFENCE AND SECURITY****Defense technology:****Pralay Quasi-Ballistic Missile:**

Context – The Defence Research and Development Organisation (DRDO) Wednesday successfully carried out the maiden test of 'Pralay'

Concept –

- The Defence Research and Development Organisation (DRDO) successfully carried out the maiden test of 'Pralay', a new surface-to-surface conventional quasi-ballistic missile, in a boost for India's tactical battlefield strategy.
- A quasi-ballistic missile has a low trajectory, and while it is largely ballistic, it can manoeuvre in flight. The missile has a range of 150-500 kilometres and has been developed according to specifications given by eventual user, the Army.
- The missile was tested from the Dr A.P.J. Abdul Kalam Island off the coast of Odisha and met all its objectives.
- The missile is powered with a solid propellant rocket motor and multiple new technologies.
- Capable of being launched from a mobile launcher, it has the latest navigation system and integrated avionics, and will be part of the Artillery Corps of the Army.
- Pralay will be the longest-range surface-to-surface missile in the inventory of the Army, which sources said will give a fillip to their operational plans.





- While cruise missiles have high agility, stealth and even loitering capability, ballistic missiles have the advantage of speed and countering them is a very difficult task even for modern air defence systems.

**Medium Altitude Long Endurance (MALE) Unmanned Aerial Vehicle (UAV):**

Context – Indigenous efforts to make UAVs crosses a milestone

Concept –

- The indigenous Medium Altitude Long Endurance (MALE) Unmanned Aerial Vehicle (UAV) development programme by the Defence Research and Development Organisation (DRDO) has crossed a milestone by reaching an altitude of 25,000 feet and an endurance of 10 hours.
- It has advanced capabilities and meets the requirements of the three Services.
- It technologically matches contemporary UAVs available and will also be cheaper than the imported ones.
- With some delays in development, the Rustom-2 last year successfully flew for eight hours at an altitude of 16,000 feet.
- It has been designed and developed by the Aeronautical Development Establishment (ADE), Bengaluru with production partners being the Hindustan Aeronautics Ltd and the Bharat Electronics Limited.
- It is being developed to carry out surveillance and reconnaissance (ISR) roles and is capable of carrying different combinations of advanced payload and capable of auto landing among others.
- High endurance UAVs are a priority requirement for the armed forces especially in the standoff with China in Eastern Ladakh.
- The armed forces rely heavily on the Israeli Searcher and Heron drones and need more such UAVs.

**Fire-fighting suit**

- Defence Minister Rajnath Singh had handed to the Home Ministry over a structural fire-fighting suit developed by DRDO's Centre for Fire, Explosive and Environment Safety (CFEES), Delhi.
- The suit weighing 2.8 kg is an ensemble of several layers, with the outer layer being the most durable and protects against heat, flames, water, chemicals and also against cuts and abrasion, according to the DRDO.
- Such a suit has been developed for the first time in the country and meets European standards while at the same time lowering import costs.

**Agni-P Missile:**

Context – DRDO tests Agni-P missile for second time

Concept –

- A new generation nuclear-capable ballistic missile, Agni-P (Prime), was successfully flight tested from the Dr APJ Abdul Kalam island off the coast of Odisha.
- Agni-P is a new generation advanced variant of the Agni class of missiles.
- It is a two-stage canisterised solid propellant ballistic missile with dual redundant navigation and guidance system that can be launched from rail and road and stored for a longer period.
- It can be transported across the length and breadth of the country, as per requirements.
- Canisterisation of missiles reduces the time required to launch the missile while improving its storage and mobility.
- The new ballistic missile, which has a range capability between 1,000 and 2,000 kilometres, weighs half of Agni III and has new kinds of propulsion and new guidance.
- It also comes with the technologies found in the 4000-kilometre range Agni-IV and 5000-kilometre range Agni-V. The new Agni P can be used to target enemy warships in the Indo-Pacific.
- Agni class of missiles are the mainstay of India's nuclear launch capability which also includes the Prithvi short range ballistic missiles, submarine launched ballistic missiles and fighter aircraft.
  - The longest of the Agni series, Agni-V, an Inter-Continental Ballistic Missile (ICBM) with a range of over 5,000 km, has already been tested several times and validated for induction.

**India's Missile Capability:**

Context – At a seminar organised by the Defence Research and Development Organisation (DRDO), Defence Minister encouraged scientists to work towards developing hypersonic missile technology.

Concept –

**History of missile technology in India -**

- Before Independence, several kingdoms in India were using rockets as part of their warfare technologies.
  - Mysore ruler Hyder Ali started inducting iron-cased rockets in his army in the mid-18th century.



- By the time Hyder's son Tipu Sultan died, a company of rocketeers was attached to each brigade of his army, which has been estimated at around 5,000 rocket-carrying troops.
- At the time of Independence, India did not have any indigenous missile capabilities.
- The government created the **Special Weapon Development Team** in 1958.
  - This was later expanded and called the **Defence Research and Development Laboratory (DRDL)**, which moved from Delhi to Hyderabad by 1962.
- In 1972, **Project Devil**, for the development of a medium range Surface-to-Surface Missile was initiated. A large number of infrastructure and test facilities were established during this period.
  - By 1982, DRDL was working on several missile technologies under the Integrated Guided Missiles Development Programme (IGMDP).

### What kind of missiles does India have?

- India is considered among the top few nations when it comes to designing and developing missiles indigenously, although it is way behind the US, China and Russia in terms of range.

#### Among the surface-launched systems –

- **ANTI-TANK GUIDED MISSILE:**
  - Nag has already been inducted into the services. Nag is the only “fire-and-forget ATGM meeting all weather requirements for its range (around 20 km)”.
  - Recently Heli-Nag was tested, which will be operated from helicopters and will be inducted by 2022.
  - There is also a Stand-off Anti-Tank (SANT) missile, with a range over 10 km.
- **SURFACE-TO-AIR MISSILE:**
  - The short-range SAM system Akash has already been inducted in the Army and the Air Force.
  - For Akash 1, which has a seeker, which enhances target detection in all weather conditions, the Army has already got the Acceptance of Necessity from the government.
  - For Akash (New Generation), the first tests were conducted in July this year.
- **MEDIUM-RANGE SAM:**
  - Production of MRSAM systems for the Navy is complete, and it is placing its order.
  - The Jaisalmer-based 2204 Squadron of the Air Force became the first unit to get the MRSAM systems in September this year.
  - Technology for MRSAM for the Army “is also in a good shape and will be flight-tested soon”.
- **SHORT-RANGE SAM:**
  - For the Navy, the first flight tests have been successfully conducted.

#### Several air-launched systems –

- **AIR-TO-AIR**
  - Astra, India's Beyond Visual Range Air-to-Air Missile (BVRAAM), has been completely tested and is under induction. It has a range of around 100 km.
  - A long-range Astra is also being developed, for which initial tests have been conducted. The missile uses solid fuel ramjet technology, which enhances speed, and will have an indigenously-built seeker.
- **AIR-TO-GROUND:**
  - Rudram, a New Generation Anti-Radiation Missile (NGRAM), has cleared initial tests. With a maximum range of around 200 km, the missile mainly targets communication, radar and surveillance systems of the adversary.
  - BrahMos, which India developed jointly with Russia, is already operational. It has a 300 km to 500 km range, and is a short-range, ramjet-powered, single warhead, supersonic anti-ship or land attack cruise missile.

### Which of India's missile systems are most important?

- The two most important are Agni and Prithvi, both being used by the Strategic Forces Command.
- Agni (range around 5,000 ) , is India's only contender for an inter-continental ballistic missile (ICBM), which is available with only a few countries.
- Prithvi, although a short-range surface-to-surface missile with a 350 km range, has strategic uses.
- India also tested an anti-satellite system in April 2019. A modified anti-ballistic missile named Prithvi Defence Vehicle Mk 2 was used to hit a low-orbit satellite. It put India only behind the US, Russia and China in this capability.

### Hypersonic technology



- India has been working on this for a few years, and is just behind the US, Russia and China.
- DRDO successfully tested a Hypersonic Technology Demonstrated Vehicle (HSTDV) in September 2020, and demonstrated its hypersonic air-breathing scramjet technology.
- According to sources, India has developed its own cryogenic engine and demonstrated it in a 23-second flight. India will try to make a hypersonic cruise missile, using HSTDV.
- Sources said only Russia has proven its hypersonic missile capability so far, while China has demonstrated its HGV capacity.
- India is expected to be able to have a hypersonic weapons system within four years, with medium- to long-range capabilities.

**Where do China stand compared to India?**

- China is ahead of India. According to a Pentagon report in 2020, China may have either achieved parity, or even exceeded the US in land-based conventional ballistic and cruise missile capabilities.
- India’s only nuclear missiles are Prithvi and Agni, but beyond those, tactical nuclear weapons can be fired from some IAF fighter jets or from Army guns, which have a low range, around 50 km.

**Log4Shell:**

Context – Log4 vulnerability has tech firms worried

Concept –

- A new vulnerability named Log4Shell is being touted as one of the worst cybersecurity flaws to have been discovered.
- The vulnerability is based on an open-source logging library used in most applications by enterprises and even government agencies.
- The exploits for this vulnerability are already being tested by hackers, according to several reports, and it grants them access to an application, and could potentially let them run malicious software on a device or servers.

**Facts for Prelims**

- **Simorgh Satellite launcher** - new space launch by Iran



**Security:**

**Phishing:**

Context – Phishing attacks on central ministry officials get sharper, targeted

Concept –

- Phishing is a cybercrime in which a target or targets are contacted by email, telephone, or text message.
- This is done by someone posing as a legitimate institution to lure individuals into providing sensitive data such as personally identifiable information, banking and credit card details, and passwords.



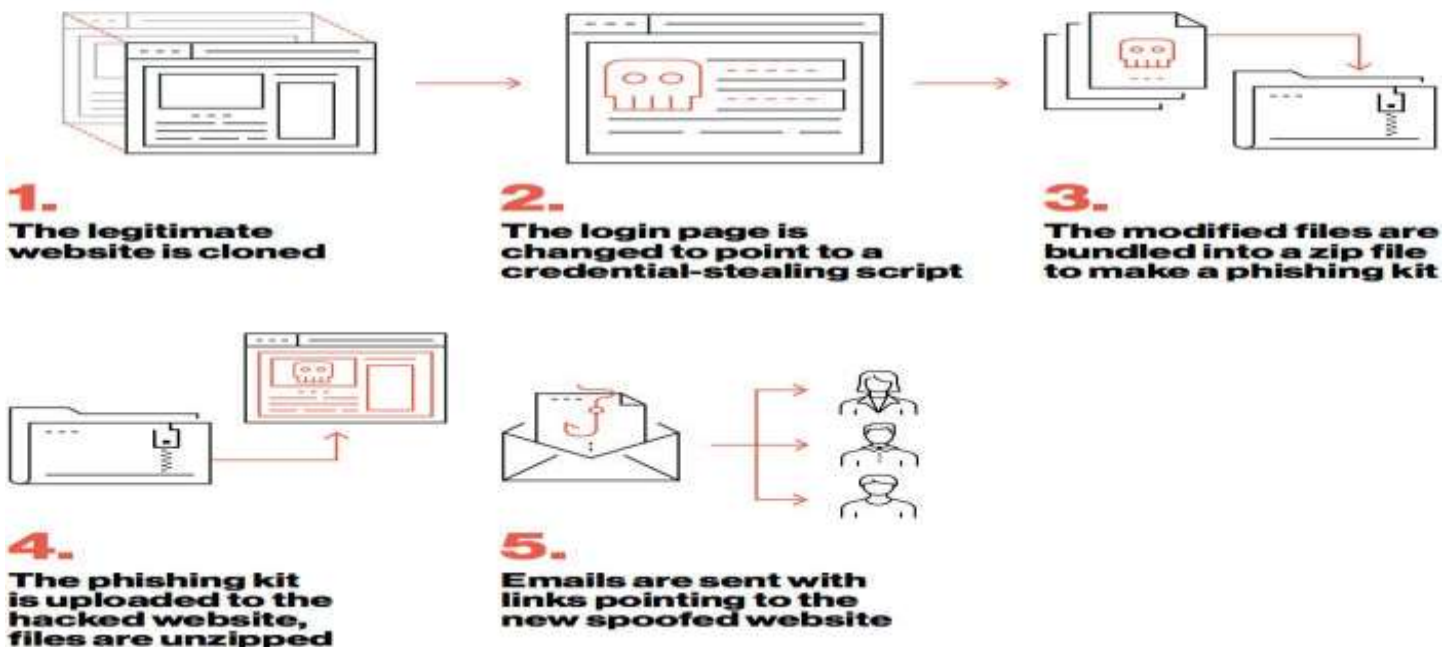
- The goal is to trick the email recipient into believing that the message is something they want or need — a request from their bank, for instance, or a note from someone in their company — and to click a link or download an attachment.
- What really distinguishes phishing is the form the message takes: the attackers masquerade as a trusted entity of some kind, often a real or plausibly real person, or a company the victim might do business with.
- It's one of the oldest types of cyberattacks, dating back to the 1990s, and it's still one of the most widespread and pernicious, with phishing messages and techniques becoming increasingly sophisticated.

