



CURRENT AFFAIRS DECEMBER 2021

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Economic and Social Development

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1. Gram Ujala programme:

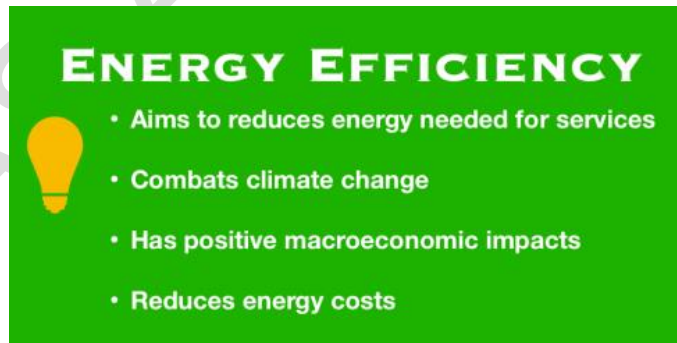
- Recently, Convergence Energy Services Limited (CESL), a wholly-owned subsidiary of Energy Efficiency Services Limited (EESL) has achieved a remarkable milestone of distributing 50 lakhs LED bulbs Gram Ujala programme.

Gram Ujala scheme:

- **Gram Ujala** was launched by the Government of India with the aim to raise awareness against climate change and to save electricity.
- Under the scheme, LED bulbs will be distributed at a highly subsidised rate at ₹10 across villages in five states of Bihar, Uttar Pradesh, Telangana, Andhra Pradesh and Karnataka.
- Residents can buy a maximum of 5 LED bulbs by paying for old 100 watts bulbs. The government will also install meters at these houses.
- The scheme is being implemented by Energy Efficiency Services Limited (EESL)'s subsidiary Convergence Energy Services Ltd (CESL).
- The programme will be financed entirely through carbon credits and will be the first such programme in India.

What is the expected impact of the scheme?

- The scheme will save 2025 million units (kWh) of electricity annually, while there will also be a reduction in carbon emissions by 16.5 lakh tons per annum. This will provide better lighting in homes at a cheaper rate.



What is CESL?

- **Convergence Energy Services Limited (CESL)** is a subsidiary of state-owned Energy Efficiency Services Limited, a joint venture of public sector companies under the Ministry of Power. CESL is focused on delivering clean, affordable, and reliable energy.

2. RBI's Card Tokenisation Rule:

- Recently, in a bid to make online payment transactions through credit and debit cards more safe and secured, the Reserve Bank of India (RBI) has ordered all online payment gateways, merchants and e-commerce companies to implement **tokenisation** of cards by their customers while making payments.
- Tokenisation means replacement of actual card details with an alternate code dubbed as "token". The token will be unique for a combination of card, token requestor and device. This token is used to do card transactions in contactless mode at point-of-sale terminals, code payments and quick response.

What is Card-on-File (CoF)?

- In CoF transaction, cardholder authorises a merchant to store his/her Mastercard or Visa payment details. The cardholder then authorises same merchant to bill the stored Mastercard or Visa account.
- As per the new rule that comes into effect from January 1, 2022, all merchants need to use encrypted tokens for doing transactions instead of credit and debit cards.

3. NITI Aayog-UN WFP agreement to diversify Food Basket:

- Recently, NITI Aayog and United Nations World Food Programme (UN WFP) have agreed to diversify the food basket. Both the organisation signed a Statement of Intent on December 20, 2021.

The partnership focuses to mainstream the millets and support India in taking a lead internationally in knowledge exchange amid the recognition of 2023 as an International Year of Millets.

- This partnership also aims to build resilient livelihoods for small-farmers and adaptation capacities towards climate change as well as transforming food systems.
- The Statement of Intent focuses on strategic and technical collaboration between both the parties, in order to strengthen climate resilient agriculture for enhanced food & nutrition security across India.

National Year of Millets:

- The Government of India had observed 2018 as a year of millets, to encourage and promote the millet production. GoI also spearheaded the resolution of UNGA, for declaring 2023 as International Year of Millets.

Governments have taken several steps to promote millets:

- Establishment of centre for Excellence,
- Integration of nutri-cereals with National Food Security Act and
- Establishment of Millet Mission in multiple states.
- Despite these steps, several challenges exist in terms of production, distribution and adaptability among consumers.

What can be done to fight the challenges?

- Under the distribution system, there is a need to shift the focus of food distribution programmes from 'calories fundamentalism' to "provide a more diversified food basket, such as coarse grains and millets for improving nutritional status among pre-school children and women of reproductive age. The partnership between NITI Aayog and WFP seeks to identify and address these challenges in an effective manner.
- NITI Aayog and UN WFP will jointly conduct following activities:
- Joint development of a compendium of good practices around millets.
- Provide technical support to scale up millets mainstreaming through intense engagement in select states with the help of state governments, IIMR & other associated institutions.

Why one should eat millets?

- Millets are gluten-free, highly nutritious and rich in dietary fibre. They are rich in micronutrients, including calcium, iron, phosphorus, etc. They are low in Glycemic Index (GI) as such don't cause huge spike in blood sugar. Millets should ideally be an integral part of our daily diet.

What are the Health benefits of Millets?

- Millets are anti-acidic
- Millets are gluten free
- Helps to prevent type 2 diabetes
- Effective in reducing blood pressure
- Reduces risk of gastrointestinal conditions like gastric ulcers or colon cancer
- Eliminate problems like constipation, excess gas, bloating and cramping
- Millet act as a probiotic feeding micro flora in our inner ecosystem.



4. Air India Stake by Tata Sons:

- Recently, the Competition Commission of India (CCI) approved the acquisition of Air India, Air India SATS Airport and Air India Express by Talace, a wholly owned subsidiary of Tata Sons.
- The Tata Group acquired 100 percent stake in the airline in a deal, which closed on January 27, for Rs 18,000 crore.

Competition Commission of India:

- **Competition Commission of India (CCI)** is a **statutory body** of the Government of India responsible for enforcing the Competition Act, 2002, it was duly constituted in March 2009.
- The Competition Commission is India's competition regulator, and an antitrust watchdog for smaller organizations that are unable to defend themselves against large corporations.
- The Monopolies and Restrictive Trade Practices Act, 1969 (MRTP Act) was repealed and replaced by the Competition Act, 2002, on the recommendations of Raghavan committee.
- The Commission consists of one Chairperson and six Members as per the Competition Act who shall be appointed by the Central Government.
- The commission is a quasi-judicial body which gives opinions to statutory authorities and also deals with other cases. The Chairperson and other Members shall be whole-time Members.
- **Eligibility of members:** The Chairperson and every other Member shall be a person of ability, integrity and standing and who, has been, or is qualified to be a judge of a High Court, or, has special knowledge of, and professional experience of not less than fifteen years in international trade, economics, business, commerce, law, finance, accountancy, management, industry, public affairs, administration or in any other matter which, in the opinion of the Central Government, may be useful to the Commission.

Functions and Role of CCI:

- To eliminate practices having adverse effect on competition, promote and sustain competition, protect the interests of consumers and ensure freedom of trade in the markets of India.
- To give opinion on competition issues on a reference received from a statutory authority established under any law and to undertake competition advocacy, create public awareness and impart training on competition issues.
- The **Competition Commission of India** takes the following measures to achieve its objectives:
 - Consumer welfare: To make the markets work for the benefit and welfare of consumers.
 - Ensure fair and healthy competition in economic activities in the country for faster and inclusive growth and development of the economy.
 - Implement competition policies with an aim to effectuate the most efficient utilization of economic resources.
 - Develop and nurture effective relations and interactions with sectoral regulators to ensure smooth alignment of sectoral regulatory laws in tandem with the competition law.
 - Effectively carry out competition advocacy and spread the information on benefits of competition among all stakeholders to establish and nurture competition culture in Indian economy.

5. Prompt Corrective Action (PCA) Framework for NBFCs:

- Recently, the **Reserve Bank of India (RBI)** has brought non-banking finance companies (NBFCs) under the ambit of prompt corrective action (PCA) framework.
- Under the PCA framework, NBFCs will face restrictions when parameters such as capital adequacy ratio, non-performing assets, and Tier 1 capital will fall below the stipulated levels.
- Banks are already covered under the framework.
- The PCA framework for NBFCs will be implemented from October 1, 2022, on the basis of financial position of NBFCs on or after March 31, 2022.
- Under the framework, the central bank has taken three indicators, namely, the **Capital to Risk Weighted Assets Ratio (CRAR)**, the tier I capital ratio and the **NET NPA RATIO (NNPA)** to delineate three risk thresholds.
- If an NBFC's position worsens on these parameters, then the entity will move higher on the risk profile.
- And as its risk profile deteriorates, the severity of the restrictions imposed by the RBI will increase. These begin with curbs on the distribution of dividend, restrictions on guarantees and taking on contingent liabilities of group companies, and requiring the promoters/shareholders to infuse equity in the entity and reduce leverage.
- At **high risk thresholds**, curbs will also be imposed on branch expansion, capital expenditure, and operating costs.
- Exit from the PCA framework and the easing of restrictions will be conditional upon the NBFC not breaching the risk thresholds for four continuous quarters.

When will PCA be imposed?

- PCA will be imposed when the net non-performing assets is in between:
 1. 6-9 percent (risk threshold 1)
 2. 9-12 percent (risk threshold 2)

3. More than 12 percent (risk threshold 3)
 - The RBI took decision after four big finance firms namely IL&FS, DHFL, SREI and Reliance Capital, collected public funds by means of fixed deposits & non-convertible debentures and collapsed in last three years despite there was tight monitoring in the financial sector. These firms collectively owe more than Rs 1 lakh crore to investors.
 - At present, the NBFC credit to GDP ratio stood at 11.6 per cent in 2020 as per the RBI – and with strong linkages with the other parts of the financial system, their asset quality must be closely observed. More so for the larger deposit-taking NBFCs.
 - A delay in taking action only complicates matters, adding to the uncertainty in financial markets.
 - The collapse of NBFCs such as the Infrastructure Leasing & Financial Services (IL&FS) and Dewan Housing Finance Corporation Limited (DHFL), the fallout in the financial markets and the larger economy, the spectre of liquidity issues morphing into solvency issues, only underline the need for such a framework. Thus, addressing the stress earlier lowers the associated costs.

Capital to Risk weighted Asset Ratio (CRAR)

- ✓ The CRAR is the ratio of the Bank's capital to the risk weighted assets of the Banks. It is defined as
- ✓ $(\text{Tier -1 Capital (Equity)} + \text{Tier-2 Capital (Debt)}) / \text{Risk Weighted Assets (RWAs)}$.
- ✓ The CRAR is based on the concept that the banks should have sufficient amount of capital in order to withstand the risk associated with the loans given by them. The Banks are required to assign risk weightage to the different categories of loans. For example, loans given to Government in form of G-Secs may have lower risk, while the loans given to Agriculture sector may have higher risk. Under the BASEL-III norms, the RBI has stipulated that the banks are required to maintain CRAR of 9%.

6. 140 million free health IDs generated:

- Recently, the Minister of state for Health informed in Lok Sabha that, government has made a provision to generate a health ID for every citizen free of cost.
- As of now, more than 140 million health IDs have been created.
- The National Health Authority is creating awareness among citizens regarding the usage and advantages of Health IDs for ensuring their maximum participation.

Ayushman Bharat Digital Mission:

- Ayushman Bharat is a flagship scheme of India which was launched as recommended by the National Health Policy 2017, to achieve the vision of Universal Health Coverage (UHC).
- It aims to provide digital health IDs for all Indian citizens to help hospitals, insurance firms, and citizens access health records electronically when required.
- Health ID will be issued for every citizen that will also work as their health account. This health account will contain details of every test, every disease, the doctors visited, the medicines taken and the diagnosis.
- Health ID is free of cost, voluntary. It will help in doing analysis of health data and lead to better planning, budgeting and implementation for health programs.

7. Labour Ministry on Global pension report:

- Recently, the Ministry of Labour and Employment told the Rajya Sabha that; a Global Pension Index that placed pension system of India towards bottom of the list was not prepared on the basis of reliable comparable international data.
- The Global Pension Index Report was published in 2021 and has ranked India at 40th place, out of 43 countries for its pension system.
- Report was published by Mercer, a management consulting firm.
- Index is prepared on the basis of certain criteria of sustainability, adequacy, and integrity.
- Index placed India in the same category of Japan, South Korea and a few other countries.

National Pension System Trust (NPS Trust):

- NPS Trust is a specialised division of Pension Fund Regulatory and Development Authority in India. It works under the parent head of Ministry of Finance. National Pension System (NPS) is a voluntary defined contribution pension system.
- It is an EEE (Exempt-Exempt-Exempt) instrument, in which entire corpus escapes tax at maturity. Under this system, entire pension withdrawal amount is tax-free.
- All the citizens of India including workers of unorganized sector can avail the benefits of NPS system on a voluntary basis. Reserve Bank of India (RBI) also allowed the Non-Resident Indians (NRI) to subscribe to NPS on October 29, 2015.
- NPS is administered and regulated by Pension Fund Regulatory and Development Authority (PFRDA).

Pension Fund Regulatory and Development Authority (PFRDA):

- It is the statutory Authority established by an enactment of the Parliament, to regulate, promote and ensure orderly growth of the National Pension System (NPS).
- It works under the Department of Financial Services under the Ministry of Finance.
- It performs the function of appointing various intermediate agencies like Pension Fund Managers, Central Record Keeping Agency (CRA) etc.
- It develops, promotes and regulates the pension industry under the NPS and also administers the APY.

8. Nutrition Mission: States used 56% of funds in last 3 years:

- Recently, the Minister for Women & Child Development noted in Parliament that, State Governments and Union Territories have used only 56% of the total funds released under Poshan Abhiyan or Nutrition Mission in last three years.
- The central government highlighted that, out of total amount of Rs 5312 crore given between financial years 2019 to 2021, Rs 2985 crore was used.
- The five States & UTs where utilisation were lowest are:
 - Arunachal Pradesh (25.14%)
 - Puducherry (28.03%)
 - Ladakh (31.2%)
 - Punjab (33.62%) and
 - Uttar Pradesh (33.73%).
- Five States & UTs that made most use of the funds are:
 - Nagaland (98.34%)
 - Meghalaya (98.14%)
 - Mizoram (94.22%)
 - Sikkim (93.13%) and

- Dadra & Nagar Haveli (88.2%).