#### **Related Terms –**

- **Spam** is unsolicited email, instant messages, or social media messages. These messages are fairly easy to spot and can be damaging if you open or respond.
- **Spear Phishing** occurs when criminals obtain information about you from websites or social networking sites, and customize a phishing scheme to you.
- **Spoofing** describes a criminal who impersonates another individual or organization, with the intent to gather personal or business information.
- **Pharming** is a malicious website that resembles a legitimate website, used to gather usernames and passwords.

# Anatomy of a Phishing Kit

Before we dive into the results, it's important to talk a bit about how phishing kits work.



#### **Assam Rifles:**

Context – Killing of over a dozen civilians in Mon district of Nagaland on Saturday saw angry crowds vandalise camps of Assam Rifles in the district.

Concept –

- Assam Rifles is one of the six central armed police forces (CAPFs) under the administrative control of the Ministry of Home Affairs (MHA).
  - The other forces being the Central Reserve Police Force (CRPF), the Border Security Force (BSF), the Indo-Tibetan Border Police (ITBP), the Central Industrial Security Force (CISF) and the Sashastra Seema Bal (SSB).



- It is tasked with the maintenance of law and order in the North East along with the Indian Army and also guards the Indo-Myanmar border in the region.
- It has a sanctioned strength of over 63,000 personnel and has 46 battalions apart from administrative and training staff.

#### How is it unique?

- It is the only paramilitary force with a dual control structure.
- While the administrative control of the force is with the MHA, its operational control is with the Indian Army, which is under the Ministry of Defence (MoD).
  - This means that salaries and infrastructure for the force is provided by the MHA, but the deployment, posting, transfer and deputation of the personnel is decided by the Army.
- All its senior ranks, from DG to IG and sector headquarters are manned by officers from the Army.
- The force is commanded by Lieutenant General from the Indian Army.
- The force is the only central paramilitary force (CPMF) in real sense as its operational duties and regimentation are on the lines of the Indian Army.
- However, being a Central Armed Police force under MHA, its recruitment, perks, promotion of its personnel and retirement policies are governed according to the rules framed by the MHA for CAPFs.

#### Difference in Army personnel and CAPF

- Army personnel retire early, at 35, while the retirement age in CAPF is 60 years.
- CAPF officers have recently been granted non-functional financial upgradation (NFFU) to at least financially address the issue of stagnation in their careers due to lack of avenues for promotion.
  - But Army personnel also get one rank one pension which is not available to CAPFs.

#### Contribution of Assam Rifles

- Assam Rifles is the oldest paramilitary force raised way back in 1835 in British India with just 750 men.
- Since then, it has gone on to fight in two World Wars, the Sino-Indian war of 1962 and used as an anti-insurgency force against militant groups in the North East.
- Raised as a militia to protect British tea estates and its settlements from the raids of the NE tribes, the force was first known as Cachar Levy.
  - It was reorganised later as Assam Frontier Force as its role was expanded to conduct punitive operations beyond Assam borders.
- Given its contribution in opening the region to administration and commerce, it came to be known as the “**right arm of the civil and left arm of the military**”.
- The Post-Independence role of the Assam Rifles continued to evolve ranging from conventional combat role during Sino-India War 1962, operating in foreign land as part of the Indian Peace Keeping Force (IPKF) to Sri Lanka in 1987 (Op Pawan) to peacekeeping role in the North-Eastern areas of India.
- It remains the most awarded paramilitary force in both pre- and post-independent India.

***Correction from DPN of 8<sup>th</sup> September 2021 – Assam Rifles is one of the six central armed police forces (CAPFs).***

#### **Armed Forces (Special Powers) Act (AFSPA):**

Context – The campaign to repeal the Armed Forces (Special Powers) Act (AFSPA) has also gathered steam after Nagaland violence.

Concept –

- It was enacted by the Parliament and approved by the President in 1958.
- It confers certain special powers on members of the Armed Forces (military forces, air forces operating on the ground as land forces and any other armed forces of the Union (CRPF, BSF, ITBP etc) for carrying out proactive operations against the insurgents in a highly hostile environment.
- They have the authority to prohibit a gathering of five or more persons in an area.
- The AFSPA is also in force in the entire Nagaland, certain districts of Arunachal Pradesh, and most parts of Manipur barring the Imphal municipal areas.
- AFSPA gives armed forces the power to maintain public order in “disturbed areas”.
  - A disturbed area is one which is declared by notification under Section 3 of the AFSPA. An area can be disturbed due to differences or disputes between members of different religious, racial, language or regional groups or castes or communities.
  - The Central Government, or the Governor of the State or administrator of the Union Territory can declare the whole or part of the State or Union Territory as a disturbed area.
- If reasonable suspicion exists, the army can also arrest a person without a warrant; enter or search premises without a warrant; and ban the possession of firearms.



**Delhi Police Model:**

Context – States told to adopt Delhi Police model

Concept –

- The Parliamentary Standing Committee on Home Affairs has urged the State Governments to follow the crime analytics model of Delhi Police in preventing street crimes against women through crime mapping and identification of hotspots for reinforced action.
- Crime Mapping Analytics and Productive System and related tools were deployed on the Crime and Criminal Tracking Network & Systems (CCTNS).
- As part of the initiatives to strengthen the capacity to deal with cases of crimes against women, it was recommended that the SOP on registration of FIRs should include guidelines to police to record reasons for delay in reporting of crimes by the complainants to the police. A provision was made for recording this statement in the FIRs on the CCTNS.

**Crime and Criminal Tracking Network and Systems (CCTNS)**

- Crime and Criminal Tracking Network and Systems (CCTNS) is a Mission Mode project under the National e-Governance Plan for creating a single repository of crime and criminal data for enhancing the efficiency and effectiveness of policing at the Police Station level.
- Out of total 16,098 police stations in the country, the CCTNS software is being implemented in over 95 per cent of police stations and connectivity is available at 97 per cent police stations. 93 per cent police stations are entering 100 percent FIRs through CCTNS.
- CCTNS also created facilities and mechanism to provide public services like registration of online complaints, ascertaining the status of case registered at the police station, verification of persons etc.
- Its aims to
  - Provide Citizen Centric Police Services via a web portal
  - Pan India search on National database of Crime & Criminal records
  - Crime and Criminal reports at State and Center
  - Computerization of Police Processes.

## OBJECTIVES OF CCTNS

**Collective Strength Initiative:**

Context – 10 countries simulate cyberattack on global financial system

Concept –

- Israel led a **10-country simulation of a major cyberattack** on the global financial system in an attempt to increase cooperation that could help to minimise any potential damage to financial markets and banks.
- The simulated "war game", as Israel's Finance Ministry called it and planned over the past year, evolved over 10 days, with sensitive data emerging on the Dark Web.
- The simulation also used fake news reports that in the scenario caused chaos in global markets and a run on banks.



- Participants in the initiative, called "Collective Strength", included treasury officials from Israel, the United States, the United Kingdom, United Arab Emirates, Austria, Switzerland, Germany, Italy, the Netherlands and Thailand, as well as representatives from the International Monetary Fund, World Bank and Bank of International Settlements.

**Chief of the Defence Staff (CDS):**

Context – Chief of the Defence Staff (CDS) General Bipin Rawat, his wife Madhulika Rawat, an Army Brigadier, and 10 others were killed when an Indian Air Force helicopter carrying them crashed into a heavily wooded area of the Coonoor ghat in the Nilgiris in western Tamil Nadu

Concept –

- CDS acts as the **permanent Chairman of the Chiefs of Staff Committee** which will also have three service chiefs as members.
- His core function will be to foster greater operational synergy between the three service branches of the Indian military and keep inter-service frictions to a minimum.
- He will **also head the newly created Department of Military Affairs (DoMA)** in the Ministry of Defence.
- The CDS will be the single-point military adviser to the Defence Minister on matters involving all three services and the service chiefs will be obliged to confine their counsel to issues pertaining to their respective services.
- As the head of DoMA, CDS is vested with the authority in prioritising inter-service procurement decisions as Permanent Chairman-Chiefs of Staff Committee.
- The CDS is also vested with the authority to provide directives to the three chiefs.
- However, he does not enjoy any command authority over any of the forces.
- CDS is first among equals, he enjoys the rank of Secretary within the DoD and his powers will be confined to only the revenue budget.
- He will also perform an advisory role in the Nuclear Command Authority (NCA).
- The CDS is a four-star officer selected from among the serving officers of the Indian Armed Forces.
- He will be the single-point military adviser to the government as suggested by the Kargil Review Committee in 1999.
- He is also the Principal Adviser to the Defence Minister.
- The broad mandate of the CDS includes bringing about "jointness" in "operations, logistics, transport, training, support services, communications, repairs and maintenance of the three Services, within three years of the first CDS assuming office".

**Conditions:**

- Not eligible to hold any Government office after demitting the office of CDS.
- No private employment without prior approval for a period of five years after demitting the office of CDS.
- The age limit for the CDS's post is 65 years with no fixed tenure defined.

**Cyber Crisis Management Plan:**

Context – Over 32,000 cyber-attacks on govt bodies; Cyber Crisis Management Plan by govt to counter attacks: MoS IT

Concept –

- It aims at countering cyber threats and cyber terrorism.
- The purpose of this plan is to establish the strategic framework and guide actions to prepare for, respond to, and begin to coordinate recovery from a cyber incident.
- Ministries/Departments of Central Govt., State Govts. and Union Territories to draw-up their own sectoral Cyber Crisis Management Plans in line with the Cyber Crisis Management Plan for Countering Cyber attacks and Cyber Terrorism
- The Indian Computer Emergency Response Team or CERT-In conducts regular training programmes for network administrators to mitigate cyber attacks.

**Chiefs of Staff Committee (COSC):**

Context – Government starts process to identify next CDS, Gen Naravane heads COSC

Concept –

- The Chairman of the Chiefs of Staff Committee is, in principle, the most senior and highest ranking officer of the Indian Armed Forces.
- The chairman heads the Chiefs of Staff Committee of the Ministry of Defence and is the principal military advisor to the president of the republic, the Minister of Defence and the prime minister.
- When the post of Chief of Defence Staff (CDS) was established, its holder was also made the permanent chairman of the Chiefs of Staff Committee (CoSC).



- In the absence of the CDS, a temporary Chairman of the Chiefs of Staff Committee may be appointed.
- Permanent Chairman of the Chiefs of Staff Committee will be a four-star officer, who will be equivalent to chiefs of army, airforce and navy.
- The Naresh Chandra Task Force, formed in May 2011 to review the national security management system, recommended the creation of permanent post of chairman, chiefs of staff committee (CoSC).
- Composition: CoSC is composed of:
  - (a) Chief of the Army Staff (COAS);
  - (b) Chief of the Naval Staff (CNS);
  - (c) Chief of the Air Staff (CAS); and
  - (d) Chief of Integrated Defence Staff (CIDS) (non-voting member).
  - Scientific Adviser to the Minister of Defence is invited to attend whenever needed.

### No line of succession for CDS:

Context – No clear line of succession, CCS to decide on next CDS

Concept –

- Unlike the structures for the military, where the second-in-command to every officer, whether in the field or as a service chief, officiates if the lead officer becomes indisposed, sources said there is no immediate line of succession envisaged for the CDS — although there is an unofficial Vice Chief of Defence Staff, who is a three-star officer.
  - For example, if a serving chief of the Army, the Navy or the Air Force becomes incapable of holding his position, the Vice Chief of that force officiates as the chief until the government appoints a full-time chief. It does not necessarily have to be the Vice Chief, though.
- Sources said the appointment of the CDS/DMA Secretary is more akin to that of a secretary than that of a service chief. There is **no deputy to the CDS**, who would have automatically officiated in his role in his absence.
- **CDS is a military officer, but is a bureaucrat like a secretary**, which is why there is no direct “line of succession”. It is an appointment made by the political leadership. He is “not in active military service, but parts of bureaucracy related to the military, which were looked after by the civilian bureaucracy, was handed over to the DMA and the CDS as its secretary”.
- The CDS was the permanent head of the **Chiefs of Staff Committee (CoSC)**, which includes the three service chiefs. Before the post of CDS was created, the senior-most service chief would be the chairman of CoSC.
- There is also the **Integrated Defence Staff (IDS)**, headed by a three-star officer from the services called Chairman IDS to the Chairman COSC (CISC), who enjoys the rank of a Vice Chief of a service. When the post of CDS was created, the CISC was expected to be made VCDS.
- Although the CISC does stand-in for the CDS if the latter is unavailable for ceremonial roles, this is not for executionary powers.
- For the three-star CISC, officiating over the CoSC with four-star officers can be an issue.

### Cabinet Committee on Security

- The committee is responsible for **debates, discussions and appointments** of/in the **national security bodies**.
- Major decisions with respect to the significant appointments, issues of national security, **defence expenditure** of India are taken by the Cabinet Committee on Security (CCS).
- **CCS is chaired by the Prime Minister of India.**
- The following are the members of the CCS:
  - Prime Minister
  - Minister of Defence
  - Minister of Home Affairs
  - Minister of Finance & Corporate Affairs
  - Minister of External Affairs.

### Rapid Action Battalion:

Context – Bangladesh reacted sharply to the U.S. Treasury’s decision to sanction a special military and police task force for alleged human rights violations

Concept –

- Rapid Action Battalion or RAB, is an elite anti-crime and anti-terrorism unit of the Bangladesh Police.





- It consists of members of the Bangladesh Police, Bangladesh Army, Bangladesh Navy, Bangladesh Air Force, Border Guard Bangladesh, Bangladesh Civil Service and Bangladesh Ansar.
- The Rapid Action Battalion has been criticized by rights groups for its use of extrajudicial killings and is accused of forced disappearances.
- Main activities and types of work done by RAB are:
  - Counter-Terrorism
  - Anti-drugs
  - Emergency help
  - National common or annual needs

### GOVERNMENT SCHEMES

#### Pradhan Mantri Gramin Digital Saksharta Abhiyan (PMGDISHA):

Context – Digital literacy index in T.N. already high: Union Minister

Concept –

- The Pradhan Mantri Gramin Digital Saksharta Abhiyan (PMGDISHA) being initiated under Digital India Programme would cover 6 crore **households in rural areas to make them digitally literate**.
- The scheme to make six crore persons in rural areas, across States/UTs, digitally literate, reaching to around 40% of rural households by covering one member from every eligible household till 31st March, 2020.
- The Scheme aims to bridge the digital divide, specifically targeting the rural population including the marginalised sections of society like Scheduled Castes (SC) / Scheduled Tribes (ST), Minorities, Below Poverty Line (BPL), women and differently-abled persons and minorities.
- Earlier, the Government had implemented the National Digital Literacy Mission or the **Digital Saksharta Abhiyan (DISHA)** or **National Digital Literacy Mission (NDLM)** to impart IT training to 52.5 lakh persons, including Anganwadi and ASHA workers and authorised ration dealers in all the States/UTs across the country
  - The non-IT literate citizens are trained to become IT literate so as to enable them to actively and effectively participate in the democratic and developmental process and also enhance their livelihood.

#### Eligibility

- The Scheme is applicable only for rural areas of the country.
- **Eligible Household:** A household is defined as a unit comprising of Head of family, spouse, children and parents. All such households where none of the family member is digitally literate will be considered as eligible household under the Scheme.
- **Entry criteria**
  - The beneficiary should be Digitally Illiterate
  - Only one person per eligible household would be considered for training



- Age Group: 14 - 60 years
- **Priority would be given to**
  - Non-smartphone users, Antyodaya households, college drop-outs, Participants of the adult literacy mission
  - Digitally illiterate school students from class 9th to 12th, provided facility of Computer/ICT Training is not available in their schools
- Preference would be given to SC, ST, BPL, women, differently-abled persons and minorities
- The identification of the beneficiaries would be carried out by CSC-SPV in active collaboration with DeGS, Gram Panchayats, and Block Development Officers. The list of such beneficiaries would be made available on the scheme portal.

#### Implementation

The implementation of the Scheme would be carried out under the overall supervision of Ministry of Electronics and IT in active collaboration with States/UTs through their designated State Implementing Agencies, District e-Governance Society (DeGS), etc.

#### Training process

The duration of the training program is for 20 hours which has to be completed in a minimum of 10 days and maximum of 30 days.

#### **Perform, Achieve and Trade (PAT) Scheme:**

Context – A key scheme introduced in 2008 by the Indian government to improve energy efficiency in Indian industries and consequently reduce greenhouse gas emissions is not effective, according to a recent report by New Delhi-based non-profit Centre for Science and Environment (CSE).

Concept –

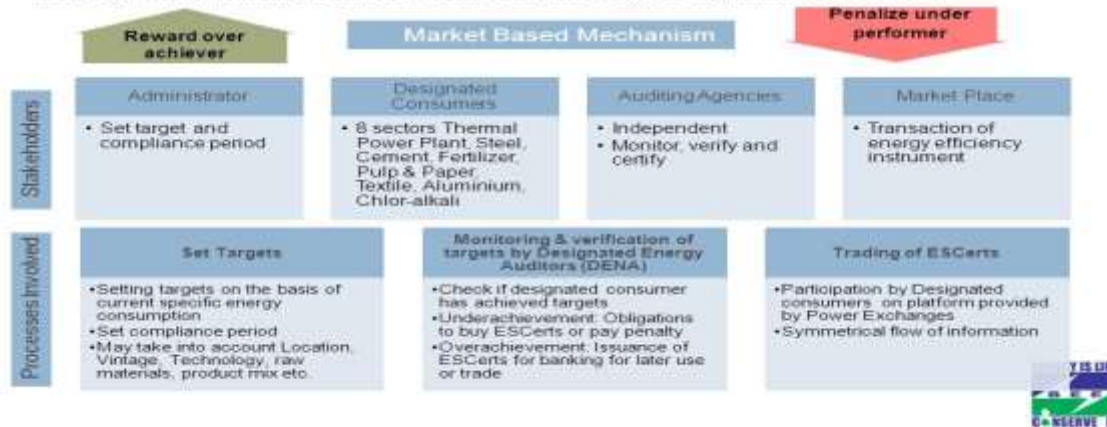
- Perform Achieve and Trade (PAT) scheme is a flagship programme of **Bureau of Energy Efficiency** under the National Mission for Enhanced Energy Efficiency (NMEEE)
- The Government of India released the **National Action Plan on Climate Change (NAPCC)** in 2008 to check the increasing energy consumption of industries and related carbon emissions.
- There were eight national missions under the NAPCC. One of them was the **National Mission for Enhanced Energy Efficiency (NMEEE)**.
- The **Union Ministry of Power** and **Bureau of Energy Efficiency** were entrusted with the task of preparing the implementation plan for the NMEEE.
- ‘Perform, Achieve and Trade’ (**PAT**) is a competitive mechanism under NMEEE **for reducing energy use in large industries**.
- The government shortlists industries and restricts the amount of energy they can consume and defines a time limit of three years by when this restriction should be met as part of PAT scheme.
- These three years of time are called one PAT cycle. The industries are chosen after in-depth, sector-wise analysis by the government.
- Industries that participate in this scheme are called **designated consumers (DC)**.
- The energy savings achieved by notified industries is converted into tradable instruments called **Energy Saving Certificates (ESCerts)**. The ESCerts after issuance by Bureau of Energy Efficiency are traded at **Power Exchanges** - Indian Energy Exchange and Power Exchange India.
- Those that overachieve their targets are issued energy savings certificates (ESCerts) that can be traded with industries that have not achieved their targets.
- Non-achievers have to buy the ESCerts after the three years for compliance. Announcements for six cycles since 2012 have been made so far.
- PAT scheme covered about **13 energy-intensive sectors**. Sectors included are thermal power plants (TPP), cement, aluminium, iron and steel, pulp and paper, fertiliser, chlor-alkali, petroleum refineries, petrochemicals, distribution companies, railways, textile and commercial buildings (hotels and airports).



- The industrial sector consumes the most energy in India — accounting for 43 per cent of overall consumption — making it the major contributor to the country's energy and environmental

## Perform, Achieve & Trade (PAT) Mechanism

- The market based mechanism to enhance the cost effectiveness in improving the Energy Efficiency in Energy Intensive industries through certification of energy saving which can be traded



### About BEE:

- Set up on 1st March 2002 by Government of India.
- Under the provision of the Energy Conservation Act, 2001.
- It is a statutory body under the Ministry of Power.
- Mission – To assist in developing policies and strategies with a thrust on self-regulation and market principles with the primary objective of reducing the energy intensity of the Indian economy within the overall framework of the Energy Conservation Act, 2001.
- This can be achieved with the active participation of all stakeholders, resulting in accelerated and sustained adoption of energy efficiency in all sectors.

### Pradhan Mantri Ujjwala Yojana (PMUY):

Context – High LPG prices are scorching the air pollution fight

Concept –

- Prime Minister launched the **second phase of Pradhan Mantri Ujjwala Yojana (PMUY) or Ujjwala 2.0 Scheme**.
- PMUY-I – Launched in May 2016 to provide **LPG (liquefied petroleum gas) connections to poor households**.
- PMUY-II:
  - It is aimed to provide **maximum benefit to the migrants** who live in other states and find it difficult to submit address proof.
  - Now they will only have to give “**Self Declaration**” to avail the benefit.
- The scheme provides a **financial support of Rs 1600 for each LPG connection to the BPL households**.
- Along with a deposit-free LPG connection, **Ujjwala 2.0 will provide the first refill and a hotplate free of cost** to the beneficiaries.
- Under Ujjwala 2.0, an additional 10 million LPG connections will be provided to the beneficiaries.
- Government has also fixed a target of providing piped gas to 21 lakh homes in 50 districts.
- Nodal Ministry – **Ministry of Petroleum and Natural Gas (MoPNG)**.