What is Poshan Abhiyan?

- POSHAN Abhiyaan (National Nutrition Mission) was launched by the government on March 8, 2018.
- The Abhiyaan targets to reduce stunting, undernutrition, anemia (among young children, women and adolescent girls) and reduce low birth weight by 2%, 2%, 3% and 2% per annum respectively.
- The target of the mission is to bring down stunting among children in the age group 0-6 years from 38.4% to 25% by 2022.
- POSHAN Abhiyaan aims to ensure service delivery and interventions by use of technology, behavioural change through convergence and lays-down specific targets to be achieved across different monitoring parameters.
- Under the Abhiyaan, Swasth Bharat Preraks will be deployed one in each district for coordinating with district officials and enabling fast and efficient execution of the Abhiyaan across the country. Swasth Bharat Preraks would function as catalyst for fast tracking the implementation of the Abhiyaan.

Poshan maah:

- POSHAN Maah is observed in the month of September since 2018, in a bid to improve nutritional outcomes for adolescent girls, children, pregnant women, and lactating mothers.

What is Malnutrition?

- **Malnutrition** is referred to deficiencies, imbalances or excesses in a person's intake of energy or nutrients. The term malnutrition addresses 3 broad conditions:
- **Undernutrition:** Undernutrition includes stunting (low height-for-age), wasting (low weight-for-height) and underweight (low weight-for-age).
- **Micronutrient-related:** It includes micronutrient excess or deficiencies.
- **Overweight:** Obesity and diet-related non-communicable diseases (like stroke, heart disease, diabetes and some cancers).

9. Pradhan Mantri Awaas Yojana:

- Recently, the Union Cabinet approved the extension of flagship housing-for-all scheme named "Pradhan Mantri Awas Yojana-Gramin (PMAY-G)" till March 2024.
- The financial assistance will be provided to construct 155.75 lakh houses remaining as on March, 31, 2021.
- Extension of the scheme till March, 2024 ensures that remaining 155.75 lakh households within the target of 2.95 crore houses under PMAY-G will be provided assistance to construct pucca houses with basic amenities in a bid to achieve the objective of 'Housing for All' in rural areas.

Why was scheme extended?

- As of November 29, 2021, total of 1.65 crore PMAY-G houses have been constructed out of 2.95 crore. It is expected that 2.02 crore houses, which is equal to SECC 2011 database based Permanent Wait List, will be completed by August 15, 2022. Thus, to achieve the target of 2.95 crore houses, scheme was extended.

Pradhan Mantri Gramin Awas Yojana (PMRHS):

- This scheme was previously called as Indira Awas Yojana. It is a social welfare programme of Indian Government to provide housing for rural poor across India.

- Rajiv Gandhi had launched the “Indira Awas Yojana” in 1985, as one of the major flagship programs of Ministry of Rural Development for constructing houses for BPL population in villages.

Features of the scheme:

- Under the scheme, financial assistance worth Rs 120,000 is provided in plain areas and Rs. 130,000 in difficult areas for construction of houses.
- These houses have facilities like toilet, drinking water, LPG connection, and electricity connection. Thus, the scheme has been converged with other schemes namely, Swachh Bharat Abhiyan, Ujjwala Yojana, Saubhagya Yojana electricity connection, etc.
- These houses are allotted in the name of woman or jointly between husband and wife.
- Funding for the scheme
- The funds for the scheme are allocated to the states on the basis of 75% weightage of rural housing shortage while 25% weightage of poverty ratio.
- **AWAAS soft** software was launched in July 2010 for assisting in improved administration of the scheme.

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10. NCW launches ‘She is a Changemaker’ programme:

- National Commission for Women (NCW) has launched a pan-India capacity building programme named ‘She is a Changemaker’.
- Objective: To undertake capacity building of women political leaders and improve their decision-making and communication skills including, oration, writing etc.
- Target Group: The programme is for women representatives at all levels, gram panchayats to parliament members and political workers including office bearers of National/State political parties.
- Implementation: The programme will be undertaken by NCW in association with region-wise training institutes.
- Significance: The programme will benefit every woman who wishes to make an identity for herself in politics and help her to claim her rightful space in politics.
- Source: This post is based on the article “NCW Launches a Pan-India Capacity Building Programme ‘She is a Changemaker’ for Women in Politics” published in PIB on 7th December 2021.

National Commission for Women (NCW):

- NCW is the statutory body of Government of India. It is usually concerned with advising the government on all policy matters related to women. NCW was established on January 31, 1992 in accordance with the provisions of National Commission for Women Act, 1990.
- The **Rashtra Mahila** is the monthly newsletter, published by NCW in both Hindi and English.
- The first chairperson of the commission was Jayanti Patnaik.
- The NCW work with the objective of:
 1. Representing the rights of women in India
 2. To provide a voice for issues and concerns related to women.

11. World Inequality Report 2022:

- Recently, France-based World Inequality Lab published its report titled “World Inequality Report 2022”.

- This report was authored by Lucas Chancel, who is the co-director of World Inequality Lab.
- It was coordinated by famed French economist Thomas Piketty.
- Report notes that, top 1 % of the India's population owns more than one-fifth of the total national income in 2021.
- The bottom half of the population earns just 13.1 per cent.
- It highlights that, economic reforms and liberalization that India has adopted, have mostly benefited the top 1 percent.
- Report identifies India as a poor and an unequal country, with an affluent elite.
- 1 percent richest people in India hold 22% of the total national income in 2021, while the top 10 % owns 57 per cent of the income.
- Average national income of the Indian adult population is Rs 204,200 in 2021, on the basis of purchasing power parity.
- However, report clarified that average national income of a country masks inequalities.

Income Gap:

- The income gap between top 10 percent and bottom 50 percent in India is 1 to 22 in 2021. The report noted India as one of the most unequal countries worldwide.

Where does BRICS nations stand?

- Among the BRICS nations, South Africa and Brazil have wider income inequalities as compared to India. Income gap between top 10% and bottom 50% stood at 1 to 63 in South Africa and 1 to 29 in Brazil. In China and Russia, the income gap was 1 to 14.

Scenario in world's richest nation:

- Ratio in richest nation that is US, is 1 to 17. The richest ten of the global population owns 52 per cent of global income. On the other hand, poorest half of the population earns 8.5 per cent of the global income.

Inequality in British India:

- Inequality in India has widened as compared to British rule. Report finds that, Indian income inequality was very high under British colonial rule, during 1858-1947. Top ten per cent of the population shared around 50 per cent of the national income.

12. Domestic Systemically Important Insurers for 2021-22:

- Recently, the Insurance regulator IRDAI has identified the state-owned LIC, GIC and New India Assurance Co. Ltd as Domestic Systemically Important Insurers (D-SIIs) for 2021-22, in continuation.
- D-SIIs are insurers of such size, market importance, and domestically & globally interconnected, whose failure or distress will result into significant dislocation in domestic financial system.
- D-SIIs are perceived as insurers which are 'too big or too important to fail' (TBTF).
- This perception and perceived expectation of government support may reduce market discipline, amplify risk-taking, create competitive distortions, as well as increase the possibility of distress in future.
- Thus, continued functioning of D-SIIs is necessary for uninterrupted availability of insurance services for national economy.
- IRDAI identifies D-SIIs on an annual basis and disclose such insurers names for public information.

Requirements for D-SIIs:

1. The three public sector insurers have been asked to raise the level of corporate governance.
2. Identify all relevant risks and promote a sound risk management culture.
3. The D-SIIs will also be subjected to enhanced regulatory supervision of the IRDAI.

Insurance Regulatory and Development Authority of India (IRDAI):

- IRDAI is a regulatory body, working under the jurisdiction of Ministry of Finance. It is tasked to regulate and license the insurance and re-insurance industries across India.
- The body was constituted in accordance with the Insurance Regulatory and Development Authority Act, 1999.
- Its headquarter was moved from Delhi to Hyderabad, Telangana in 2001.

13. RBI Financial Stability Report:

- The Reserve Bank of India (RBI) released its Financial Stability Report on December 29, 2021.
- According to the report, stress tests have revealed that gross non-performing assets (GNPAs) of banks is likely to jump from 6.9 percent in September 2021 to 8.1 percent in September 2022 under the baseline scenario.
- While under a severe stress scenario, it is likely to increase to 9.5 percent for the same period.
- Report highlights that, scheduled Commercial Banks have sufficient capital, at the aggregate as well as individual levels, even under stress conditions
- The report further highlights the collective assessment of Sub-Committee of the Financial Stability & Development Council (FSDC) on risks to financial stability as well as resilience of the financial system.
- It notes that, progress in vaccination on the domestic front has enabled the recovery to regain traction after debilitating second wave of Covid-19 pandemic.
- However, signs of slowing pace were witnessed more recently.
- Corporate sector is gaining strength and bank credit growth is also improving.

Capital to risk-weighted assets ratio (CRAR):

- CRAR or Capital Adequacy Ratio (CAR) is the ratio of a bank's capital in relation to its risk weighted assets and current liabilities.
- It is decided by central banks and bank regulators to prevent commercial banks from taking excess leverage and becoming insolvent in the process.
- The Basel III norms stipulated a capital to risk weighted assets of 8%.
- As per RBI norms, Indian scheduled commercial banks were required to maintain a CRAR of 9%. However, the capital to risk-weighted assets ratio (CRAR) of scheduled commercial banks (SCBs) have increased to a new peak of **16.6 percent**. On the other hand, provisioning coverage ratio (PCR) was at 68.1 percent in September 2021.

The Financial Stability Report (FSR):

- The FSR is published biannually by the Reserve Bank of India. It reflects the collective assessment of Sub-Committee of the Financial Stability and Development Council (FSDC), on risks to financial stability. It also discusses the issues related to development and regulation of financial sector.

14. Atal Ranking of Institutions on Innovation Achievements 2021:

- Recently, the Ministry of Education's innovation cell released the Atal Ranking of Institutions on Innovation Achievements (ARIIA) 2021.

What is ARIIA 2021?

- Atal Ranking of Institutions on Innovation Achievements (ARIIA) is a policy initiative of the Ministry of Education (MoE) implemented through AICTE and Innovation Cell.
- Aim: To systematically rank all major higher educational institutions and universities in India.

Page|15 **Parameters:** The various parameters considered in ARIIA for ranking are:

1. Budget & Funding Support
2. Infrastructure & Facilities
3. Awareness, Promotions & support for Idea Generation & Innovation
4. Promotion & Support for Entrepreneurship Development Innovative Learning Methods & Courses
5. Intellectual Property Generation, Technology Transfer & Commercialization
6. Innovation in Governance of the Institution.

Categories: The rankings were made under two categories: Technical and Non-Technical.

- The technical category included 5 sub-categories-
- Central Funded Technical Institutes (CFTIs), Central University, & Institute of National Importance
- State University & Deemed University (Govt. & Govt. Aided)
- Govt. College/Institution (Govt. & Govt. Aided)
- University & Deemed University (Self-Finance/Private)
- Private College/Institute (Self-Finance/Private)

The non-technical category included two sub-categories:

- Central Funded Institutes (CFIs)/Central University/Institute of National Importance (Non-Technical)
- General (Non-Technical)

What are the key rankings of ARIIA 2021?

- Institute of National Importance, Central Universities & CFTIs: IIT Madras has secured the first rank. IIT Bombay and IIT Delhi were placed at the second and third ranks respectively.
- Institute of National Importance, Central Universities & CFTIs (non-technical): Indira Gandhi National Open University

Science and Technology

1. Roll-out of 5G services in India:

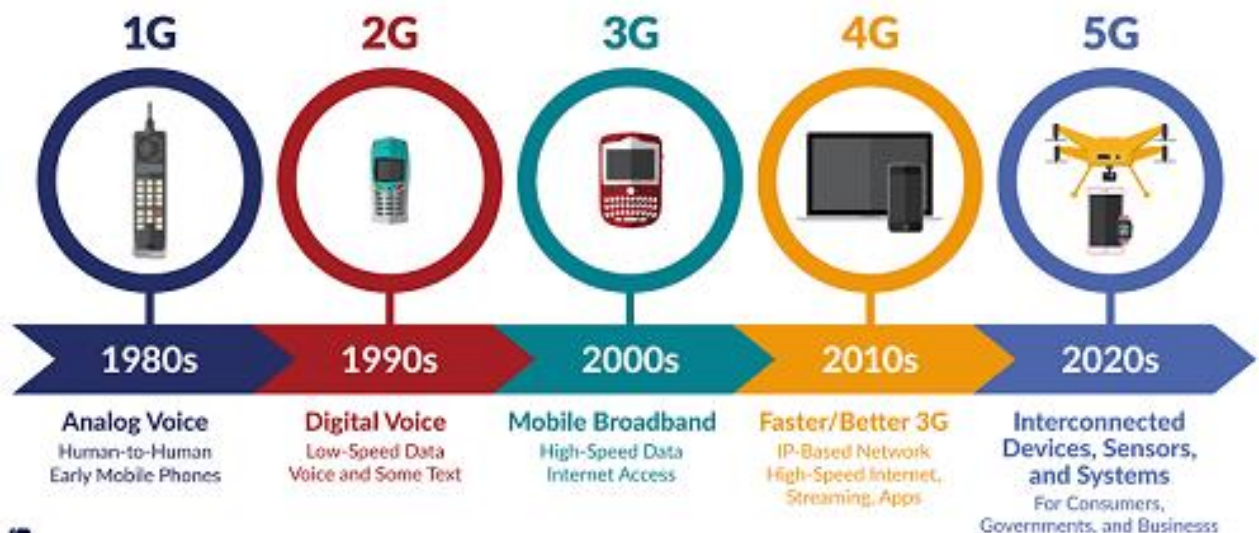
- Recently, the Department of Telecommunications (DoT) has said that Gurugram, Bengaluru, Kolkata, Mumbai, Chandigarh, Delhi, Jamnagar, Ahmadabad, Chennai, Hyderabad, Lucknow, Pune, and Gandhi Nagar would be among the first cities to get 5G services in 2022.

Where does India stand in terms of trials and launch?

- The government has said the auction of 5G spectrum would take place in March or April 2022. Some experts say it could be delayed by at least one quarter as telecom service providers are yet to complete their trials and test various aspects.
- Telecom Regulatory Authority of India (TRAI) is in the final stages of stakeholder consultations, and is likely to submit its recommendations to the DoT early 2022.
- Meanwhile, Private Telecom companies have progressed at various levels regarding the rollout of 5G – like conducting trials, testing speeds and building indigenous 5G networks.