### Smart Cities Mission (SCM):

Context – The deadline for completing projects under the Smart Cities Mission (SCM) was extended for all 100 participating cities to June 2023 due to the delays caused by COVID-19 and based on a NITI Aayog recommendation in August, according to Housing and Urban Affairs Ministry sources.

Concept –

- Smart Cities Mission was launched by the Hon' Prime Minister on 25 June, 2015.



- The main objective of the Mission is to promote cities that provide **core infrastructure, clean and sustainable environment** and give a decent quality of life to their citizens through the application of ‘smart solutions’.
- It is under the **Ministry of Housing and Urban Affairs**.
- The Mission aims to drive economic growth and improve quality of life through comprehensive work on social, economic, physical and institutional pillars of the city.
- The focus is on sustainable and inclusive development by creation of replicable models which act as lighthouses to other aspiring cities. **100 cities** have been selected to be developed as Smart Cities through a **two-stage competition**.
- The Mission is operated as a **Centrally Sponsored Scheme**.
  - Central Government will give financial support to the extent of Rs. 48,000 crores over 5 years i.e. on an average Rs.100 crore per city per year.
  - An equal amount on a matching basis is to be provided by the State/ULB.
  - Additional resources are to be raised through convergence, from ULBs’ own funds, grants under Finance Commission, innovative finance mechanisms such as Municipal Bonds, other government programs and borrowings.
- Emphasis has been given on the participation of private sector through Public Private Partnerships (PPP)
- There is **no standard definition or template of a smart city**.

In the context of our country, the six fundamental principles on which the concept of Smart Cities is based are:



- Strategy:
  - Pan-city initiative in which at least one Smart Solution is applied city-wide.
  - Develop areas step-by-step with the help of these three models:
    - Retrofitting.
    - Redevelopment.
    - Greenfield.
- Coverage and Duration: The Mission covers 100 cities for the duration of **five years** starting from the financial year (FY) 2015-16 to 2019-20.

### Beti Bachao Beti Padhao Scheme:

Context – ‘80% of funds for Beti Bachao was spent on media campaigns’

Concept –

- Since coordinated and convergent efforts are needed to ensure survival, protection and empowerment of the girl child, Government launched the Beti Bachao Beti Padhao (BBBP) on 22nd January, 2015 at Panipat in Haryana.
- It is a tri-ministerial effort of Ministries of Women and Child Development, Health & Family Welfare and Human Resource Development.
- BBBP is a national campaign and focussed multisectoral action in 100 selected districts low in Child Sex Ratio (CSR), covering all States and UTs.

### Main Objectives:

- Prevention of gender-biased sex-selective elimination.
- Ensuring survival & protection of the girl child.
- Ensuring education and participation of the girl child.
- Protecting rights of Girl child.

### Pradhan Mantri Krishi Sinchayee Yojana:

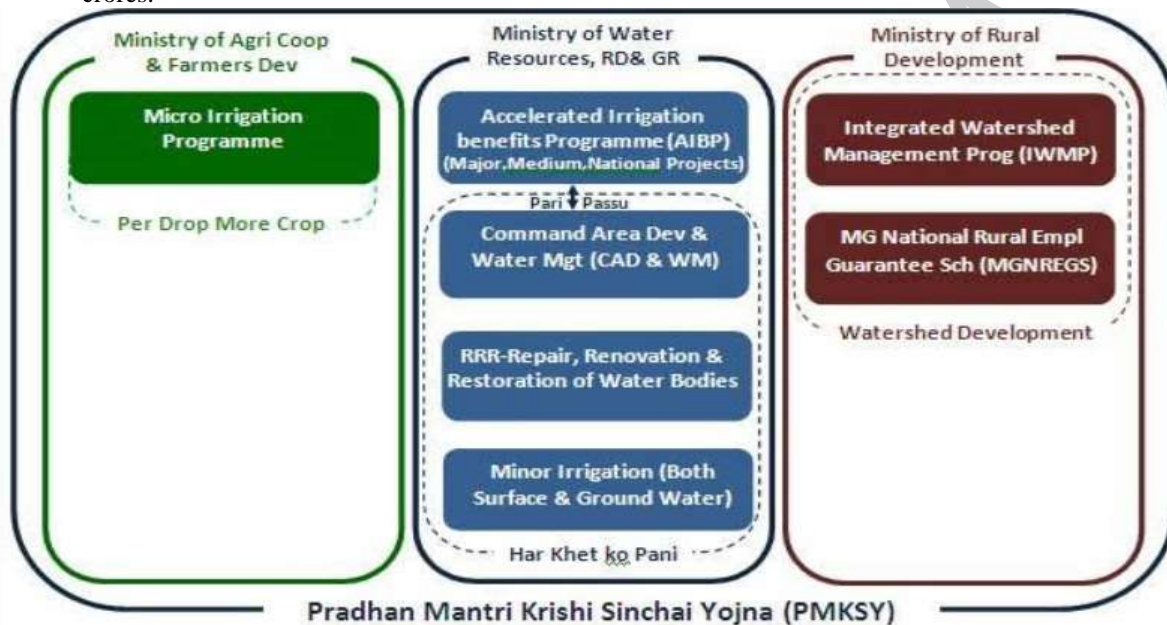
Context – Nod to extend irrigation scheme for five years

Concept –

- PMKSY is a Centrally Sponsored Scheme (Core Scheme) launched in 2015. Centre- States will be 75:25 per cent. In the case of the north-eastern region and hilly states, it will be 90:10.



- Its objectives are:
  - Convergence of investments in irrigation at the field level,
  - To expand the cultivable area under assured irrigation (Har Khet ko pani),
  - To improve on-farm water use efficiency to reduce wastage of water,
  - To enhance the adoption of precision-irrigation and other water saving technologies (More crop per drop),
  - To enhance recharge of aquifers and introduce sustainable water conservation practices by exploring the feasibility of reusing treated municipal based water for peri-urban agriculture and attract greater private investment in a precision irrigation system.
- It is formulated by amalgamating ongoing schemes:
  - **Accelerated Irrigation Benefit Programme (AIBP)** -Ministry of Water Resources, River Development & Ganga Rejuvenation.
  - **Integrated Watershed Management Programme (IWMP)** - Department of Land Resources, Ministry of Rural Development.
  - **On-Farm Water Management (OFWM)** - Department of Agriculture and Cooperation (DAC).
- Implementation - Decentralised implementation through State Irrigation Plan and District Irrigation Plan.
- Krishi Sinchayee Yojana duration was for a period of 5 years (2015-16 to 2019-20) with a financial outlay of Rs.50,000 crores.



### Marriage Age of Women from 18 to 21:

Context – Union Cabinet Wednesday passed a proposal to raise the legal age of marriage for women from 18 to 21 years — the same as men.

Concept –

- Following the Cabinet's approval, the Government will introduce an amendment to the **Prohibition of Child Marriage Act, 2006**, and consequently bring amendments to the **Special Marriage Act** and personal laws such as the **Hindu Marriage Act, 1955**.
- It was based on recommendations submitted to Niti Aayog in December 2020 by the Centre's task force, headed by **Jaya Jaitly**, which was constituted to examine "matters pertaining to age of motherhood, imperatives of lowering MMR (Maternal Mortality Rate), improvement of nutritional levels and related issues".
- Section 5(iii) of the Hindu Marriage Act, 1955 sets 18 years as the minimum age for the bride and 21 for the groom.
- The Special Marriage Act, 1954 and the Prohibition of Child Marriage Act, 2006 also prescribe 18 and 21 years as the minimum age of consent for marriage for women and men, respectively.
- Women's age of marriage was increased from 15 years to 18 years in 1978, by amending the erstwhile Sharda Act of 1929.

### Shyama Prasad Mukherjee Rurban Mission:

Context – Telangana stood first in the implementation of the Shyama Prasad Mukherji Rurban Mission (SPMRM)

Concept –

- It is a **Centrally Sponsored Scheme (CSS)**, launched in 2016 by the **Ministry of Rural Development (MoRD)** to deliver integrated project-based infrastructure in the rural areas, which also include development of economic activities and skill development.
- A predecessor to **SPMRM** was the Provision of Urban Amenities to Rural Areas (PURA), announced in 2003.
- PURA was mooted by the former President Dr. Abdul Kalam in January 2003 as a way of empowering and accelerating rural development.
- Main objective of the scheme is bridging the rural-urban divide-viz: economic, technological and those related to facilities and services.
- Rurban Clusters: There are 2 categories of clusters: Non-Tribal and Tribal.
- They are identified across the country's rural areas showing increasing signs of urbanization - i.e. increase in population density, high levels of non-farm employment, presence of growing economic activities and other socioeconomic parameters.
- For the purposes of SPMRM, Rurban areas refer to a cluster of 15-20 villages having about 30 to 40 lakh population.
- The clusters will be geographically contiguous Gram Panchayats with a population of about 25000 to 50000 in plain and coastal areas and a population of 5000 to 15000 in desert, hilly or tribal areas.
- The State Government identifies the clusters in accordance with the Framework for Implementation prepared by the MoRD.

### Baby Friendly Hospital Initiative:

Context – Private hospitals to be tagged for being breast-feeding-friendly

Concept –

- A new initiative will now help mothers identify “breast-feeding-friendly” hospitals before they give birth.
- The Breastfeeding Promotion Network of India (BPNI), in collaboration with the Association of Healthcare Providers of India (AHPI), which comprises more than 12,000 private hospitals, has launched an accreditation programme that will enable hospitals to get a “breastfeeding-friendly” tag. This programme is called “Baby Friendly Hospital Initiative (BFHI)”.
- The initiative is only for private hospitals and is based on the Ministry of Health and Family Welfare's MAA programme for government hospitals launched in 2016.
- The certification process involves two stages — the first stage includes self-assessment by a hospital, followed by an external assessment by an authorised appraiser who interviews doctors, nurses and patients as well as reviews different practices and training of staff.
- The accreditation process costs ₹17,000 per hospital.
- Provision of mother's breast milk to infants within one hour of birth ensures that the infant receives the colostrum, or “first milk”, which is rich in protective factors, according to the WHO.
- Lack of support and counselling for expectant mothers during pregnancy and at birth as well as aggressive promotion of baby foods are the reasons for poor early breastfeeding rates.
- A rise in caesarean sections is also known to negatively impact breastfeeding rates. During caesarean operations everyone is focused on recovery, wound surgery, infection control and breastfeeding within the golden hour is missed.
- Evidence shows that improving breastfeeding rates in hospitals reduces neonatal mortality and infant mortality rates.
- The tools for this evaluation process have been developed in partnership with the Health Ministry and World Health Organisation. The BFHI programme is a worldwide programme of the WHO and UNICEF. Though India adopted it in 1993, it fizzled out by 1998 and is now being revived after more than two decades.
- Chennai's Bloom Healthcare has become the first hospital to be recognised as “breastfeeding-friendly” under this programme.



### MAA - "Mother's Absolute Affection"

- MAA - "Mother's Absolute Affection" is a nationwide programme of the Ministry of Health and Family Welfare in an attempt to bring undiluted focus on promotion of breastfeeding and provision of counselling services for supporting breastfeeding through health systems.
- The programme has been named 'MAA' to signify the support a lactating mother requires from family members and at health facilities to breastfeed successfully.
- 'Vatsalya – Maatri Amrit Kosh', a National Human Milk Bank and Lactation Counselling Centre has been established at the Lady Hardinge Medical College (LHMC), Delhi. It has been established in collaboration with the Norwegian government, Oslo University and Norway India Partnership Initiative (NIPI).

### Facts for Prelims

- **Justice Raveendran Committee** - to examine allegations that the Centre used Israeli software Pegasus to spy on citizens.
- **Operation Vijay** - the military action in 1961 by which India liberated the territories of Goa, Daman and Diu from Portuguese rule.

### **MCA 21:**

Context – 'MCA21 portal: third version in the works'

Concept –

- MCA21 is an e-Governance initiative of Ministry of Corporate Affairs (MCA), Government of India that enables an easy and secure access of the MCA services to the corporate entities, professionals and citizens of India.
- It has made all company related information accessible to various stakeholders and the general public. It was launched in 2006.
- The MCA21 application is designed to fully automate all processes related to the proactive enforcement and compliance of the legal requirements under the Companies Act, 1956, New Companies Act, 2013 and Limited Liability Partnership Act, 2008.
- This will help the business community to meet their statutory obligations.
- MCA 21 has been part of Mission Mode projects of the Government of India.
- MCA21 Version 3.0 is part of the 2021 Budget announcement.



- The MCA21 V3.0 in its entirety will not only improve the existing services and modules, but will also create new functionalities like e-adjudication, compliance management system, advanced helpdesk, feedback services, user dashboards, self-reporting tools and revamped master data services.
- It comprises a revamped website, new email services for MCA Officers and two new modules, namely, e. Book and e. Consultation.

### Rural Entrepreneurship Awareness Development Yojana (READY):

Context – Dairy Science College in Bengaluru promotes earn-while-you-learn concept

Concept –

- READY programme is a new initiative of **Indian Council of Agricultural Research** to reorient graduates of Agriculture and allied subjects for ensuring and assuring employability and develop entrepreneurs for emerging knowledge-intensive agriculture.
- Under this programme all students are required to undertake a six-month internship, usually in their fourth year, to gain hands-on training, rural awareness, industry experience, research expertise and entrepreneurship skills
- The programme is being introduced in all the Agricultural Universities as an essential prerequisite for the award of degree to ensure hands on experience and practical training depending on the requirements of respective discipline and local demands.
- The programme will help in building confidence, skill and acquire Indigenous Technical Knowledge (ITK) of the locality and thereby, preparing the pass-out for self-employment.

### Components of the programme

- Experiential Learning
- Rural Awareness Works Experience
- In-Plant Training / Industrial attachment
- Hands-on training (HOT) / Skill development training and
- Students Projects

### Rythu bandhu scheme:

#### CONTEXT

It was recently reported that the total funds disbursed under Rythu Bandhu, Telangana government's direct benefit transfer scheme for farmers, will soon touch Rs 50,000 crore in the coming days.

#### WHAT IS RYUTHU BANDHU SCHEME?

- It is a Telangana government's direct benefit transfer scheme for farmers under which the state government extends financial support to land-owning farmers at the beginning of the crop season through direct benefit transfer.
- The scheme aims to take care of the initial investment needs, so that the farmers do not fall into a debt trap. Thus, instilling confidence in farmers and thereby enhancing productivity and income.
- Under the scheme –
  - Each farmer gets Rs 5,000 per acre per crop season without any ceiling on the number of acres held.
  - This grant helps farmers to cover the expenses on input requirements such as seeds, fertilizers, pesticides, and labour.
- The scheme does not cover landless or tenant farmers which is being demanded by the farmer bodies. The state government also faces problem of bringing the tenant farmers under the ambit of the scheme due to informal nature of the agreement.

#### PM-KISAN V/S RYUTHU BANDHU SCHEME

BASIS OF DIFFERENCE	RYUTHU BANDHU SCHEME	PM-KISAN
Type of Scheme	State Government Scheme	Central Sector Scheme – 100% funding from Government of India
Beneficiaries	Each Farmer irrespective of land holding (and not just families)	Small and Marginal Farmer Family
Identification	Rests on state government	State government
Benefits	Each Farmer to get 5000 per acre per crop season (without ceiling of land holding)	the Centre transfers an amount of <b>Rs 6,000 per year, in three equal instalments</b> irrespective of the land holdings





**SMILE (Support for Marginalised Individuals for Livelihood and Enterprise):**

Context – New scheme to support the marginalised

Concept –

- The **Ministry of Social Justice and Empowerment** has formulated a scheme “SMILE - Support for Marginalized Individuals for Livelihood and Enterprise”.
- SMILE includes **two sub-schemes** - ‘**Central Sector Scheme for Comprehensive Rehabilitation for Welfare of Transgender Persons**’ and ‘**Central Sector Scheme for Comprehensive Rehabilitation of persons engaged in the act of Begging**’.
- Financial allocation of **Rs 100 crores** for the period 2021-22 to 2025-26 for the scheme.
- This scheme covers several comprehensive measures including welfare measures for persons who are engaged in the act of begging.
- The focus of the scheme is extensively on rehabilitation, provision of medical facilities, counselling, basic documentation, education, skill development, economic linkages and so on.
- The scheme would be implemented with the support of State/UT Governments/Local Urban Bodies, Voluntary Organizations, Community Based Organizations (CBOs), institutions and others.
- Scheme provides for the use of the existing shelter homes available with the State/UT Governments and Urban local bodies for rehabilitation of the persons engaged in the act of Begging.
- In case of non-availability of existing shelter homes, new dedicated shelter homes are to be set up by the implementing agencies.

**Electric Vehicles:**

Context – EV to be under priority

Concept –

- An EV operates on an electric motor instead of an internal combustion engine and has a battery instead of a fuel tank.
- In general, EVs have low running costs as they have fewer moving parts and are also environmentally friendly.
- India is among a handful of countries that support the global EV30@30 campaign, which aims for at least 30% new vehicle sales to be electric by 2030.
- India’s advocacy of five elements for climate change — “Panchamrit” — at the COP26 in Glasgow is a commitment to the same.
- The government of India has taken various measures to develop and promote the EV ecosystem in the country such as:
  - The re-modeled Faster Adoption and Manufacturing of Electric Vehicles (FAME II) scheme
  - Production-Linked Incentive (PLI) scheme for Advanced Chemistry Cell (ACC) for the supplier side
  - The recently launched PLI scheme for Auto and Automotive Components for manufacturers of electric vehicles.

**FAME India Scheme**

- FAME India is a part of the National Electric Mobility Mission Plan. Main thrust of FAME is to encourage electric vehicles by providing subsidies.
- The FAME India Scheme is aimed at incentivising all vehicle segments.

**Two phases of the scheme:**

- Phase I: started in 2015 and was completed on 31st March, 2019
- Phase II: started from April, 2019, will be completed by 31st March, 2022
- The scheme covers Hybrid & Electric technologies like Mild Hybrid, Strong Hybrid, Plug in Hybrid & Battery Electric Vehicles.
- Monitoring Authority: Department of Heavy Industries, the Ministry of Heavy Industries and Public Enterprises.
- Fame India Scheme has four focus Areas:
  - Technology development
  - Demand Creation
  - Pilot Projects
  - Charging Infrastructure

**Objectives of FAME Scheme:**

- Encourage faster adoption of electric and hybrid vehicles by way of offering upfront Incentive on purchase of Electric vehicles.
- Establish a necessary charging Infrastructure for electric vehicles.
- To address the issue of environmental pollution and fuel security.



**Salient Features of Phase II:**

- Emphasis on electrification of the public transportation that includes shared transport.
- This phase aims to support, through subsidies, approximately 7000 e-Buses, 5 lakh e-3 Wheelers, 55000 e-4 Wheeler Passenger Cars and 10 lakh e-2 Wheelers.
- In 3-Wheel (W) and 4-Wheel (W) segment incentives will be applicable mainly to vehicles used for public transport or registered for commercial purposes.
- In the 2-Wheel (W) segment, the focus will be on the private vehicles.
- To encourage advanced technologies, the benefits of incentives will be extended to only those vehicles which are fitted with advanced batteries like a Lithium Ion battery and other new technology batteries.
- The scheme proposes for establishment of charging infrastructure, whereby about 2700 charging stations will be established in metros, other million plus cities, smart cities and cities of Hilly states across the country so that there will be availability of at least one charging station in a grid of 3 km x 3 km.
- Establishment of Charging stations are also proposed on major highways connecting major city clusters.
- On such highways, charging stations will be established on both sides of the road at an interval of about 25 km each.

OPTIMIZE IAS

## NATIONAL ORGANISATIONS

### Indian Broadcasting and Digital Foundation (IBDF):

Context – No coercive action against digital media without our approval, says Madras HC

Concept –

- The Madras High Court asked the central government not to take any coercive action against digital media companies that are members of Indian Broadcasters and Digital Media Foundation, under key provisions of the new IT Rules, 2021, without seeking its permission.

### About Indian Broadcasting and Digital Foundation (IBDF)

- IBDF is a **unified representative body of the television broadcasters** in India.
- The organisation was founded in the year 1999. Over 250 Indian television channels are associated with it.
- Recently, in May, 2021, The **Indian Broadcasting Foundation (IBF)**, the **apex body of broadcasters**, was expanded to cover digital streaming platforms and **renamed** as the Indian Broadcasting and Digital Foundation (IBDF).
- The move brought the broadcasters and OTT (over-the-top) platforms, which had seen a substantial jump in their viewership base after the pandemic, under one roof.
- IBDF also formed a self-regulatory body named as **Digital Media Content Regulatory Council (DMCRC)** for digital OTT platforms.
  - DMCRC is a second-tier mechanism at the appellate level and is similar to Broadcast Content Complaint Council (BCCC), which IBF had implemented for the linear broadcasting sector way back in 2011.
  - The IBDF is the parent organisation of the **Broadcasting Content Complaints Council (BCCC)** which was set up in the year 2011. The BCCC examines content-related complaints relating to all non-news general entertainment channels in India.

### The Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021

- Social media intermediaries, with registered users in India above a notified threshold, have been classified as significant social media intermediaries (SSMIs).
  - SSMIs are required to observe certain additional due diligence such as appointing certain personnel for compliance, enabling identification of the first originator of the information on its platform under certain conditions, and deploying technology-based measures on a best-effort basis to identify certain types of content.
- The Rules prescribe a framework for the regulation of content by online publishers of news and current affairs content, and curated audio-visual content.
- All intermediaries are required to provide a grievance redressal mechanism for resolving complaints from users or victims. A three-tier grievance redressal mechanism with varying levels of self-regulation has been prescribed for publishers.

#### **SOCIAL MEDIA**

- Identify 'first originator' of content that authorities consider anti-national
- Appoint grievance officer, resolve complaints in 15 days
- File monthly compliance report on complaints received, action taken

#### **DIGITAL NEWS**

- Follow Press Council of India, Cable TV Networks (Regulation) Act norms.
- Self-regulatory bodies to oversee adherence to Code of Ethics
- I&B Ministry to form panel, oversight mechanism

#### **OTT PLATFORMS**

- Self-classify content into five age-based categories: U (universal), U/A 7+ (years), U/A 13+, U/A 16+, and A.

- Parental locks for any content classified as U/A 13+ or above.
- Age verification mechanism for content classified as 'A' (adult)

### Digital News Publishers Association (DNPA)

- It is a 13-member collective of the country's biggest news media companies.
- DNPA is an organisation of the digital arms of leading media companies of the country, representing both print and television entities.



- Formed in 2018, the DNPA includes: IE Online Media Services of The Indian Express Group, ABP Network, Amar Ujala, Dainik Bhaskar Corp, Express Network, HT Digital Streams, Jagran Prakashan, Lokmat Media, NDTV Convergence, TV Today Network, The Malayala Manorama, Times Internet Limited and Ushodaya Enterprises.