What is 5G?

- 5G is the 5th generation mobile network. It is a new global wireless standard after 1G, 2G, 3G, and 4G networks.
- 5G enables a new kind of network that is designed to connect virtually everyone and everything together including machines, objects, and devices.



Features and benefits of the 5G technology:

- Operate in the **millimeter wave spectrum** (30-300 GHz) which have the advantage of sending large amounts of data at very high speeds.
- Operate in 3 bands, namely low, mid and high frequency spectrum.
- Reduced latency will support new applications that leverage the power of 5G, the Internet of Things (IoT), and artificial intelligence.
- Increased capacity on 5G networks can minimize the impact of load spikes, like those that take place during sporting events and news events.

Significance of the technology:

- India's **National Digital Communications Policy** 2018 highlights the importance of 5G when it states that the convergence of a cluster of revolutionary technologies including 5G, the cloud, Internet of Things (IoT) and data analytics, along with a growing start-up community, promise to accelerate and deepen its digital engagement, opening up a new horizon of opportunities.

Page|17 What are the potential health risks from 5G?

- To date, and after much research performed, no adverse health effect has been causally linked with exposure to wireless technologies.
- Tissue heating is the main mechanism of interaction between radiofrequency fields and the human body. Radiofrequency exposure levels from current technologies result in negligible temperature rise in the human body.
- As the frequency increases, there is less penetration into the body tissues and absorption of the energy becomes more confined to the surface of the body (skin and eye).
- Provided that the overall exposure remains below international guidelines, no consequences for public health are anticipated.

What are the international exposure guidelines?

- Two international bodies produce exposure guidelines on electromagnetic fields. Many countries currently adhere to the guidelines recommended by:
- The International Commission on Non-Ionizing Radiation Protection.
- The Institute of Electrical and Electronics Engineers, through the International Committee on Electromagnetic Safety.
- These guidelines are not technology-specific. They cover radiofrequencies up to 300 GHz, including the frequencies under discussion for 5G.

International efforts- International Electromagnetic Fields (EMF) Project:

- WHO established the International Electromagnetic Fields (EMF) Project in 1996. The project investigates the health impact of exposure to electric and magnetic fields in the frequency range 0-300 GHz and advises national authorities on EMF radiation protection.

What are the disadvantages of 5G network?

- The main disadvantage of 5G is that it has limited global coverage and is available only in specific locations.
- Only cities can benefit a lot from 5G network and remote areas may not get the coverage it for some years. Moreover, the expenses for setting tower stations are high when compared to other networks.
- Furthermore, mobile phones need better battery technology while using a 5G connection. Many phone users say that they experience more heat on their devices while running 5G.
- Phones that use a 5G connection will result in a huge battery drain that reduces the lifespan to a large extent. Hence, manufacturers need to invest in new battery technologies to protect the battery from damages and other problems.
- The expansion in the bandwidth enables criminals to steal the database with ease. Moreover, it uses software that leads to vulnerable attacks. As 5G connects with more devices, the chances of attacks are very high. Hence, companies and businesses should protect their infrastructure with a security operations center that will result in additional expenses.

- 5G lacks encryption and hackers can plan their attacks with more precision that will affect the companies to a large extent. More bandwidth will strain current security monitoring and the network requires security measures to prevent cyber threats.

2. Ziyuan-1 02E satellite:

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- Recently, a new Chinese Earth observation satellite named “Ziyuan-1 02E” was launched into space by China.
- The satellite was launched for exploring natural resources. It also launched a smaller satellite, which will be used for teaching geography at a school in Beijing.
- Both the satellites took off from the Taiyuan Launch Center in Sjanxi Province, aboard the Long March 4C rocket.
- Ziyuan-1 02E has been equipped with a high-resolution infrared camera, a long-wavelength infrared camera and a multi-spectrum imager. The satellite is designed for an eight-year lifespan in Earth orbit. It was launched with the objective of mapping the Earth’s surface in high resolution to explore the natural resources. Data from satellite will be used to alert for environmental disasters and monitoring water quality.
- Smaller satellite will be dedicated entirely to geography and science classes at a high school in Beijing.
- The Ziyuan-1 02E satellite is a part of series of Earth observation satellites. Its most recent version was launched in July 2021 called Ziyuan III 03.

China’s missions in space:

- Launch of Ziyuan-1 02E satellite marks China’s 53rd space launch.
- The launch broke the record of 39 launches in 2018 and 2020.
- With this launch, China reached the mark of 104 satellites placed in orbit in 2021 alone.
- In May 2021, China launched Tianwen-1 mission. It comprises of an orbiter and a rover. It landed successfully on the Martian surface, and made China the third country to do so.
- China also sent the Tianhe module into Earth’s orbit, which was the main unit of Chinese space station Tiangong-3.

3. NASA’s Psyche Mission:

- NASA’s **Psyche mission** is going to be launched in August 2022.
- This mission is the first mission which will be launched to explore a unique giant metal asteroid called **Psyche**.
- The mission is being led by Arizona State University. Mission management, navigation and its operations will be looked upon by NASA’s Jet Propulsion Laboratory. Mission was selected as one of the two missions to explore early Solar System on in 2017. Mission will be launched in August 2022 from Kennedy Space Center, Florida and will arrive on Psyche asteroid in 2026.
- The Lucy mission is another mission to explore Jupiter’s Trojan asteroids in order to study early Solar System.
- Mission will spend 21 months for studying and mapping the asteroid Psyche.
- Italian astronomer Annibale de Gasparis had discovered the Psyche as 16th asteroid in 1852. He named the asteroid after the Goddess of Soul in ancient Greek mythology. It is 210 kilometers in diameter. The asteroid is made up of mostly metallic iron and nickel, similar to Earth’s core.

Instruments on Psyche mission:

- The Psyche asteroid is carrying following scientific instruments:
- X-band Gravity Science Investigation
- Gamma Ray and Neutron Spectrometer
- Multispectral Imager
- Magnetometer

Page|19 **What is the Objectives mission?**

- To understand how planets and other bodies separated into layers such as cores, mantles, and crusts.
- To examine an asteroid made of metal.
- To explore early eras of solar system

4. AI Prosecutor: China's recent AI project:

- China has been making rapid advancements in the technology field. And now, Chinese scientists have claimed that they have developed a machine that can charge people with crime using artificial intelligence. **This is the world's first such machine.**
- The AI prosecutor have the capability to file a charge with more than 97 percent accuracy. It will file a charge on the basis of verbal description of the case.
- It was built and tested by Shanghai Pudong People's Procuratorate, which is China's largest and busiest district prosecution office
- It could run on a desktop computer. For each suspect, the prosecutor would press a charge based on 1,000 traits, which are obtained from human-generated case description text.
- In between 2015 to 2020, the machine was "trained" using more than 17,000 cases.

Significance of the technology:

- The AI prosecutor technology will help in reducing prosecutors' daily workload and allow them to focus on more difficult tasks. It will replace prosecutors in the decision-making process to some extent.

Use of AI technology in Law enforcement:

- Application of AI technology in law enforcement has been increasing.
- Some German prosecutors have used AI technology like image recognition and digital forensics. for increasing case processing accuracy and speed.
- China's prosecutors were early adopters and they started using AI in 2016.
- Many of the prosecutors use an AI tool called as System 206. The tool can evaluate the conditions for an arrest, strength of evidence and how dangerous a suspect is to the public.
- However, all the existing AI tools have a limited role, since they do not participate in decision-making process of filing charges.
- The decision-making would require a machine to identify and remove any contents of a case file, which are irrelevant to a crime. Machine would also require to convert complex and human language into a standard geometrical or mathematical format to make it understandable for computers.

What is artificial intelligence (AI)?

- Artificial intelligence is the simulation of human intelligence processes by machines, especially computer systems. Specific applications of AI include expert systems, natural language processing, speech recognition and machine vision.

Advantages:





- Good at detail-oriented jobs
- Reduced time for data-heavy tasks
- Delivers consistent results
- AI-powered virtual agents are always available

Disadvantages:

- Expensive
- Requires deep technical expertise
- Limited supply of qualified workers to build AI tools
- Only knows what it's been shown
- Lack of ability to generalize from one task to another

Types of AI

The emergence of artificial superintelligence will change humanity, but it's not happening soon. Here are the types of AI leading up that new reality.

Reactive AI	Limited memory	Theory of mind	Self-aware
<ul style="list-style-type: none"> Good for simple classification and pattern recognition tasks Great for scenarios where all parameters are known; can beat humans because it can make calculations much faster Incapable of dealing with scenarios including imperfect information or requiring historical understanding 	<ul style="list-style-type: none"> Can handle complex classification tasks Able to use historical data to make predictions Capable of complex tasks such as self-driving cars, but still vulnerable to outliers or adversarial examples This is the current state of AI, and some say we have hit a wall 	<ul style="list-style-type: none"> Able to understand human motives and reasoning. Can deliver personal experience to everyone based on their motives and needs. Able to learn with fewer examples because it understands motive and intent Considered the next milestone for AI's evolution 	<ul style="list-style-type: none"> Human-level intelligence that can bypass our intelligence, too
			

5. Artificial Sun:

- Recently, China's **Experimental Advanced Superconducting Tokamak (EAST)**, which mimics the energy generation process of the sun, set a new record after it ran at 216 million degrees Fahrenheit (120 million degrees Celsius) for 101 seconds.
- For another 20 seconds, the "artificial sun" also achieved a peak temperature of 288 million degrees Fahrenheit (160 million degrees Celsius), which is over ten times hotter than the sun.
- The HL-2M Tokamak reactor is China's largest and most advanced nuclear fusion experimental research device, and scientists hope that the device can potentially unlock a powerful clean energy source.

- HL-2M Tokamak device is used in it to replicate the nuclear fusion process that occurs naturally in the sun.
- It uses a powerful magnetic field to fuse hot plasma and can reach temperatures of over 150 million degrees Celsius, approximately ten times hotter than the core of the sun.
- Located in Sichuan province, the reactor is often called an “artificial sun” on account of the enormous heat and power it produces.

Other Similar Experiment:

International Thermonuclear Experimental Reactor:

- International Thermonuclear Experimental Reactor (ITER) is a collaboration of 35 nations launched in 1985.
- It is located in France.
- It aims to build the world's largest tokamak to prove the feasibility of fusion as a large-scale and carbon-free source of energy.
- The tokamak is an experimental machine designed to harness the energy of fusion. Inside a tokamak, the energy produced through the fusion of atoms is absorbed as heat in the walls of the vessel. Like a conventional power plant, a fusion power plant uses this heat to produce steam and then electricity by way of turbines and generators.

Nuclear Reactions:

- A nuclear reaction is the process in which two nuclei, or a nucleus and an external subatomic particle, collide to produce one or more new nuclides. Thus, a nuclear reaction must cause a transformation of at least one nuclide to another. They are of two types:

1. Nuclear Fission:

- The nucleus of an atom splits into two daughter nuclei.
- This decay can be natural spontaneous splitting by radioactive decay, or can actually be simulated in a lab by achieving necessary conditions (bombarding with neutrons, alpha particles, etc.).
- The resulting fragments tend to have a combined mass which is less than the original. The missing mass is usually converted into nuclear energy.
- Currently all commercial nuclear reactors are based on nuclear fission

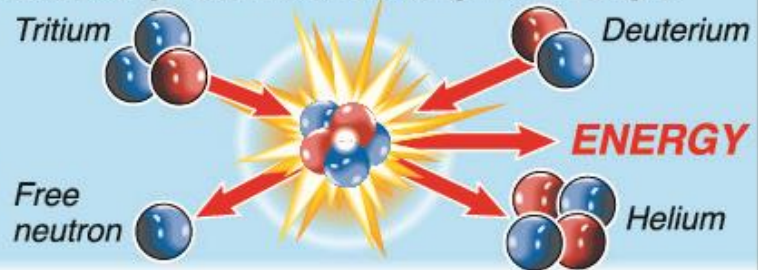
2. Nuclear Fusion:

- Nuclear Fusion is defined as the combining of two lighter nuclei into a heavier one.
- Such nuclear fusion reactions are the source of energy in the Sun and other stars.
- It takes considerable energy to force the nuclei to fuse. The conditions needed for this process are extreme millions of degrees of temperature and millions of pascals of pressure.
- The hydrogen bomb is based on a thermonuclear fusion reaction. However, a nuclear bomb based on the fission of uranium or plutonium is placed at the core of the hydrogen bomb to provide initial energy.

Thermonuclear Fusion

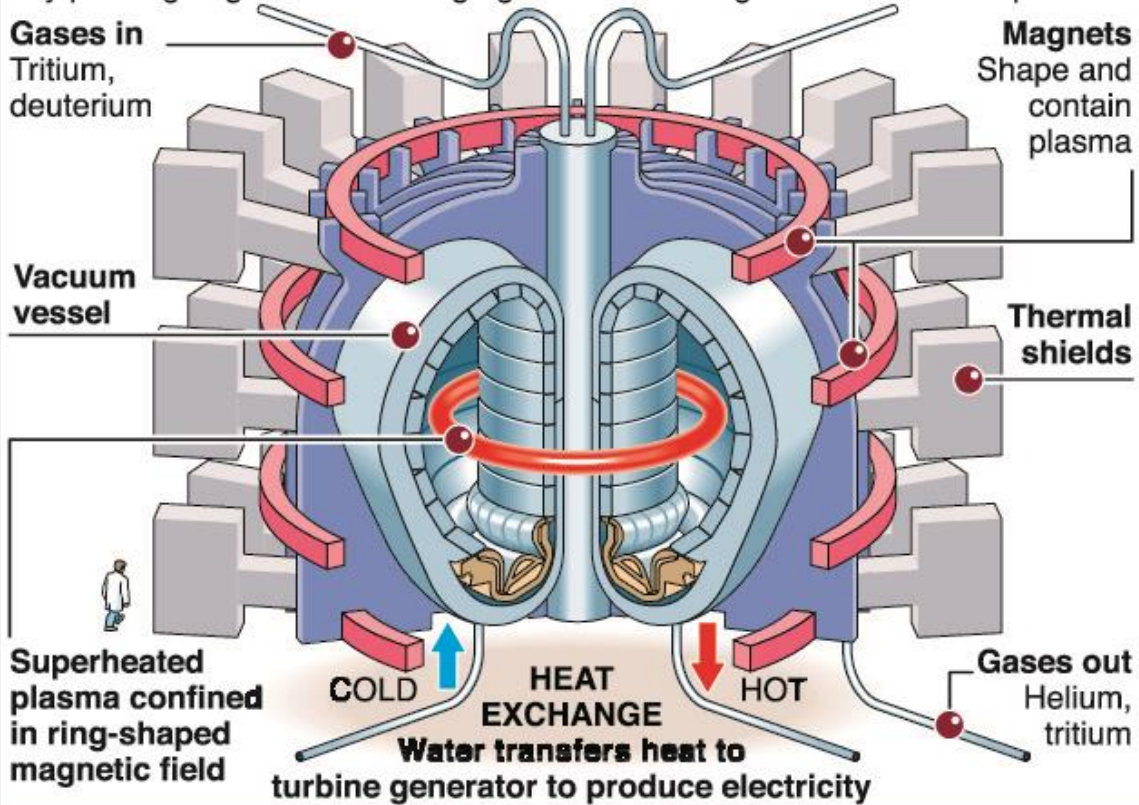
Nuclear fusion – the process by which the sun produces heat and light – could provide an almost limitless source of energy with no damage from greenhouse gases or acid rain

Hydrogen ions fuse at 10-15 million degrees C in sun's core, creating helium and releasing heat and light



CREATING NUCLEAR FUSION ON EARTH

Fusion occurs at useful rate only at temperatures of over 100m°C – created by passing huge current through gases and turning them into ionised plasma



FUEL SUPPLY: Ingredients for nuclear fusion are clean and almost inexhaustible

Deuterium

Hydrogen ion easily derived from water. Supplies would last indefinitely



Tritium

Hydrogen ion created in fusion process



Lithium

Metal needed for production of tritium – known reserves of at least 1,000 years



WASTE

Non-polluting helium is main by-product.

Small quantity of radioactive waste will be safe to handle within 50-100 years



6. Apretude:

- Recently, the Food and Drug Administration (FDA) approved world's first injectable medication for reducing the risk of acquiring HIV. About Apretude Apretude is an injectable drug. Its generic name is "cabotegravir extended-release injectable suspension". The drug provides an alternative to daily pills for HIV prevention, like Truvada and Descovy. According to Centers.

About Apretude:

- Apretude is an injectable drug. Its generic name is "cabotegravir extended-release injectable suspension".
- The drug provides an alternative to daily pills for HIV prevention, like Truvada and Descovy. According to Centers for Disease Control and Prevention (CDC), these pills are effective up to 99% at preventing the sexual transmission of HIV. However, it must be taken every day to be effective.
- But to start Apretude, people initially receive two shots, one month apart. Following this, they receive an injection every two months thereafter.
- This injection will be critical in addressing the HIV epidemic in the U.S. It will also help high-risk individuals and certain groups where daily medication is a major challenge or not a realistic option.

Oral formulation 'Vocabria':

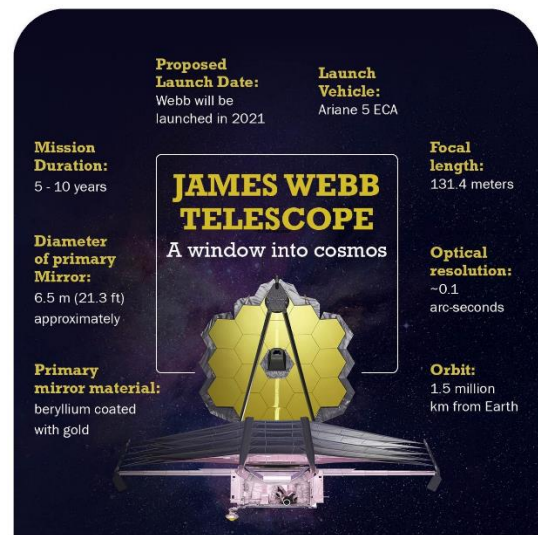
- HIV patients will be given to take an oral formulation of cabotegravir, known as Vocabria, daily for four weeks before starting the injections, in order to see how well they tolerate this drug. Patients are required to be tested for HIV and confirmed negative before starting Apretude.
- They are also required to be confirmed negative before each injection in order to avoid the risk of developing drug-resistant HIV.

7. James Webb Space Telescope Mission:

- NASA is all set to launch its much-awaited next-generation space telescope mission named "James Webb Space Telescope Mission from Ariane 5 rocket, operated by Arianespace.
- JWST has been in the works for decades. It has been jointly developed by NASA, Canadian Space Agency (CSA) and the European Space Agency (ESA). As NASA's flagship astrophysics mission, it is planned to succeed the Hubble Space Telescope.
- It will be launched around December 25, 2021 during Ariane flight VA256. The primary mirror of JWST that is, Optical Telescope Element, comprises of 18 hexagonal mirror segments. These segments are made up of gold-plated beryllium.

Purpose of the Mission:

- JWST mission will provide improved infrared resolution and sensitivity as compared to Hubble Space Telescope. It will enable a broad range of investigations in the fields of



astronomy & cosmology, including observation of some of most distant events and objects in space, like formation of the first galaxies and detailed atmospheric characteristics of potentially habitable exoplanets.

8. Semiconductor Fab Units in India:

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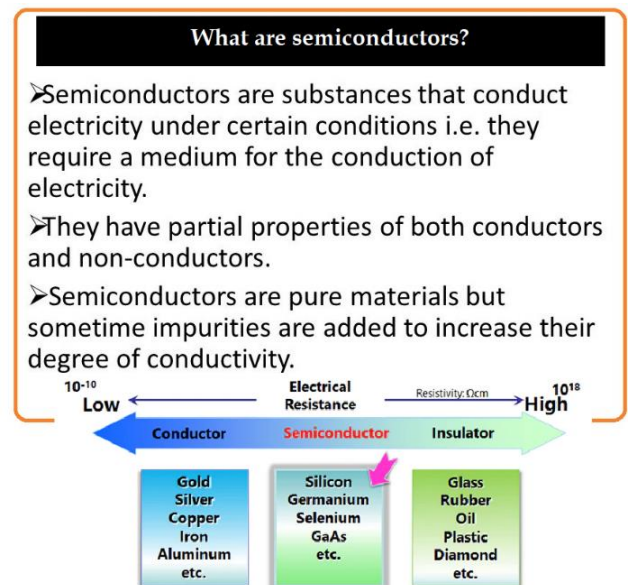
- Recently, the Union Cabinet has approved a scheme to boost semiconductor and display manufacturing in the country.
- Aim:** To provide attractive incentive support to companies that are engaged in Silicon Semiconductor Fabs (Fabrication plants), Display Fabs, Compound Semiconductors / Silicon Photonics / Sensors (including MEMS) Fabs, Semiconductor Packaging (ATMP / OSAT), Semiconductor Design.

Components of the Mission:

- Semiconductor Fabs and Display Fabs:** Under this, the Government shall extend fiscal support of up to 50% of project cost to eligible applicants. The government will also work closely with the State Govts to establish High-Tech Clusters with requisite infrastructure for setting up at least two green-field Semiconductor Fabs and two Display Fabs in the country.
- Semi-conductor Laboratory (SCL):** Under this, Ministry of Electronics and Information Technology will take requisite steps for modernization and commercialization of Semi-conductor Laboratory (SCL). MeitY will explore the possibility for the Joint Venture of SCL with a commercial fab partner to modernize the brownfield fab facility.
Compound semiconductor units (which make chips that are used in mobile chargers, electric vehicles, and telecom radios) and ATMP facilities: Under this, the government will offer fiscal support of up to 30% of capital expenditure to the approved units. The government expects over 15 such units to come up in this space.
- Semiconductor Design Companies or Design Linked Incentive (DLI) Scheme:** Under this, Government shall extend product design linked incentive of up to 50% of eligible expenditure and product deployment linked incentive of 6% - 4% on net sales for five years.
- India Semiconductor Mission:** The Mission will be led by global experts in semiconductor and display industry. It will act as the nodal agency for efficient and smooth implementation of the schemes on Semiconductors and Display ecosystem.
- Chips to Startup Programme:** Under this, the Government will create a talent pool of 85000 high-skilled engineers, which will help India in becoming a semiconductor hub. Semiconductor designers would be given the opportunity to launch start-ups.

What is the significance of this scheme?

- Firstly, with the approval of this scheme, the government of India has announced incentives for every part of the supply chain including electronic components, sub-assemblies, and finished goods.



- Secondly, the scheme will propel innovation and build domestic capacities to ensure the digital sovereignty of India. It will also create highly skilled employment opportunities to harness the demographic dividend of the country.

9. 66-million-year-old dinosaur embryo:

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- Recently, a 66-million-year-old dinosaur embryo was discovered in Ganzhou in southern China.
- The embryo is believed to be a toothless theropod dinosaur, or oviraptorosaur. It has been named **Baby Yingliang**.
- The discovery of embryo has also provided researchers a greater understanding of the link between dinosaurs and modern birds.
- The fossil provides that, embryo was in a curled position called as “tucking”. This behaviour is seen among birds, shortly before they hatch. It also indicates that tucking behaviour in modern birds has been evolved and originated from their dinosaur ancestors.

About Oviraptorosaurs:

- Oviraptorosaurs means “egg thief lizards”. They were feathered dinosaurs, which lived in present-day Asia and North America during Late Cretaceous period, some 100 million to 66 million years ago. They are distinct for their short, beaked, parrot-like skulls.

About Baby Yingliang:

- Baby Yingliang measures 27cm long from head to tail. It is resting inside a 6.7-inch-long egg at Yingliang Stone Nature History Museum in China. This egg was first uncovered in 2000 and put into storage for 10 years.

About Theropoda Clade:

- Members of Theropoda clade are known as theropods. Theropoda is a dinosaur clade, which is characterized by hollow bones as well as three-toed limbs. Theropods are usually classed as a group of **saurischian dinosaurs**. They were ancestrally carnivorous. However, a number of theropod groups evolved to become omnivores, herbivores, piscivores, and insectivores.
- They first appeared during **Carnian age** in late Triassic period, around 231.4 million years ago. They included all the large terrestrial carnivores, from Early Jurassic to Cretaceous period.

10. NASA releases noises captured near Jupiter’s moon:

- Recently, NASA released the noises captured by the Juno mission, near Jupiter’s moon Ganymede.
- Juno beamed back data from its flyby across the biggest moon in the Solar System.
- Data comprising of sounds coming from lunar surface provides a dramatic ride-along into the territory of Ganymede.
- NASA released a 50-second audio track, which were picked by Juno’s wave instrument.
- The wave instrument tunes into electric and magnetic radio waves which are produced in the magnetosphere of Jupiter.
- Scientists shifted the captured frequencies into audio range for making audio track.

Closest Approach of Spacecraft:

- During the closest approach, Juno was within 1,038 kilometres of the Ganymede’s surface. It travelled at a relative velocity of 67,000 kilometres per hour.

Ganymede Moon:

- Ganymede is a satellite (moon) of Jupiter. It is the largest and most massive moon as well as ninth-largest object of the Solar System. Ganymede is the largest moon without a substantial atmosphere.
- Its diameter is of 5,268 km and thus 26% larger as compared to planet Mercury by volume. It is the only moon that have a magnetic field.
- Ganymede orbits the Jupiter in around seven days. It is in a 1:2:4 orbital resonance respectively with the moons Europa and Io.

Juno Mission:

- Juno is a NASA space probe, covering planet Jupiter. It was built by Lockheed Martin. The spacecraft is operated by NASA's Jet Propulsion Laboratory.
- It was launched in August 2011 from Cape Canaveral Air Force Station, as a part of New Frontiers program. Spacecraft entered the polar orbit of Jupiter in July 2016, to start a scientific investigation of the Jupiter.
- When the mission will complete, Juno will be intentionally deorbited into atmosphere of Jupiter. Juno is the second spacecraft to orbit Jupiter. First spacecraft was nuclear powered Galileo orbiter, which was operation from 1995 to 2003.

11. MicroAge" Experiment:

- An experiment called "**MicroAge**" is set to be launched to International Space Station on SpaceX Falcon 9 rocket from Kennedy Space Centre in Florida.
- This new experiment takes human muscle cells, the size of a grain of rice, that are grown in a lab and carefully put into small 3D-printed holders the size of a pencil sharpener.
- Once in space, these will be electrically stimulated to induce contractions in the muscle tissue, and the scientists will look closely to see what happens.

What is the objective of this mission?

- It is well known that our muscles lose mass and strength as we age. This can have a profound effect on the ability to carry out everyday tasks and causes a range of problems, including an increased risk of falling and longer recovery times from injuries.
- Physical frailty is a major factor affecting the ability of individuals to maintain independence and is primarily due to age-related loss of skeletal muscle mass and function (known as sarcopenia).
- When astronauts spend time in space, without the effects of gravity, their muscles get weaker, just as they do in older age, before recovering when they return to Earth. By studying what happens to muscle tissue in space, the team can compare the findings to what happens on Earth.
- A hypothesis is that an analogous failure of muscle adaptations to contractile activity occur in both ageing and in muscle exposed to microgravity and that by studying the way that muscle responds to repeated contractions in microgravity scientists will gain further understanding of the way that muscle fails to respond to exercise in older people and in astronauts in space.
- This will help solve the puzzle of why muscles get weaker as we age and look at ways to prevent it.
- The experiment will return to Earth in January 2022 for further analysis.
- Regular updates and details related to the experiment will be provided on the MicroAge App.

12. Canine Parvovirus:

- Recently, around 2,000 pet and stray dogs in Amravati city were affected by canine parvovirus. Veterinarians also cautioned pet owners against a severe outbreak.

What is Parvovirus?

- 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.
- Parvovirus has reported a 90 per cent mortality rate.

Cases in Amravati:

- In Amravati, around 2000 pet and stray dogs were affected by Parvovirus in November 2021. It accounted for 50 per cent dog population in city.
- According to Amravati-based WASA Conservation organisation, government-run clinic is getting reports that 20 dogs affected by this virus daily.
- Experts are of the view that, increasing cases of Parvovirus in pets is due to Covid-19 pandemic. Pandemic has compelled many pet owners to miss timely vaccination of their dogs.
- Furthermore, in last three years, animal birth control programme has not been implemented. This has led to rising parvovirus cases in street dogs because birth control programme helps in controlling stray dog population, dog vaccination and rabies.