**Wildlife Crime Control Bureau:**

Context – Protecting wildlife: 2,054 cases registered in three years

Concept –

- Wildlife Crime Control Bureau (WCCB) is a statutory body established by the Government of India under the Ministry of Environment, Forest and Climate Change to combat organised wildlife crime.
- The Wild Life (Protection) Amendment Act, 2006 provisions came in to force on 4 September 2006. It became operational in the year 2008.
- WCCB won the prestigious 2010 Clark R. Bavin Wildlife Law Enforcement Awards for its outstanding work on wildlife law enforcement in the country.
- UNEP has also awarded WCCB with Asia Environment Enforcement Award, 2018.
- WCCB is also partnering with United Nations University and CIESIN-Earth Institute at Columbia University through the Wildlife Enforcement Monitoring System Initiative.
- The Bureau has its headquarters in New Delhi.
- Wildlife Crime Control Bureau is designated nodal agency for CITES related enforcement.
- Under the Wild Life (Protection) Act, 1972, WCCB is mandated to
  - collect and collate intelligence related to organized wildlife crime;
  - disseminate the same to State and other enforcement agencies so as to apprehend the criminals;
  - to establish a centralized wildlife crime data bank;
  - co-ordinate actions by various agencies in connection with the enforcement of the provisions of the Act;
  - assist international organizations & foreign authorities to facilitate wildlife crime control;
  - capacity building of the wildlife crime enforcement agencies;
  - assist State Governments to ensure success in prosecutions related to wildlife crimes; and
  - advise the Government of India on issues relating to wildlife crimes.
- It also assists and advises the customs authorities in inspection of the consignments of flora & fauna as per the provisions of the Wild Life Protection Act, Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and Export Import (EXIM) Policy governing such an item.

**Some of the operations conducted by WCCB –**

- Operation “Save Kurma”** from 2016-2017 to focus on the poaching, transportation and illegal trade of live turtles and tortoises.
- “Operation Turtshield-I”** from 2019-2020 and **“Operation Turtshield-II”** (2020-2021) was taken up to tackle the illegal trade of live turtles.
- “Operation Softgold”** was undertaken from 2018-2019 to tackle illegal trade in Shahtoosh shawls (made from Chiru wool).

**TRIBES IN NEWS:****Greater Tipraland:**

Context – Several tribal outfits in Tripura have joined hands to push their demand for a separate state for indigenous communities in the region, arguing that their “survival and existence” was at stake.

Concept –

- The parties are demanding a separate state of ‘Greater Tipraland’ for the indigenous communities of the north-eastern state. They want the Centre to carve out the separate state under Article 2 and 3 of the Constitution.
- Among the 19 notified Scheduled Tribes in Tripura, **Tripuris (aka Tipra and Tiprasas) are the largest.**
- According to the 2011 census, there are at least 5.92 lakh Tripuris in the state, followed by Reangs (1.88 lakh) and Jamatias (83,000).

**What does the Constitution say?**

- Article 2 of the Constitution** deals with admission or establishment of new states. “Parliament may by law admit into the Union, or establish, new States on such terms and conditions, as it thinks fit,” it states.



- **Article 3** comes into play in the case of “formation of new States and alteration of areas, boundaries or names of existing States” by the Parliament.

**How did the demand originate?**

- Tripura was a kingdom ruled by the Manikya dynasty from the late 13th century until the signing of the Instrument of Accession with the Indian government on October 15, 1949.
- The demand mainly stems from the anxiety of the indigenous communities in connection with the change in the demographics of the state, which has reduced them to a minority.
- It happened due to the displacement of Bengalis from the erstwhile East Pakistan between 1947 and 1971.

**What has been done to address the grievances of indigenous communities?**

- The Tripura Tribal Areas Autonomous District Council (TTADC) was formed under the sixth schedule of the Constitution in 1985 to ensure development and secure the rights and cultural heritage of the tribal communities.
  - The TTADC, which has legislative and executive powers, covers nearly two-third of the state’s geographical area.
  - The council comprises 30 members of which 28 are elected while two are nominated by the Governor.
- Also, out of the 60 Assembly seats in the state, 20 are reserved for Scheduled Tribes.

**Kurumba Community:**

Context – The Aadhimalai Pazhangudiyinar Producer Company Ltd is run by the tribal people of the Nilgiris, with 1609 indigenous shareholders. Almost 90 percent of employees are tribal women.

The farmer producer company that started as a small tribal collective has bagged this year’s UN Equator Prize.

Concept –

- They are a designated Scheduled Tribe in the Indian states of Karnataka, Kerala and Tamil Nadu.
- The Kurumbar are one of the earliest known inhabitants of the Western Ghats, who are engaged in the collection and gathering of forest produce, mainly wild honey and wax.
- The members of this community are short, have dark skin, and have protruding foreheads.
- Kurumbar believe in Hinduism. The main deity of the tribe is Lord Shiva under the name of Bhairava. They also worship animals, birds, trees, rock hillocks, and snakes, along with the other Hindu deities.
- An indigenous community in south India, Kurumba is listed by the government of India as one of the Particularly Vulnerable Tribal Groups or PVTGs in India.

**Sumi Naga tribe:**

Context – The Sumi Naga tribe has developed a whole portfolio of ecological indicators to help predict weather.

Concept –

- The 'Sümi Naga' are the major ethnic group among nagas in Nagaland, India.
- Sümi Naga tribe practiced Aki Kiti (semi-contact combat sport characterized by kicking and blocking solely using the soles of the feet) and were headhunters as every other Naga tribe.
- The Sümis practised headhunting like other Naga peoples before the arrival of the Christian missionaries and their subsequent conversion to Christianity.
- The Sümi is one of the recognised scheduled tribes of India.
- Tuluni is a festival of great significance for the Sümi.
- Ahuna is a traditional post-harvest festival of the Sümis.

**Chakma-Hajong:**

Context – PMO takes note of Chakma-Hajong census

Concept –

- Chakmas and Hajongs were originally residents of the Chittagong Hill Tracts of erstwhile East Pakistan, who had to flee when their land was submerged by the Kaptai dam project, on the Karnaphuli River, Bangladesh, in the 1960s.
- The Chakmas, who are Buddhist, and Hajongs, who are Hindus, also faced religious persecution in East Pakistan (now Bangladesh).
- They are found in northeast India, West Bengal, Bangladesh and Myanmar.
- Chakmas and Hajongs entered India through the then Lushai Hills district of Assam (now Mizoram).
- Within the Chittagong Hill Tracts, the Chakmas are the largest ethnic group and make up half of the region's population.



- The Chakma possess strong genetic affinities to Tibeto-Burman groups in Northeast India and to East Asian populations.
- In Assam Chakma people have scheduled tribe status.
- They also have high frequencies of mainland Indian genetic ancestry.
- Hajong are the fourth largest ethnicity in Meghalaya.
  - Hajongs are predominantly rice farmers and have the status of a Scheduled Tribe in India (Assam and Meghalaya).
- While some stayed back with the Chakmas already in the district, the Indian government moved a majority of Chakmas and Hajong to the North East Frontier Agency (NEFA), which is now Arunachal Pradesh.
- At present, they do not possess citizenship and land rights, but are provided basic amenities by the state government.
- In 2015, the Supreme Court directed the Centre to grant citizenship to Chakma and Hajongs who had migrated from Bangladesh in 1964-69.
- They did not directly come into the ambit of the Citizenship Amendment Act, 2019 (CAA) because Arunachal Pradesh is among the states exempted from the CAA since it has an Inner Line Permit to regulate entry of outsiders.
- Currently, Chakmas and Hajongs are citizens by birth as per Section 3(1) of the Citizenship Act and the eligible portion of their population exercise the right to vote as citizens of India (they were given voting rights in 2004).

### Konyak tribe:

Context – At the centre of the violence which followed the killing of six civilians in Oting village of Mon district in Nagaland on Saturday evening, and which led to the killing of eight more civilians, are the Konyaks – among the largest tribes in the state.

Concept –

- With a population of roughly 3 lakh, the area inhabited by the Konyaks extends into Arunachal Pradesh, with a sizeable population in Myanmar as well.
- Known to be one of the fiercest warrior tribes in Nagaland, the Konyaks were the last to give up the practice of head-hunting – severing heads of enemies after attacking rival tribes – as late as the 1980s.
- The Konyaks are one of the major Naga ethnic groups.
- In Nagaland, they inhabit the Mon District—also known as 'The Land of The Anghs'.
  - The Anghs/Wangs are their traditional chiefs whom they hold in high esteem. Facial tattoos were earned for taking an enemy's head.
- Other unique traditional practices that set the Konyaks apart are: gunsmithing, iron-smelting, brass-works, and gunpowder-making.
- They are also adept in making 'janglaü' (machetes) and wooden sculptures.

**Nagaland has 16 recognised tribes** — Angami, Ao, Chakhesang, Chang, Dimasa Kachari, Khiamniungan, Konyak, Kuki, Lotha, Phom, Pochury, Rengma, Sangtam, Sumi, Yimchungrü and Zeliang.

### GI tag sought for Apatani textile product:

Context – GI tag sought for Apatani textile product

Concept –

- An application seeking Geographical Indication (GI) tag for the Arunachal Pradesh Apatani textile product has been filed by a firm, Zeet Zeero Producer Company Ltd.
- The Apatani weave comes from the Apatani tribe living at Ziro, the headquarters of Lower Subansiri district.
- The woven fabric of this tribe is known for its geometric and zigzag patterns and for its angular designs.
- Apatani community weaves its own textiles for various occasions, including rituals and cultural festivals.
- The tribe predominantly weaves shawls known as jig-jiro, and jilan or jackets called supuntarii.
- The people use leaves and plant resources for organic dyeing of the cotton yarns in their traditional ways. And only women folk are engaged in weaving.



### MISCELLANEOUS

#### White Revolution:

Context – November 26, 2021 was celebrated in Anand, Gujarat as the 100th birth anniversary of Verghese Kurien, the leader of India's 'white revolution', which increased the incomes and the wealth of millions of cattle-owning small farmers in India, many of them women.

Concept –

- **Operation Flood**, launched on 13 January 1970, was the **world's largest dairy development program** and a landmark project of India's **National Dairy Development Board (NDDB)**.
  - In July 1970 with technical assistance from the United Nations Development Programme (**UNDP**) and the Food and Agriculture Organisation (**FAO**), the programme was launched as Operation Flood (OF).
- It transformed India from a milk-deficient nation into the **world's largest milk producer**, surpassing the United States of America in 1998 with about 22.29 percent of global output in 2018.
- Within 30 years, it doubled the milk available per person in India and made **dairy farming India's largest self-sustainable rural employment generator**.
- The process has since been termed as the "**White Revolution**".
- If there was one technological breakthrough that revolutionized India's organized dairy industry, it was the **making of skim milk powder out of buffalo milk**.
- The **Anand Pattern Experiment at Amul**, a dairy co-operative, was the engine behind the success of the program.
- **Dr Verghese Kurien**, the chairman and founder of Amul, was named the Chairman of NDDB **by Prime Minister Lal Bahadur Shastri**.
  - Dr Verghese Kurien is known as the father of the White Revolution in India.
  - Under him many important institutions were established like the **Gujarat Cooperative Milk Marketing Federation Ltd** and the National Dairy Development Board (NDDB).
- The White Revolution was started by the NDDB in the 1970s and the bedrock of the revolution has been the **village milk producers' cooperatives**.
- Currently, **India is the world's largest milk producer**, with 22% of global production.