Spread of virus:

- Parvovirus spreads through direct contact with the infected dog or by indirect contact with any contaminated object, like hands and clothing of people handling infected dogs. Dogs get exposed to the virus with sniffs, licks, or when they consume infected faeces.
- Virus can also transmit indirectly when dogs come in touch with the person, who has recently been exposed to an infected dog or when dogs come in contact with contaminated object, such as food or water bowl, collars and leashes.

13. Japanese space tourists return to Earth:

- Recently (December 20, 2021) a Japanese billionaire, his producer and a Russian cosmonaut returned to Earth safely, after spending 12 days on the International Space Station.
- Fashion tycoon Yusaku Maezawa, his producer Yozo Hirano along with a Russian cosmonaut Alexander Misurkin landed softly in a Russian Soyuz capsule in the steppes of Kazakhstan.
- Maezawa and Hirano are the first self-paying tourists to visit the space station, since 2009.
- On the other hand, Misurkin was on his third space mission.
- Before them, Russian actor Yulia Peresild and film director Klim Shipenko had spent 12 days on the space station in October 2021, for making world's first movie in orbit. This project was sponsored by Russia's space corporation Roscosmos.

Space Tourism:

- Space tourism means human space travel for recreational purposes. Different types of space tourism include orbital, suborbital and lunar space tourism. In between 2001 to 2009, seven space tourists had made right space flights aboard a Russian Soyuz spacecraft to the space station. The flight was brokered by Space Adventures in

association with Roscosmos and RSC Energia. Later in 2010, Russia halted orbital space tourism because of increasing crew size in the International Space Station. But in 2021, Russian orbital tourism resumed again with the launch of Soyuz MS-20.

- ISS is a modular space station, in low Earth orbit. It is a multinational collaborative project comprising of five participating space agencies:
 1. NASA (United States)
 2. Roscosmos (Russia)
 3. JAXA (Japan)
 4. ESA (Europe), and
 5. CSA (Canada)
- The ownership and use of IIS is established by intergovernmental treaties and agreements. Space station is suited to test the spacecraft systems and equipment which are required for possible future long-duration missions to Mars and the Moon.

14. SEBI Proposals on Algo Trading:

- Recently, the Securities and Exchange Board of India (SEBI) has issued a discussion paper on regulating Algorithmic or Algo Trading, or trades generated out of automatic execution and logic.

Algo Trading:

- Almost everything in the digital world is based on algorithms. Algorithms leverage user data, behaviour and usage patterns, and take in pre-specified instructions to achieve certain goals.
- Algo trading refers to orders generated at superfast speed by the use of advanced mathematical models that involve automated execution of trade.
- Even a split-second faster access is considered capable of bringing huge gains to a trader.
- The algo trading system automatically monitors the live stock prices and initiates an order when the given criteria are met.
- This frees the trader from having to monitor live stock prices and initiate manual order placement.
- It's like asking a broker to buy or sell shares at a specific time or at a certain price, except that algorithmic trading is faster-computers analyse a lot more data than a human can in a given time and have less scope for error.
- Also, significant price changes can be avoided because orders are executed within seconds.
- Thus, investors can execute more trades faster since less time is required to manually monitor, select, buy, sell, initiate order placements and so on.

SEBI's Proposal:

- **Regulating Framework:** There is a need to create a regulatory framework for algo trading.
- **Algo-Order:** All orders emanating from an APIs (Application Programming Interface), should be treated as an algo order and be subject to control by stock broker and the APIs to carry out algo trading should be tagged with the unique algo ID provided by the stock exchange granting approval for the algo.
- An **API** is an interface that can be used to program software that interacts with an existing application.

- **Exchange Approval:** Each algo strategy, whether used by broker or client, has to be approved by exchange and as is the current practice, each algo strategy has to be certified by Certified Information Systems Auditor (CISA)/ Diploma in Information System Audit (DISA) auditors.
- **Algo-ID:** Stock exchanges have to develop a system to ensure that only those algos which are approved by the exchange and having unique algo ID provided by the Exchange are being deployed.
- **Broker to Control Client Orders:** All algos developed by any entity have to run on the servers of brokers wherein the broker has control of client orders, order confirmations and margin information.
- **Authentication:** Two factor authentication should be built in every such system which provides access to an investor for any API/algo trade.

SEBI's Concern:

- **Risk to Market:** Unregulated and unapproved algos pose a risk to the market and can be misused for systematic market manipulation as well as to lure the retail investors by guaranteeing them higher returns.
- **Identity Issue:** Currently, exchanges approve algos submitted by brokers. However, for algos deployed by retail investors using APIs neither the exchanges nor the brokers can identify if a trade emanating from the API link is an algo or a non-algo trade.
- **No Redressal Mechanism:** Potential losses in case of a failed algo strategy could be huge for retail investors since third-party algo providers are unregulated and there is no investor grievance redressal mechanism in place.

Significance:

- **Protection of Retail Investors:** It will ensure that the interest of retail investors is protected and it will boost investors' confidence to undertake algo trading.
- **Curb on Price Manipulation:** With a set of rules in place, there won't be any price manipulations and the investors will not incur any heavy losses in the process.
- **Empowerment of Brokers:** Additionally, it might be a blessing in disguise for brokers to scale up their technological prowess and expand their clientele.

Market Concerns:

- **Makes Process Tedious:** Algo trading will deepen the stock markets and aid retail investors who are not full-time engaged in stock trading. However, as getting the requisite permission from the stock exchanges is a tedious process, brokers may have to stop using the API system.
- **Negatively Impact Development of Market:** There's a chance that investors might shift to some other system if API is not allowed, putting restrictions will impact development of the market.

Function of Application Programming Interface:

- Many brokers in India have started providing API access to their clients which establishes an online connection between a data provider (stock broker) and an end-user (client).
- API access enables the investors to use a third-party application that suits their feature needs or investors who have technological capabilities to build their own front-end features.
- These third-party applications help an investor analyse market data or back-test a trading or investment strategy. These APIs are being used by the investors for automating their trades.

- Presently, though the broker can identify the orders emanating from an API, they are unable to differentiate between an algo and non-algo order emanating from an API.

Way Forward:

- Regulations govern and work towards eliminating any threats to that particular market. But in doing so, it has to often stifle innovation and keep checks in place to avoid malpractices or misuse.
- It is essential that regulators are well versed in the operation of algorithms and have the flexibility to be able to engage in new legislation where required.

15. 6G technology:

- Recently, the Minister of Communication highlighted that India has started work towards developing the next generation of communication technology, using indigenously developed 6G infrastructure. It is likely to be launch by 2023-end or early 2024.
- Though 5G is still in its nascent stage, 6G will build on top of
- 6G will bring the human, physical environment and virtual environment together.
- For example, Metaverse is one of the 5G use cases. It promises to disrupt traditional as well as digital spaces. With the launch of 6G, Metaverse would evolve into a final model, but it will also unify with physical world by using artificial intelligence and machine learning.
- Most significant aspect of 6G will be its ability to sense the environment, people and objects.

What is 6G network?

- 6G is the sixth-generation standard in telecommunications. It is currently under development for wireless communications technologies that support cellular data networks. It is the planned successor to 5G network. This network will probably be broadband cellular networks. In it, the service area is divided into small geographical areas known as cells. Companies like Nokia, Ericsson, Samsung, Huawei, Xiaomi, LG and Apple, as well as countries like China, Japan and Singapore have shown interest in developing 6G networks.
- 6G networks are likely to exhibit even more heterogeneity as compared to their predecessors. It is expectedly to support applications beyond current mobile use scenarios like virtual & augmented reality (VR/AR), pervasive intelligence, ubiquitous instant communications, and the Internet of Things (IoT).
- Scientists from Nanyang Technological University of Singapore and Osaka University of Japan jointly announced in 2020 that, they developed a chip for terahertz (THz) waves, which could be used in 6G technology.
- China successfully launched an experimental test satellite, on November 6, 2020, with candidates for 6G technology into orbit by using Long March 6 vehicle rocket. The satellite was launched to “verify the terahertz (THz) communication technology in space”.

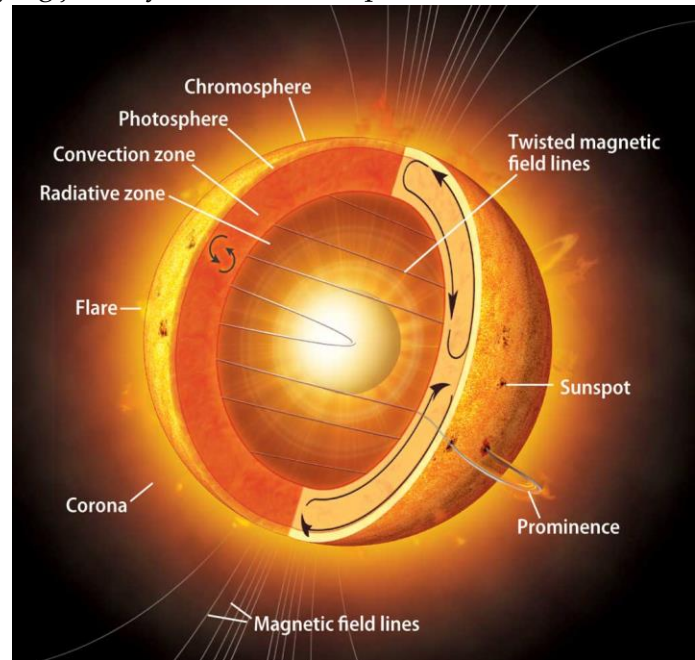
16. NASA’s Parker Solar Probe enters Sun’s corona:

- Recently, a scientific paper revealed that, NASA’s Parker Solar Probe successfully entered the Sun’s Corona on April 28, 2021.

- Corona is the outermost layer of Sun's atmosphere. Here, strong magnetic fields bind plasma as well prevent turbulent solar winds from escaping.
- Prior to April 28, spacecraft had been flying just beyond the Alfven point.
- The Alfven point is when solar winds become greater than critical speed and can break free of Sun's corona and magnetic fields.

The Parker Solar Probe:

- Parker Solar Probe is a NASA space probe.
- It was launched on August 12, 2018. It was launched with objective of making observations of outer corona of the Sun.
- It reached to within 9.86 solar radii from Sun's centre. By 2025, it will travel at closest approach. It is the first spacecraft to fly into low solar corona.
- This project was announced in 2009, at the cost of US\$1.5 billion. The spacecraft was designed and built by Johns Hopkins University Applied Physics Laboratory. It is the first spacecraft by NASA, named after a living person. It has been named so to honour nonagenarian physicist Eugene Newman Parker.
- Sun's corona is an aura of plasma surrounding it. It extends for millions of kilometres into outer space. Corona is easily visible during a total solar eclipse. It can also be observed with a coronagraph. As per spectroscopy measurements, there is a strong ionization in corona and the plasma temperature of 1000000 kelvin. It is much hotter as compared to surface of the Sun.



17. India's first Green Hydrogen Microgrid Projects in Andhra:

- State-run NTPC Ltd has awarded India's first green hydrogen microgrid project in Andhra Pradesh.
- The project has been awarded at the Simhadri plant of NTPC Ltd. in Andhra Pradesh.
- NTPC will involve in "Standalone Fuel-cell based Microgrid along with hydrogen production using electrolyzer" project at NTPC Simhadri.
- India has also planned to call bids to build 4 gigawatt (GW) of electrolyzer capacity under its energy security strategy.

Green Hydrogen Mobility project:

- For a green hydrogen mobility project, NTPC Renewable Energy Limited (NTPC REL) has also signed a pact with Union territory of Ladakh.
- This project will be executed by NTPC in association with the NVVN.

How Green Hydrogen is produced?

- Green hydrogen is produced by separating water into hydrogen and oxygen using an electrolyzer, which is powered by renewable energy sources like wind and solar. Green

Hydrogen as fuel can be a game-changer for India's energy security. India currently imports 85% of its oil and 53% of gas requirements.

Significance of the project:

- This project will act as a precursor to large scale hydrogen energy storage projects. It will also be useful to study and deploy multiple microgrids in several off-grid and strategic locations in India.
- This project has been designed in-house by NTPC.
- It would open doors for decarbonising the far-off regions in India like Ladakh, Jammu & Kashmir (J&K).
- Project has been implemented in line with the vision of Prime Minister Narendra Modi to become carbon neutral by 2070 and make Ladakh a carbon-neutral territory.

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18. Supersonic Missile Assisted Release of Torpedo System (SMART):

- Recently, India successfully launched Supersonic Missile Assisted Release of Torpedo System (SMART) from Abdul Kalam Island, off the Odisha coast.
- During the mission, full range capability of the missile was successfully demonstrated.
- SMART system has been designed for enhancing anti-submarine warfare capability far beyond the conventional range of torpedo.
- This was a textbook launch, in which entire trajectory of the test was monitored by the electro optic telemetry system and several range radars, including down range instrumentation & down range ships.
- SMART carried a torpedo, release mechanisms and parachute delivery system.
- It was launched from a ground mobile launcher and can cover a range of distances.
- The Defence Research and Development Organization (DRDO) has developed the weapon for Indian Navy.

Supersonic Missile Assisted Torpedo (SMART):

- SMART is a next-generation, missile based standoff torpedo delivery system. It has been designed to enhance the anti-submarine warfare capability. Missile will work beyond the conventional range of the torpedo.
- It is a canister-based missile system comprising of advanced two-staged solid propulsion, precision inertial navigation and electromechanical actuators.

Recent Tests by DRDO:

- DRDO successfully flight-tested indigenously developed helicopter-launched stand-off anti-tank (SANT) missile on December 11, 2021, in Pokhran firing ranges of Rajasthan. Missile can neutralise targets in a range up to 10 kms.
- Before this launch, DRDO also conducted a series of successful tests on Extended Range Pinaka rocket system (Pinaka-ER).

Defence Research and Development Organisation (DRDO):

- DRDO is a premier agency, working under Department of Defence Research and Development of Ministry of Defence. It is charged with military's research and development. The agency is headquartered in Delhi. It was established in 1958.

19. OSCAR 1 (Orbiting Satellites Carrying Amateur Radio):

- 12th Dec 2021 marked the launch date of the first amateur radio satellite called **OSCAR 1**.

- Sputnik 1 was launched successfully by the Soviet Union in 1957. This marked the beginning of the space age.
- Not willing to be left lagging behind, the U.S. launched their own satellite, Explorer 1 in 1958.
- Barely four years after that, OSCAR-1(Orbiting Satellites Carrying Amateur Radio) satellite was launched in December, 1961.

About OSCAR-1 Satellite:

- OSCAR 1 is the first amateur radio satellite launched by Project OSCAR. It was launched into low Earth orbit (LEO).
- This satellite was the world's first non-governmental satellite.
- It was also the first satellite constructed by a collection of private individuals.
- The satellite lasted for around 22 days, and transmitted the letters "HI" in Morse code. These letters were chosen in particular over other possibilities because the letters "HI" was and still remains - an internationally recognised friendly greeting between radio amateurs.
- Significance: The success of OSCAR 1 not only showed that radio amateurs and private individuals could design, construct, and track reliable operational satellites but also that they could coordinate with government launch agencies to get the work done.

20. World Malaria Report-2021:

- Recently, the World Health Organisation (WHO) released its World Malaria Report 2021 on December 6, 2021.
- In the report, the WHO notes that 'Global efforts to tackle malaria suffered because of novel coronavirus disease in 2020.
- WHO releases the World Malaria Report every year. It provides a comprehensive and up-to-date assessment of trends in malaria control and elimination across the globe.
- The 2021 report is based on information received from malaria-endemic countries in all WHO regions.

Major Findings:

- Total Cases and Deaths: There were an estimated 241 million malaria cases and 627 000 malaria deaths worldwide in 2020.
- This represents about 14 million more cases in 2020 compared to 2019, and 69 000 more deaths.
- Causes: Approximately two-thirds of these additional deaths (47 000) were linked to disruptions in the provision of malaria prevention, diagnosis and treatment during the pandemic.
- Most of the increase came from countries in the WHO African Region
- Six countries-Nigeria (27 per cent); the Democratic Republic of the Congo (12 per cent); Uganda (5%); Mozambique (4%); Angola (3.4%) and Burkina Faso (3.4%) - accounted for about 55 per cent of all cases globally.
- India accounted for 83 per cent of cases in the WHO South-East Asia Region.
- Sri Lanka was certified malaria-free in 2016 and remains malaria-free.
- China and El Salvador were certified by WHO as malaria-free in 2021, and the Islamic Republic of Iran attained 3 consecutive years of zero indigenous cases in 2020.

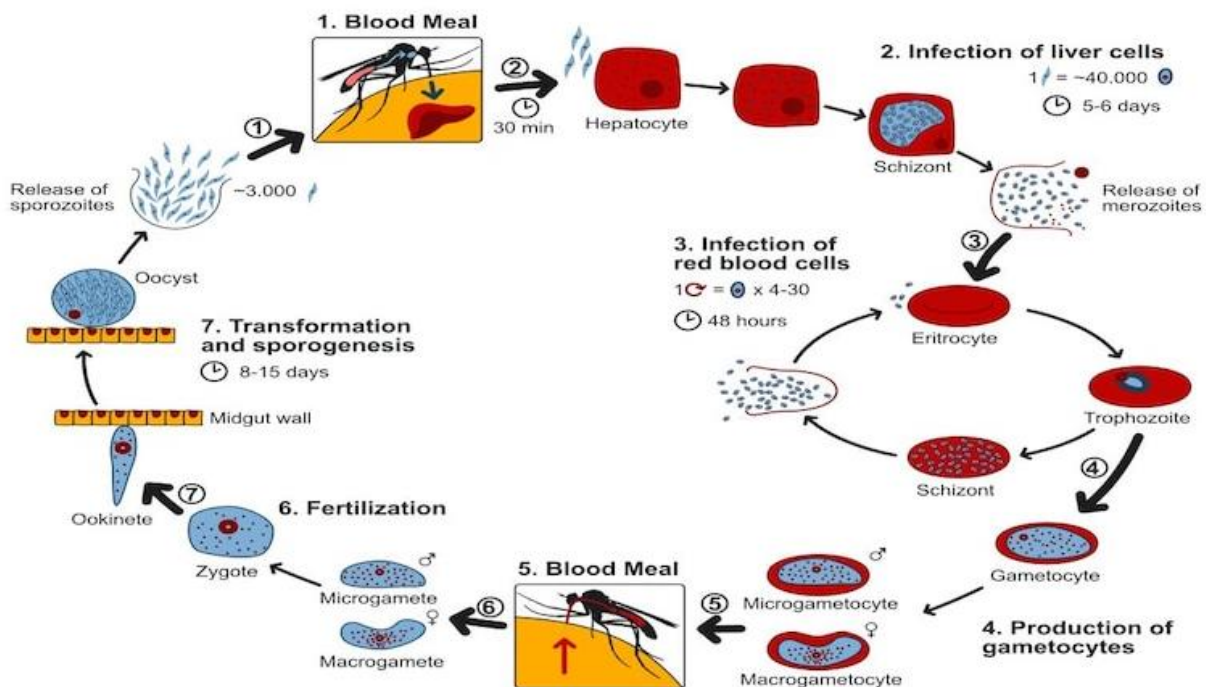
Issue:

- If expeditious action is not taken, the world is in danger of seeing an immediate resurgence of the disease, particularly in Africa.

WHO Updated Strategy:

- The WHO updated the WHO Global Technical Strategy for Malaria 2016–2030 this year, incorporating lessons learned from the global malaria response during 2016–2020.
- WHO's malaria strategy called for tailoring malaria responses to local settings, harnessing innovation, strengthening health systems and ensuring robust global malaria funding.
- Reaching the 2030 goals of the WHO malaria strategy, including a 90% reduction in global malaria incidence and mortality rates by 2030, will require new approaches, new tools and the better implementation of existing ones.
- Meeting global targets will also require robust funding.

Malaria



Malaria:

- It is a mosquito-borne blood disease caused by plasmodium protozoa. The parasites spread through the bites of infected female Anopheles mosquitoes.
- Disease Prevalence: It is predominantly found in the tropical and subtropical areas of Africa, South America as well as Asia.
- Symptoms: Fever and flu-like illness, including shaking chills, headache, muscle aches, and tiredness.
- Prevention and Cure:
 - It is preventable as well as curable but can be fatal in case of late or no treatment.
 - Vector control is the main way to prevent and reduce malaria transmission.
 - Antimalarial medicines are used to prevent malaria e.g. Chemoprophylaxis, Artemisinin-based Combination Therapy (ACT).

- Recent developments: In October 2021, WHO recommended RTS, S for children living in sub-Saharan Africa and in other regions with moderate to high P. falciparum malaria transmission.
- RTS, S is the first vaccine ever to be recommended by WHO against a human parasite.

Indian Initiatives:

Page|35 5 year National Strategic Plan for Malaria Elimination:

- Launched in 2017
- It shifted focus from Malaria control to elimination.
- It provided a roadmap to end malaria in 571 districts out of India's 678 districts by 2022.

Malaria Elimination Research Alliance-India (MERA-India):

- Established by the Indian Council of Medical Research (ICMR)
- It is a conglomeration of partners working on malaria control.

21. Laser Communications Relay Demonstration (LCRD):

- Recently, NASA launched its new Laser Communications Relay Demonstration (LCRD) from Cape Canaveral Space Force Station in Florida.
- LCRD is the first-ever laser communications system of NASA.
- It will help NASA in test optical communication in space.
- Presently, most of the NASA spacecraft use radio frequency communications to send data.
- But the Optical communications will help in increasing the bandwidth by 10 to 100 times as compared to radio frequency systems.
- LCRD will also demonstrate all of the advantages of using laser systems.
- With this capability, laser communications can be implemented on more missions in a bid to standardise way to send and receive data.

Features of LCRD:

LCRD comprises of two optical terminals:

- One of the terminals is used to receive data from a user spacecraft.
- While, the other terminal is used to transmit data to ground stations.
- LCRD also has modems, which will translate digital data into laser signals.
- These signals will then be transmitted through encoded beams of light.
- These capabilities of LCRD make it NASA's first two-way, end-to-end optical relay.
- Advantage of Laser communication systems
- Laser communications and radio waves make use of different wavelengths of light.
- Laser system uses infrared light and is having a shorter wavelength as compared to radio waves. It will help in transmitting more data in a short time.
- As per NASA's estimate, it would take around nine weeks to transmit a completed map of Mars back to Earth using the current radio frequency systems. While, with laser systems, it can be accelerated to around nine days.
- LCRD will send data to Earth at 1.2 gigabits-per-second (Gbps), using infrared lasers. With this speed, one can download a movie in less than a minute.
- Optical communications systems are having smaller size & weight. They require less power as compared to radio instruments.

What is hosting the LCRD?

- LCRD payload is hosted onboard the Space Test Programme Satellite 6 (STPSat-6) of the US Department of Defense Space. It will be in a geosynchronous orbit, about 35,000 km above Earth.

22. Yutu-2:

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- Yutu -2 is a Chinese lunar rover that was launched to the moon in Chang'e 4 mission. It was launched in 2018 and it landed on the moon in 2019. Recently, the rover spotted a cube - shaped mystery hut on the far side of the moon.
- The Yutu - 2 rover found a cube shaped object in the far side of the moon. A likely explanation for the object is that it can be a larger boulder that was excavated by an impact event.
- As the name suggests, Chang'e 4 was the fourth lunar mission of China. The Chang'e 1 and Chang'e 2 missions were orbiters. The Chang'e 3 landed on the near side of the moon with Yutu - 1. Chang'e 5 mission brought moon sample to the earth.

About Yutu -2:

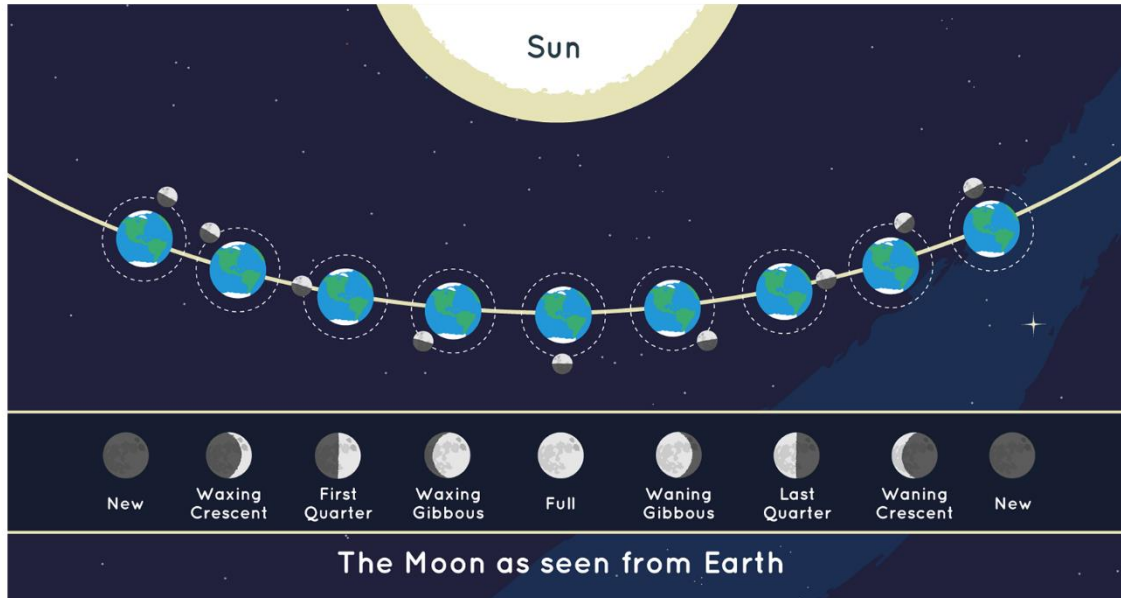
- It is solar powered and propelled by six wheels.
- The Yutu-2 landed in Von Karman crater.
- Yutu-2 captured Lunar Ejecta Sequence for first time
- In 2020, scientists reported high resolution image of Lunar Ejecta Sequence for the first time. The geology of the moon is called Selenology. The moon lacks true atmosphere. It does not hold any known actions of plate tectonics. It has a lower gravity. It cooled faster. Its surface was formed by volcanism and cratering.

Heater Unit of Yutu-2:

- The Yutu-2 is equipped with a radioisotope heater unit. The unit is used to heat the subsystems in the rover during long lunar nights. It set record of traversing for a greater number of lunar days. It continuously traversed the lunar surface for 11 days.
- Earlier, the record was held by Lunokhod-1 rover of Russia. This was possible because of the heater unit. It takes 29 earth days for the moon to complete one lunar day or to complete one rotation around its axis. This means that the nights in moon are longer. Thus, the heater unit is

What is far side of the moon?

- The rotation and revolution period of the moon are equal. That is, the time taken by the moon to make one complete revolution around the earth and the time taken by the moon to make one complete rotation along its axis is the same.
- This is why, the earth is constantly seeing only one side of the moon. The earth has never seen the other side. This other side is called far side of the moon.



We have a slightly different view of the Moon each night. We describe how the Moon looks with the eight Moon phases, or shapes:

- New
- Waxing Crescent
- First Quarter
- Waxing Gibbous
- Full
- Waning Gibbous
- Third Quarter
- Waning Crescent

23. Imaging X - Ray Polarimetry Explorer IXPE Mission:

- Recently, National Aeronautics and Space Administration (NASA) launched a new mission named Imaging X-ray Polarimetry Explorer (IXPE).
- IXPE observatory is a joint effort of NASA and the Italian Space Agency.
- It will study “the most extreme and mysterious objects in the universe - supernova remnants, supermassive black holes, and dozens of other high-energy objects.”
- Its primary length is two years and the observatory will be at 600 kilometers altitude, orbiting around Earth’s equator.
- It is expected to study about 40 celestial objects in its first year in space.
- It will complement other X-ray telescopes such as the Chandra X-ray Observatory and the European Space Agency’s X-ray observatory, XMM-Newton.

Significance:

1. It will help observe polarized X-rays from neutron stars and supermassive black holes. By measuring the polarization of these X-rays, we can study where the light came from and understand the geometry and inner workings of the light source.
2. It will help scientists understand how black holes spin and their location in the past.
3. It will help unravel how pulsars shine so brightly in X-rays.

- It will help learn what powers the jets of energetic particles that are ejected from the region around the supermassive black holes at the centers of galaxies.