#### National Dairy Development Board (NDDB)

- The National Dairy Development Board (NDDB) is a **statutory body** set up by an Act of Parliament of India.
- It is under the jurisdiction of **Ministry of Fisheries, Animal Husbandry and Dairying**, Government of India.
- The main office is in Anand, Gujarat with regional offices throughout the country.
- The Board was created to **finance, support** and support producer-owned and controlled organisations. Its programmes and activities seek to **strengthen farmer cooperatives** and support national policies that are favourable to the growth of such institutions.
- Cooperative principles and cooperative strategies are fundamental to the board's efforts.
- It was **founded by Dr. Verghese Kurien**.
- The National Dairy Development Board was created in 1965, **fulfilling the desire of the then prime minister of India — the late Lal Bahadur Shastri** to extend the success of the Kaira Cooperative Milk Producers' Union (Amul) to other parts of India.

#### Agro climatic zones in India:

Context – Punjab's six agro-climatic zones might hold key to its diversification conundrum

Concept –

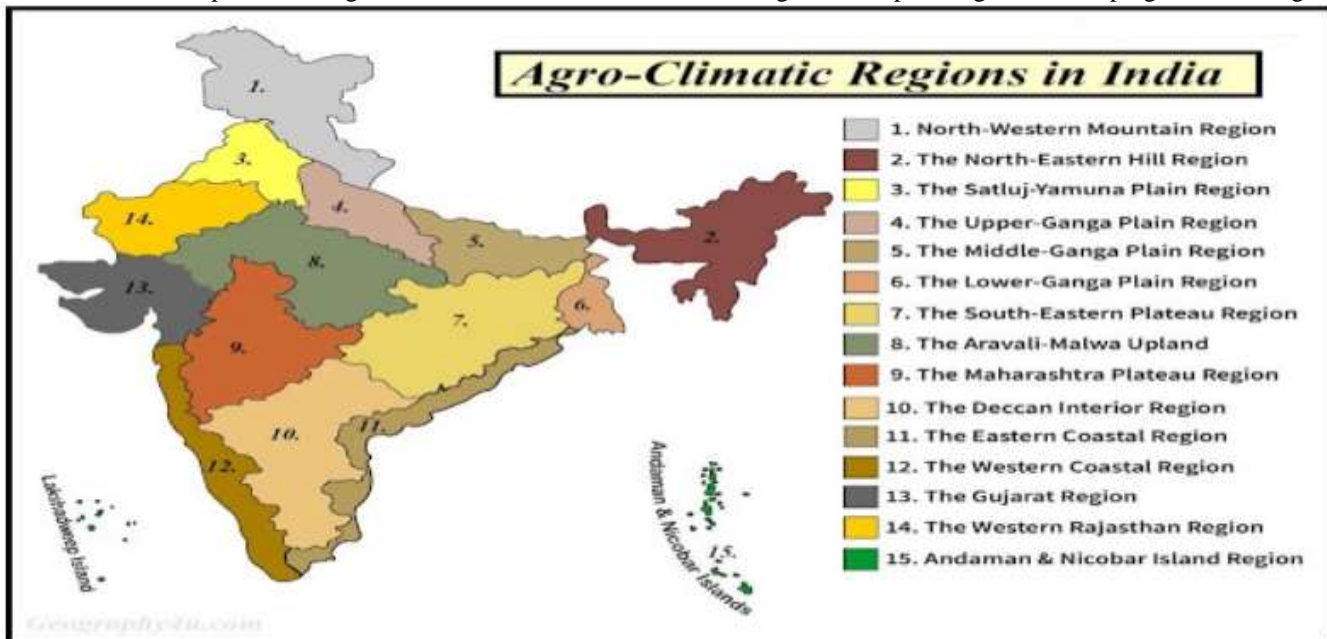
#### What is Agro climatic zone?

- An "Agro-climatic zone" is a land unit in terms of major climates, suitable for a certain range of crops and cultivars.
- The planning aims at scientific management of regional resources to meet the food, fiber, fodder and fuel wood without adversely affecting the status of natural resources and environment.
- Agro-climatic conditions mainly refer to soil types, rainfall, temperature and water availability which influence the type of vegetations.



**Agro-climatic regions by the erstwhile Planning Commission:**

- The Planning Commission, as a result of the mid-term appraisal of the planning targets of the Seventh Plan, has divided the country into fifteen broad agro-climatic zones based on physiography, soils, geological formation, Climate, cropping patterns, and development of irrigation and mineral resources for broad agricultural planning and developing future strategies.



- Zone 1 – Western Himalayan Region: Jammu and Kashmir, Uttar Pradesh
- Zone 2 – Eastern Himalayan Region: Assam, Sikkim, West Bengal and all North-Eastern states
- Zone 3 – Lower Gangetic Plains Region: West Bengal
- Zone 4 – Middle Gangetic Plains Region: Uttar Pradesh, Bihar
- Zone 5 – Upper Gangetic Plains Region: Uttar Pradesh
- Zone 6 – Trans-Gangetic Plains Region: Punjab, Haryana, Delhi and Rajasthan
- Zone 7 – Eastern Plateau and Hills Region: Maharashtra, Uttar Pradesh, Orissa and West Bengal
- Zone 8 – Central Plateau and Hills Region: MP, Rajasthan, Uttar Pradesh
- Zone 9 – Western Plateau and Hills Region: Maharashtra, Madhya Pradesh and Rajasthan
- Zone 10 – Southern Plateau and Hills Region: Andhra Pradesh, Karnataka, Tamil Nadu
- Zone 11 – East Coast Plains and Hills Region: Orissa, Andhra Pradesh, Tamil Nadu and Pondicherry
- Zone 12 – West Coast Plains and Ghat Region: Tamil Nadu, Kerala, Goa, Karnataka, Maharashtra
- Zone 13 – Gujarat Plains and Hills Region: Gujarat
- Zone 14 – Western Dry Region: Rajasthan
- Zone 15 – The Islands Region: Andaman and Nicobar, Lakshadweep

**Total Solar Eclipse:**

Context – Total solar eclipse will bring 2 minutes of darkness to Antarctica's months of endless daylight

Concept –

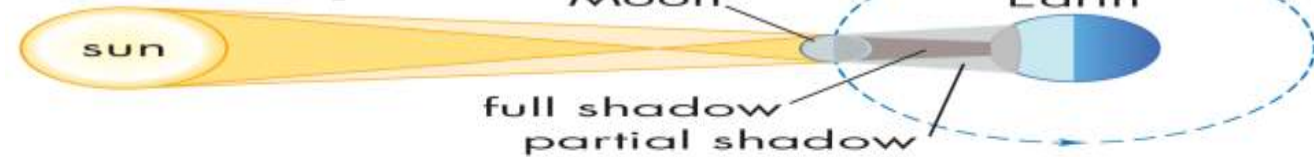
- Eclipses are divided into two major types: Solar and Lunar.
- Solar eclipses** occur when the Sun, Moon and earth all fall in the same line so that the Moon passes between Earth and the Sun, leaving a moving region of shadow on Earth's surface.
- Lunar eclipses** occur when the Sun, Moon and earth all fall in the same line and Earth passes between the Sun and the Moon, casting a shadow on the Moon.







### solar eclipse



### lunar eclipse



### Milletts:

Context – To address multi-pronged health issues such as obesity and under-nutrition, the United Nations General Assembly passed a resolution sponsored by India and supported by more than 70 countries, declaring 2023 as the International Year of Millets .

Concept –

- To address multi-pronged health issues such as obesity and under-nutrition, the United Nations General Assembly passed a resolution sponsored by India and supported by more than 70 countries, declaring **2023 as the International Year of Millets**.
- Millets are often referred to as Superfood and its production can be seen as an approach for sustainable agriculture and a healthy world.
- These are essential climate resilient staple food crops grown in dryland agriculture that has occupied 68 per cent of the area under cultivation and produced 44 per cent of food requirements.
- Cultivating millets requires less water than rice, sugarcane and wheat, and will be suitable for small farmers.
- India is the largest consumer and accounts for 38 per cent of global demand.
- The three major millet crops currently grown in India are jowar (sorghum), bajra (pearl millet) and ragi (finger millet).
- Along with that, India grows a rich array of bio-genetically diverse and indigenous varieties of “small millets” like kodo, kutki, chenna and sanwa.
- Major producers include Rajasthan, Andhra Pradesh, Telangana, Karnataka, Tamil Nadu, Maharashtra, Gujarat and Haryana.

### Government Initiatives to promote consumption of Millets –

- The government included the cereals in the (Targeted) Public Distribution System under the sub-mission ‘Nutri-cereals’ in 2018.
- Millets are also covered in the Price Support Scheme and the MSP of pearl and small millets range between ₹2,000 and ₹3,150 a quintal.
- The Union Agriculture Ministry, in April 2018, declared millets as “Nutri-Cereals”, considering their “high nutritive value” and also “anti-diabetic properties”.
- 2018 was also observed as ‘National Year of Millets’.





### Limiting Antibiotics Use in Crops:

Context – The registration committee (RC) under the Central Insecticides Board and Registration Committee (CIBRC) August 2021 approved the recommendation for phasing out the use of streptomycin and tetracycline, according to the availability of alternatives.

Concept –

- The registration committee (RC) under the Central Insecticides Board and Registration Committee (CIBRC) August 2021 approved the recommendation for phasing out the use of streptomycin and tetracycline, according to the availability of alternatives.
- Streptomycin is a critically important antimicrobial while tetracycline belongs to the class of highly important antimicrobials, according to the World Health Organization.
- The decision comes amid concerns over antimicrobial resistance observed in various crops, particularly to streptomycin, which is used in the treatment of tuberculosis (TB) which now co exists with HIV infection, and to tetracycline antibiotics, which find application in treatment of various kind of bacterial infections.
  - CSE had also highlighted the role of streptomycin in treatment of previously treated TB patients, multidrug-resistant TB and some cases of TB meningitis (brain TB).
- The RC further directed the Monitoring of Pesticide Residues at National Level (MPRNL) project to conduct studies on maximum residue limit (MRL) to generate data on major crops in which label claim for antibiotics is available.
  - The guideline also urged CIBRC to take up the matter related to fixation of MRL fixation with FSSAI.
- The above developments follow prior developments made in May 2020, when the RC had accepted the recommendation that use of streptomycin + tetracycline should be completely banned with immediate effect on those crops where alternatives are available.
- Where no alternatives are available, it will be used only on crops strictly following the label claim and should be phased out by the end of 2022. The diseases can also be managed by using integrated pest management and other practices.
- In a subsequent meeting in February 2021, the RC had also noted that the use of streptomycin and tetracycline is approved only on eight crops so far — apple, bean, citrus, potato, tobacco, tomato, paddy and tea — against various diseases. But alternatives of streptomycin and tetracycline are very limited and available only for three crops.

### Maitri Divas:

Context – India would further “expand and deepen” ties with Bangladesh, Prime Minister Narendra Modi said on Monday, marking Maitri Divas that commemorates the day when India recognised Bangladesh as an independent country in 1971

Concept –

- Maitri Divas commemorates the day when India recognised Bangladesh as an independent country in 1971.
- The war to liberate Bangladesh began on December 3, 1971 .
- It ended with the signing of the Instrument of Surrender by Pakistani General A.A.K. Niazi on December 16.
- Three days after the beginning of the war, the Indian Government recognised Bangladesh as an independent nation.



**Asafoetida:**

Context – As Himalayan farmers grow the country's first asafoetida plants, changing weather threatens to play spoilsport

Concept –

- It is a herbaceous plant of the umbelliferae family. It is a perennial plant whose oleo gum resin is extracted from its thick roots and rhizome.
- The plant stores most of its nutrients inside its deep fleshy roots.
- It is endemic to Iran and Afghanistan, which are also the main global suppliers of it.
- It is very popular in India and is used in cooking.
- Climatic Condition: It thrives in dry and cold desert conditions. The plant can withstand a maximum temperature between 35 and 40 degree, whereas during winters, it can survive in temperatures up to minus 4 degree.
- During extreme weather, the plant can get dormant.
- Regions with sandy soil, very little moisture and annual rainfall of not more than 200mm are considered conducive for heeng cultivation.
- Properties: It has medicinal properties, including relief for digestive, spasmodic and stomach disorders, asthma and bronchitis.
  - The herb is used to help with painful or excessive bleeding during menstruation and premature labour.

**India's Heeng Cultivation Project**

- Heeng is not cultivated in India. India imports raw heeng worth from Iran, Afghanistan and Uzbekistan.
- In June 2020, the CSIR-Institute of Himalayan Bioresource Technology (IHBT), Palampur inked a Memorandum of Understanding with the agriculture ministry of Himachal Pradesh to jointly cultivate the heeng.
- The agriculture ministry has identified four locations in the Lahul-Spiti valley and has distributed heeng seeds to seven farmers in the region.
- However, the challenge for the scientists is that heeng seeds remain under a prolonged dormant phase and the rate of seed germination is just 1%.

**Green-Ag project:**

Context – The switch to chemical-based farming and other faulty agricultural practices have imperilled Odisha's Similipal biosphere reserve.

Concept –

- The continuous exposure to faulty agricultural practices has garnered policymakers' attention, and Similipal is among the five landscapes chosen for the Food and Agricultural Organisation's Green-Ag project which was announced in 2018 and launched in Similipal in October 2021.
- Funded by Global Environment Facility for six years, the project primarily aims to transform agricultural practices while ensuring conservation of biodiversity and forest landscapes.
- The other four regions include Chambal in Madhya Pradesh, Dampa in Mizoram, desert areas in Jaisalmer and Barmer in Rajasthan and Corbett-Rajaji Tiger Reserve, Uttarakhand.
- Organic farming and agrobiodiversity conservation are among a portfolio of nature-based solutions proposed in the Green-Ag project.
- The Green-Ag project is looking to build a multi-sectoral approach to develop synergy between the agriculture and allied areas with forest and environment, at the national, state and the district level.
- Key missions that will be targeted for strengthening include the National Mission on Sustainable Agriculture; National Livestock Mission; National Food Security Mission; National Initiative on Climate-resilient Agriculture, National Mission for Horticulture and Rashtriya Krishi Vikas Yojana.

**Mosquitoes and Climate Change:**

Context – In a warming world, viruses and their mosquito vectors are fast acquiring traits to gang up on humans

Concept –

- Aedes mosquitoes are originally found in tropical and subtropical parts of the world. Though most serious diseases such as dengue, chikungunya, yellow fever and zika are transmitted by just two species — Aedes aegypti and Aedes albopictus — these are fast emerging throughout the world as a public health threat.
- A aegypti is native to sub-Saharan Africa, and in its native environment it lives in tree holes and small pools of water and bites non-human primates.
- Similarly, A albopictus is native to tropical southeast Asia, where it was originally a forest species that fed on wild animals.



- While human-made conditions have made it easy for the mosquitoes to spread over larger areas, global warming has further aided in their proliferation as warm and wet environments are excellent places for mosquitoes to breed.
- Aegypti is heat-tolerant and the A albopictus is heat-limited.

### Fertility Rate Decline in India:

Context – India's National Family Health Survey 2019-21 (NFHS-5) recorded a decline in the total fertility rate

Concept –

- In a milestone, India's National Family Health Survey 2019-21 (NFHS-5) recorded a decline in the total fertility rate (the average children a woman has) from 2.2 in the previous survey (2015-16) to 2 in the latest one.
  - And here too, it was 1.6 in urban areas and 2.1 in a rural setting.
- The dip in fertility is being attributed to a combination of factors, including better contraception initiatives and health and family welfare schemes from the Government.
  - But a key factor is the education of the girl child and efforts to improve overall health and nutrition.
- Across geographies there is a declining trend, but experts believe that India may still be on the path to becoming the most populous nation.
- India has achieved replacement level fertility (pegged at 2.1), defined as the level at which the decline on a sustained basis would result in a generation replacing itself.
- According to reports, five States with TFR above 2, were Bihar, Meghalaya, Uttar Pradesh, Jharkhand and Manipur.
- TFR was the lowest in this survey in West Bengal, at 1.6.

### Life Expectancy:

Context – Life expectancy reduced in 2020 after steady increase for 15 years: Study

Concept –

- Life Expectancy is an estimate of the average number of additional years that a person of a given age can expect to live.
- Life expectancy, a widely used metric of mortality, is an indication of how long on average people can expect to survive if the age specific mortality rates of that year remain constant for the remainder of their life.
- Russia recorded the largest drop in life expectancy — for men it fell by 2.33 years and for women by 2.14 years. This was followed by the United States.
- The reduction of life expectancy across the globe during the first year of the novel coronavirus disease (COVID-19) pandemic was alarming, reversing progress made in past years, according to a new study.
- Prior to the COVID-19 pandemic, all 37 countries in the study recorded an increase in life expectancy between 2005 and 2019. Only in 2015 was there an anomaly, where life expectancy dropped during the influenza outbreak.

### Life Expectancy in India

- India's life expectancy (for a child born in 2021) which is 69 years and 4 months is less than the world's average lifespan of 72.81 years.
- According to the scientists from a city-based International Institute for Population Studies (IIPS), Covid-19 pandemic has affected the lives of people across the world.
- In the year 2019, life expectancy at birth was 69.5 years for men while 72 years for women. This is decreased to 67.5 years for men and 69.8 years for women in the year 2020.

### Indigenous breeds of Cattle:

Context – Artificial Insemination

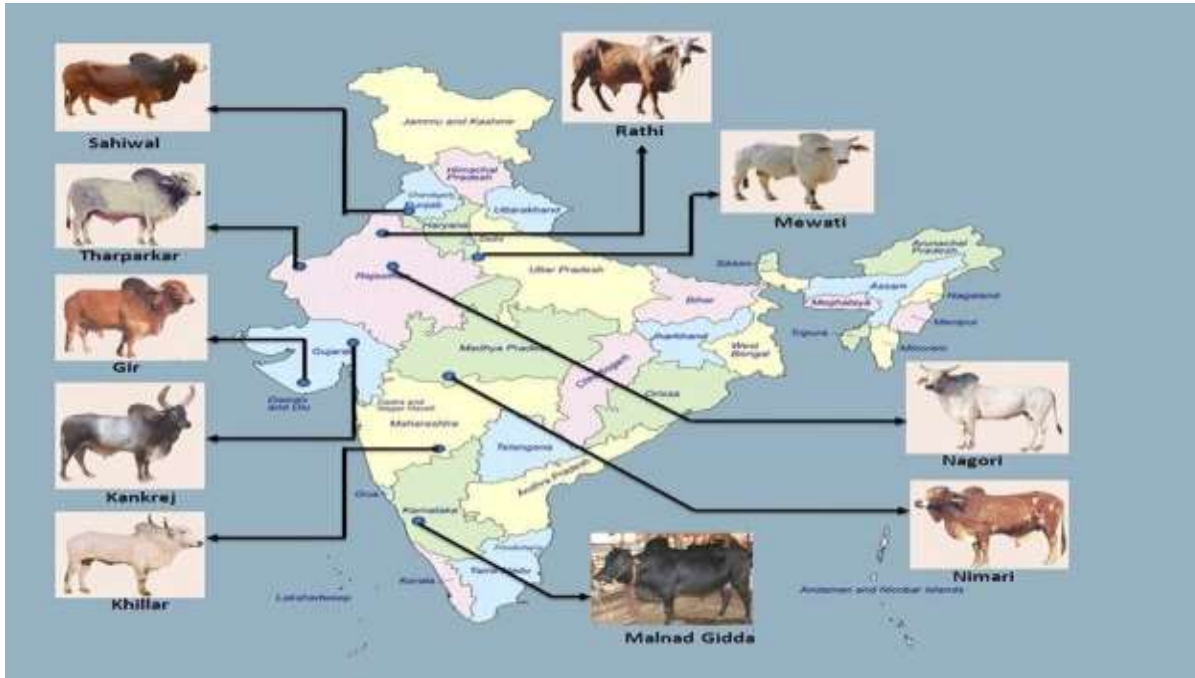
Concept –

#### Indigenous dairy breeds of cattle

Name	Origin
Gir	Originated in Gir forests of South Kathiawar in Gujarat.
Red Sindhi	This breed mostly found in Karachi and Hyderabad district of Pakistan.
Sahiwal	Originated in Montgomery district in present Pakistan
Deoni	Originated in Marathwada region of Maharashtra state and adjoining part of Karnataka and western Andhra Pradesh states.

#### Map of India showing the distribution of some breeds of cattle -





### Nationwide Artificial Insemination Programme (NAIP)

- The NAIP is a campaign mode genetic upgradation program covering all breeds of bovines to enhance the milk production using low cost breeding technology.
- It aims for improving genetic merit of milch animals with high quality seed.
- The gestation period for getting the benefits from the AI bovine is approximately 3 years.
- The aim of the program is to inseminate over 1 crore bovines in 6 months.

### **Sahitya Akademi Award:**

Context – Namita Gokhale, Tamil writer Ambai win Sahitya Akademi Award

Concept –

- Sahitya Akademi award established in 1954, is a **literary honour** that is conferred annually by **Sahitya Akademi**, India's National Academy of letters.
- Akademi gives **24 awards annually** to literary works in the languages it has recognized and an equal number of awards to literary translations from and into the languages of India.
- Besides the **22 languages** enumerated in the Constitution of India, the Sahitya Akademi has recognised **English and Rajasthani** as languages in which its programme may be implemented.
- The Sahitya Akademi award is the **second-highest literary honour** by the Government of India, after the Jnanpith award.
- Tamil feminist writer Ambai, Kannada biographer DS Nagabhushan, Telugu poet Goreti Venkanna, and English author Namita Gokhale, among others, are this year's winners of the Sahitya Akademi Award.

### Criteria for Choosing Awardee

- The author must be of Indian Nationality.
- Book/work eligible for the award must be an outstanding contribution to the language and literature to which it belongs.
- When equal merit for books of two or more are found, certain criteria like total literary contribution and standing of authors shall be taken into consideration for declaring award.

### **Covid Graded Response Action Plan (GRAP):**

Context – Yellow alert issued in Delhi

Concept –

- As per the plan, the restrictions will be based on three parameters—positivity rate, cumulative active cases and oxygen beds in the hospitals.



- The restrictions will come under Yellow, Amber, Orange and Red alerts.
- Yellow would be the lowest level of restriction while Red would be the highest.
- Under Red, the entire city will come under a complete lockdown.
- As for Orange alert, most of the economic activities and social gatherings/activities and public transport facilities will come to halt.

Alert	Conditions
Yellow alert	The Yellow alert will come into force if the positivity rate remains over 0.5 per cent for two days straight, or say the cumulative fresh cases touches 1,500 or average occupancy of oxygen beds in hospitals remains 500 for a week.
Amber alert	With the Amber alert, the city enters the next phase of restrictions if the test positivity rate remains over 1 per cent for two consecutive days, or the city witnesses 3,500 new cases in a week, or average oxygen bed occupancy remains over 700 over the course of a week.
Orange alert	Stricter restrictions will come in place as orange alert kicks in. The orange alert comes in when the city records 9,000 cases over a week's time or the average occupancy of oxygen hospital beds remains 1,000 for seven consecutive days.
Red alert	If the test positivity rate crosses 5 per cent for two consecutive days, or the city records 16,000 new cases in a week, a red alert will kick in. This will also happen if average occupancy of oxygen beds in hospitals remains 3,000 or above over a week.

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