NASA's Other Recent Missions:

- Double Asteroid Redirection Test (DART).
- Mission Lucy (Jupiter Trojan Asteroids).
- Near-Earth Asteroid Scout

Supernova:

- A supernova is an extremely powerful explosion that accompanies the death of a massive star.

Black Hole:

- A black hole is a place in space where gravity pulls so much that even light can not get out. The gravity is so strong because matter has been squeezed into a tiny space.
- Gravitational waves are created when two black holes orbit each other and merge.

Neutron Stars:

- Neutron stars comprise one of the possible evolutionary end-points of high mass stars.
- Once the core of the star has completely burned to iron, energy production stops and the core rapidly collapses, squeezing electrons and protons together to form neutrons and neutrinos.
- A star supported by neutron degeneracy pressure is known as a 'neutron star', which may be seen as a pulsar if its magnetic field is favourably aligned with its spin axis.

DIFFERENCE BETWEEN A STAR AND A SHOOTING STAR

STAR	SHOOTING STAR
A star is made up of hot gases like hydrogen.	A shooting star is made up of rock and metal.
A star is self-luminous	A shooting star has no light of its own.
A star does not get destroyed due to friction.	A shooting star burns due to the heat of friction when entering the atmosphere of the Earth.
A star is very big in size.	A shooting star is very small in size.

24. First Magnetic Field on an Exoplanet:

- Recently, a team of astronomers used data from the Hubble Space Telescope for discovering the signature of a magnetic field on an Exoplanet. The findings were described in the journal called **Nature Astronomy**. **Such a feature has been seen on an exoplanet, for the first time.**

Key Points:

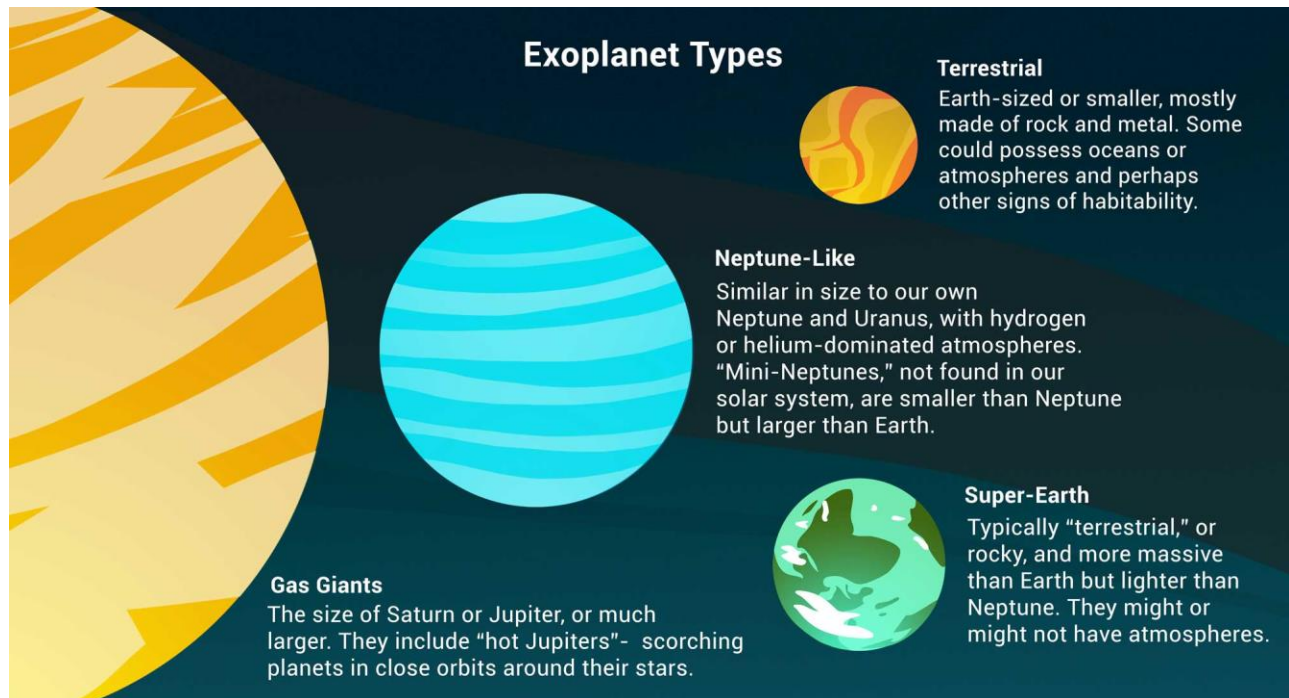
- A magnetic field around the planet explains the observations of an extended region of charged carbon particles. It streams away from it in a long tail.
- Magnetic fields play a significant role in protecting planetary atmospheres.
- Thus, the ability to detect the magnetic fields of exoplanets is a significant step of understanding what aliens' worlds may look like, in a better manner.
- Researchers used the Hubble for observing the exoplanet HAT-P-11b. it is a Neptune-sized planet, located at a distance of 123 light-years from Earth.
- Observations were made in ultraviolet light spectrum.

Exoplanet or extrasolar planet:

- Exoplanet is a planet outside our Solar System. First possible evidence of an exoplanet was found in 1917, but was not recognized as such. First confirmed exoplanet was detected in 1992. As of December 2021, there are 4,878 confirmed exoplanets, located

across 3,604 planetary systems. Out of all the systems, 807 systems are having more than one planet.

- There are various methods of detecting **exoplanets**. But Transit photometry and Doppler spectroscopy have found the most. However, these methods suffer from a clear observational bias and favours the detection of planets near the star. Hence, 85% of the detected exoplanets are inside the tidal locking zone.



25. China- Elon Musk Space Tussle:

- Recently, Chinese citizens lashed out against Elon Musk's space programme, after China complained that its space station had to take evasive action in order to avoid collision with satellites launched by Musk's Starlink programme.
- As per China, satellites from Starlink Internet Services had two close encounters with Chinese Space Station on July 1 and October 21.
- To prevent collision and for safety reasons, Space Station of China implemented preventive collision avoidance control.
- Starlink is a satellite internet constellation. It is operated by SpaceX.
- The satellite provides Internet access, covering most of the Earth. The constellation has grown to around 1900 satellites as of 2021. It will eventually comprise of more of mass-produced small satellites in low Earth orbit (LEO). As of November 2021, beta service offering is available across 21 countries.
- Work on Starlink constellation started in 2014 when SpaceX stealthily filed an ITU application through a Norway telecom regulator under the name STEAM.
- In January 2015, the communication satellite network SpaceX envisions was announced publicly, with bandwidth of carrying up to 50% of all backhaul communications traffic.
- Space Exploration Technologies Corp. (SpaceX) is an American aerospace manufacturer and space transportation services. It is headquartered in Hawthorne, California. The

company was started by Elon Musk in 2002, with the objectives of reducing space transportation costs.

Increasing risk of space collisions:

- About 30,000 satellites and other debris are believed to be orbiting the planet. So, scientists have urged governments to share data for reducing the risk of space collisions. SpaceX has deployed around 1,900 satellites for serving its Starlink broadband network and has planned more such launched.

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26. Indian Army's Quantum Laboratory at Mhow (MP):

- The Indian Army recently established the "Quantum Laboratory" at Mhow in Madhya Pradesh, highlighting its steady and significant strides in emerging technology domains.
- The Quantum Laboratory was established with the help of National Security Council Secretariat (NSCS).
- It was established at Military College of Telecommunication Engineering (MCTE) in Mhow with the objective of spearheading research and training in the key developing field.
- The Army has also established an Artificial Intelligence (AI) Centre at the MCTE, by making more than 140 deployments in forward areas and with active support of academia and industry.
- Training on cyber warfare is being given through cyber security labs and state of art cyber range.

Background:

- Idea of Army's involvement in Electromagnetic Spectrum Operations was put forward during a seminar on Electromagnetic Spectrum & National Security, which was organised in October 2020. Since then, thrust has been given to Technology Institutions of Indian Army, for investing in AI, Quantum and Cyber.

Significance of the Move:

- Indian Army's research in the field of Quantum Technology will help in leapfrogging into next generation communication and transforming the current system of cryptography in Indian Armed Forces to Post Quantum Cryptography (PQC).
- Key thrust areas include Quantum Computing, Quantum Key Distribution, Quantum Communication, and Post Quantum Cryptography.

National Security Council (NSC):

- NSC is an executive government agency, that advises Prime Minister's Office on matters related to national security and strategic interest.
- It was established by former Prime Minister Atal Bihari Vajpayee in 1998. The first National Security Advisor was Brajesh Mishra.

Environment and Ecology

1. Flex-Fuel Vehicles and Flex-Fuel Strong Hybrid EVs:

- Recently, the Government has advised the Automobile Manufacturers in India, to start manufacturing Flex Fuel Vehicles (FFV) and Flex Fuel Strong Hybrid Electric Vehicles (FFV-SHEV) complying with BS-6 Norms in a time bound manner.

About FFV and FFV-SHEV:

- Flex-fuel vehicles (FFV): They have engines that can run on flexible fuel – a combination of petrol and ethanol, which can include up to 100% ethanol.
- Flex Fuel Strong Hybrid Electric Vehicles (FFV-SHEV): When FFV is integrated along with strong hybrid electric technology, it is referred as FFV-SHEVs.
- Strong hybrid is another term for full hybrid vehicles, which have the capability to run solely on either electric or petrol modes.
- In contrast, mild hybrids cannot run purely on one of these modes and use the secondary mode merely as a supplement to the main mode of propulsion.
- In order to accelerate the introduction of FFVs, the Production Linked Incentive (PLI) scheme has included automobile and auto components of flex fuel engines.

Significance:

- Easing Pressure on Import Bill: The policy is expected to reduce the demand for petroleum products.
- India presently imports more than 80% of its petroleum requirement, and this also represents one of the biggest outflows of money from the country.
- Benefiting Farmers: The wide uptake of ethanol or methanol as a fuel is intended to create an additional revenue stream for farmers.
- This will provide direct benefits to farmers and help in doubling the farmer's income.
- Boost to Atma Nirbhar Bharat: It is in line with Prime Minister's vision of Atma Nirbhar Bharat and government's policy on promoting ethanol as a transport fuel.
- Reducing Greenhouse Gas & Tackling Climate Change: This move will drastically reduce greenhouse gas emissions from vehicles on a well-to-wheel basis.
- Thereby, helping India to comply with its commitment made at Conference of parties (COP26) to reduce the total projected carbon emissions by one billion tonnes by 2030.

Related Government Initiatives:

1. National Policy on Biofuels-2018
2. E100 Project.
3. Pradhan Mantri JI-VAN Yojana, 2019
4. GOBAR (Galvanising Organic Bio-Agro Resources) DHAN Scheme, 2018
5. Repurpose Used Cooking Oil (RUCO)

What are the BS-VI Fuel Norms?

- The Bharat Stage (BS) are emission standards instituted by the Government of India to regulate the output of air pollutants from motor vehicles.
- India directly shifted from BS-IV to BS-VI norms. The switch to BS-VI vehicles was to happen in 2022 but looking at the poor air condition, the move was advanced by four years.
- In BS-VI fuel, the volume of Particulate Matter 2.5 ranges from 20 to 40 micrograms per cubic metre whereas in BS-IV fuel it is up to 120 micrograms per cubic metre.
- **BS-VI fuel** will bring down sulphur content by 5 times from the current BS-IV levels. It has 10 ppm of sulphur as against 50 ppm in BS-IV.
- Sulphur in the fuel contributes to fine particulate matter emissions. High sulphur content in the fuel also leads to corrosion and wear of the automobile engine.
- With BS-VI fuel, for every one kilometre, a car will emit 80% less particulate matter and nearly 70% less nitrogen oxide.
- Air pollutants in BS-VI fuel are much less as compared to BS-IV fuel.

- BS-VI norms also seek to reduce the level of certain harmful hydrocarbons in the emissions that are produced due to incomplete combustion of fuel.

6 THINGS TO KNOW ABOUT ETHANOL AND FLEX FUEL

<p>1 Flex fuel vehicles can run on both petrol and ethanol</p> <p>2 India is aiming to achieve E10 by 2022 and E20 (which would involve a 20% ethanol blend) by 2025</p> <p>3 At present there are no flex-fuel-powered engines or vehicles with the exception of a limited-edition TVS Apache RTR motorcycle</p>	<p>4 Ethanol is hygroscopic, and has a tendency to absorb moisture making it difficult to store in pure form. Its affinity to attract moisture can also lead to impurities settling at the base of the fuel tank and contaminating the engine</p> <p>5 At present E10 isn't available across the country, and will be made so by 2022</p> <p>6 According to the government, all vehicles manufactured since 2008 are E10 compatible (but not optimised). E100 ethanol will be sold at a lower price from ethanol pumps</p>
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What is Flex Fuel?

- Unlike petrol and diesel that are directly extracted from petroleum reservoirs, the flex-fuel is made in a laboratory.
- Flex-fuel is a mixture of petrol (gasoline) and ethanol or methanol. This ethanol is extracted from corn or sugarcane crops, meaning it is a renewable resource.
- The flex-fuel (a mixture of two fuel) is stored in a single fuel tank, unlike the vehicle that uses different storage containers for fuel (bi-fuel).
- Cars running on flex-fuel should not be confused with bi-fuel cars. Cars that run on bi-fuel have different containers for different fuels. Example: a car that runs on petrol as well as CNG (bi-fuel). The fuel tank and CNG cylinder are different.

Why Flex Fuel?

- **Efficient Technology:** ideal combustion
- **Sustainable:** ethanol is produced from sugarcane and corn crops (compared to fossil fuels)
- **Performance:** engine running on flex-fuel provides best possible mileage
- **Better for the Environment:** produce fewer greenhouse gasses that are less harmful to the environment.

2. Rare Pink Handfish:

- Recently, the Commonwealth Scientific and Industrial Research Organisation (CSIRO) of Australia, recently spotted a rare pink handfish near Tasmanian coast, after 22 years. The fish was last spotted in 1999.
- The Australian marine researchers used an underwater camera inside the seabed in Tasman Fracture Marine Park, in February 2021. While going through the footage later, they spotted the pink handfish.

- The Taman Fracture Marine Park is known for its deep fracture inside the earth's crust, allowing scientists to explore marine life up to the depths of 4,000 meters.
- Earlier, it was assumed that, pink handfish lives in shallow waters. However, this time it was found at the depth of 150 meters.

About Handfish:

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- Handfish are any anglerfish, belonging to the family Brachionichthyidae. This family is a group of five genera and 14 extant species.
- These benthic marine fish are known for the way they propel themselves by walking on sea floor rather than swimming.
- Presently, Handfish are found in the coastal waters of southern and eastern Australia and Tasmania.
- They are scientifically called as Latin brachium.
- The species has been named 'handfish' because of their little hand like structure, which they use to walk on the sea bed.
- Handfishes have small population sizes and their distributions are restricted. Thus, they are highly vulnerable to disturbance. Some species are classified as critically endangered.
- Handfishes grow up to 15 cm long. They have skin covered with denticles, which give them an alternate name 'warty anglers'. They are slow-moving fish.

3. Unnatural Death of Elephants:

- According to data given by the Union Ministry of Environment, Forest and Climate Change, 600 elephants have died due to electrocution across India, in between 2009 and 2019.
- Out of total deaths, 116 took place in Karnataka, 117 in Odisha while 105 in Assam.
- Arunachal Pradesh, Tripura and Maharashtra are the only states with zero such deaths.
- Karnataka have been reporting most of the unnatural elephant deaths in the last few years. Though, the number have come down but annually. But 5-6 cases of deaths of jumbos are due to electrocution.
- In June 2021 Four jumbos died in Kodagu, while in October 2020, two male elephants died in Bannerghatta National Park Bengaluru, due to electrocution.
- Elephants die when they come in contact with electric fence lines put up by private landowners.

Government's project to save Elephants:

- Government has been providing financial and technical assistance under the scheme called "Project Elephant" to the elephant range states and union territories.

About Project Elephant:

- Project Elephant was launched in 1992, in order to provide financial and technical support to wildlife management efforts taken by states for the protection of wild Asian Elephants. It is a Centrally Sponsored Scheme (CSS). Scheme is being implemented with following objectives:
 1. For protecting elephants, their habitat & corridors.
 2. Addressing issues of man-animal conflict.
 3. Welfare of captive elephants.
 4. Implementation of the scheme
- Project Elephant is being mainly implemented across 16 States and UTs namely, Andhra Pradesh, Assam, Arunachal Pradesh, Jharkhand, Chhattisgarh, Kerala, Karnataka,

Nagaland, Maharashtra, Meghalaya, Tamil Nadu, Orissa, Uttarakhand, Tripura, West Bengal and Uttar Pradesh.

- The scheme also has the provision of ex-gratia relief in case of human death or injury, damage to property and crop loss.
- Asian Elephants: Protection Status
- IUCN Red List: Endangered category.
- CITES: Appendix I animal.
- India's Wildlife (Protection) Act, 1972: Schedule I animal.

Seed Bombs:

- Recently Odisha's Athagarh Forest Division has started casting seed balls (or bombs) inside different reserve forest areas to enrich food stock for wild elephants to prevent man-elephant conflict.

Right of Passage of the Animals:

- Recently, the Supreme Court (SC) upheld the 2011 order of the Madras High Court (HC) on the Nilgiris elephant corridor, affirming the right of passage of the animals and the closure of resorts in the area.

Related Global Initiative:

- The Monitoring the Illegal Killing of Elephants (MIKE) programme, launched in 2003, is an international collaboration that tracks trends in information related to the illegal killing of elephants from across Africa and Asia, to monitor effectiveness of field conservation efforts.

4. Barn Owl:

- Recently, the forest officials rescued a barn owl in Supaul district of Bihar, in a rare sighting.
- The Barn owl is usually native to the US, the UK and other parts of Europe.
- It is rarely seen in the Indian subcontinent.
- The Barn Owl is scientifically called as **Tyto alba**. It is the most widely distributed species of owl worldwide. The species is found almost everywhere in across the world, except for the polar and desert regions, Indonesia, Pacific Islands and Asia north of the Himalayas. It is also called as common barn owl.



Characteristics of the Owl:

- The Barn owl is nocturnal for most of its range. However, in Great Britain and some Pacific Islands, the owl also hunts by day.
- They are specialised in hunting animals on the ground. All of their food comprises of small mammals, which they locate by sound.
- They are a medium-sized, pale-coloured owl, having long wings and a short & squarish tail.
- They have a typical wingspan of 80 to 95 cm.

Breeding season:

- In the tropical regions, the Barn owls can breed at any time of year. However, some seasonality in nesting is still evident. In the regions of distinct wet & dry seasons, egg-

laying generally takes place during the dry season. In arid regions like Australia, breeding might be irregular and might happen in wet periods.

5. Solar hamam:

- 'Solar Hamam' takes care of heating in cold Himalayan regions especially in the villages of Ladakh, Himachal Pradesh and Uttarakhand.
- The Solar Hamam had won the "Himachal Pradesh State Innovation Award for 2016-17".
- The Solar Hamam provides an anti-freezing outlet. It provides for 15-18 litres of boiling hot water, within the first solar illumination of 30-35 minutes, at a maximum temperature of 90°C in the morning.

Aim:

- Aimed at providing clean energy solutions to households across mountainous regions. It seeks to conserve forests, free women from collecting fuel wood and mitigate carbon emission.

Significance:

- In the higher Himalayan region, 50% of fuelwood is consumed for the purpose of heating and is one of the major reasons for forests degradation and also the main cause of drudgery of women.
- Post-installation maintenance for the Solar Hamam is minimal.
- It is fabricated by rural artisans, mainly carpenters. Thus, it has also helped in generating employment.

6. Update of IUCN Red List of Threatened Species:

- As per an update of IUCN Red List of Threatened Species, the destruction of wetlands is causing the decline of dragonflies across the world.
- Number of species at risk of extinction in the Red List of IUCN has exceeded 40,000 for the first time.
- Their decline is due to widespread loss of swamps, marshes, and free-flowing rivers where they breed in.
- Decline is mostly driven by expansion of unsustainable agriculture and urbanisation worldwide.
- The number of species at risk of extinction on the IUCN Red List has exceeded 40,000 for the first time. It now includes 142,577 species, out of which 40,084 are threatened with extinction.

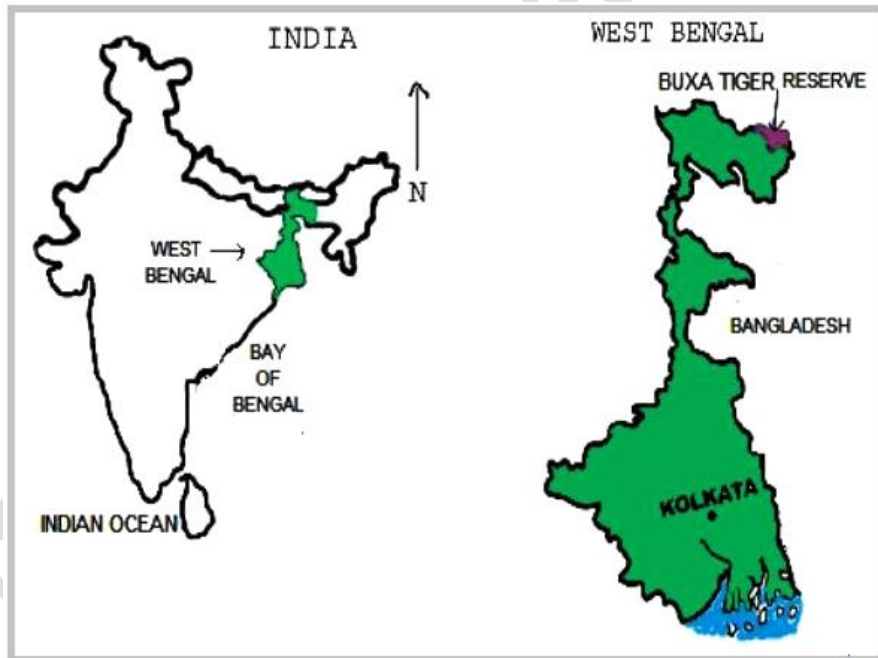
The International Union for Conservation of Nature:

- IUCN is a membership union uniquely composed of both government and civil society organisations.
- Created in 1948, it is the global authority on the status of the natural world and the measures needed to safeguard it.
- It is headquartered in Switzerland.
- The IUCN Red List of Threatened Species, is the world's most comprehensive inventory of the global conservation status of plant and animal species.
- It uses a set of quantitative criteria to evaluate the extinction risk of species. These criteria are relevant to most species and all regions of the world.

- The IUCN Red List Categories define the extinction risk of species assessed. Nine categories extend from NE (Not Evaluated) to EX (Extinct). Critically Endangered (CR), Endangered (EN) and Vulnerable (VU) species are considered to be threatened with extinction.
- It is recognized as the most authoritative guide to the status of biological diversity.
- It is also a key indicator for the SDGs and Aichi Targets.

7. Royal Bengal Tiger sighted at Buxa Reserve:

- Recently, a Royal Bengal tiger was sighted at the Buxa reserve - a first such sighting in 23 years.
- Historically, tigers were distributed throughout the reserve including the southernmost ranges and fringe areas. However, the reserve has a low tiger density at present.
- Buxa Tiger Reserve is situated in the Alipurduar Sub-division of Jalpaiguri District, West Bengal. It was created in 1983 as the 15th tiger reserve of India.
- It was declared as a National Park in January 1992.
- The northern boundary of **Buxa Tiger Reserve** runs along the international border with Bhutan. The Sinchula hill range lies all along the northern side of Buxa National Park and the Eastern boundary touches that of the Assam State.
- The main rivers flowing across the Tiger Reserve are Sankosh, Raidak, Jayanti, Churnia, Turturi, Phashkhawa, Dima and Nonani.



Tiger Corridor:

- The reserve has corridor connectivity across the border with the forests of Bhutan in the North, on the East it has linkages with the Kochugaon forests, Manas Tiger Reserve and on the West with the **Jaldapara National Park**. The following corridor links are important:
- Buxa-Titi (via Torsa): Connecting Rangamati Reserve Forest area of Buxa Tiger Reserve with Titi Reserve Forest.

- **Buxa-Titi (via Beech and Bharnabari Tea estate):** Connecting Bharnabari Reserve Forest of Buxa Tiger Reserve and Titi Reserve Forest situated south of Dalsingpara tea estate by passing through Bharnabari tea estate and Beech tea estate.
- **Nimati-Chilapata (Buxa-Chilapata):** Facilitating elephant movement between Nimati Range of Buxa Tiger Reserve and Chilapata Reserve Forest, thereby maintaining elephant movement between Buxa Tiger Reserve and Jaldapara Wildlife Sanctuary (West Bengal).
- **Buxa-Ripu at Sankosh (Sankosh):** This corridor is a contiguous forest that connects Buxa Tiger Reserve of West Bengal with the Ripu Reserve Forest of Kachugaon Forest Division, Assam.
- The corridors mentioned above form part of North East and Brahmaputra Valley tiger landscape, providing crucial linkages for the dispersal of tigers to various protected areas like, Buxa, Manas Tiger Reserve (Assam), Phipsoo Wildlife Sanctuary in Bhutan and Jaldapara National Park.
- The forests of the reserve can be broadly classified as the 'Moist Tropical Forest'.
- Some important species found in the reserve are Indian Tiger (*Panthera tigris tigris*), Leopard (*Panthera pardus*), Clouded Leopard (*Neofelis nebulosa*), Hog badger (*Arctonyx collaris*), Jungle Cat (*Felis chaus*) etc.

Other Protected Areas in West Bengal:

1. Gorumara National Park
2. Sundarbans National Park
3. Neora Valley National Park
4. Singalila National Park
5. Jaldapara National Park

Tiger-Conservation Status:

- Indian Wildlife (Protection) Act, 1972: Schedule I
- International Union for Conservation of Nature (IUCN) Red List: Endangered.
- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES): Appendix I.

Tigers in India:

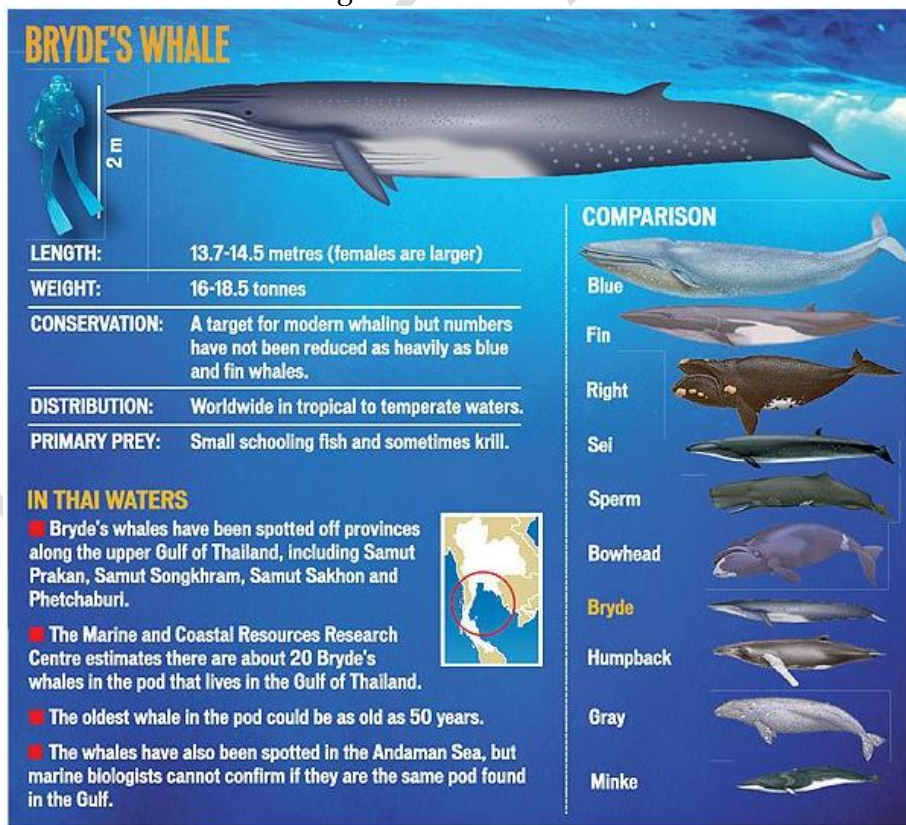
- India is home to over 70% of the tiger population globally.
- India is home to 53 tiger reserves spread across 18 states and the last tiger census of 2018 showed a rise in the tiger population.
- India achieved the target of doubling the tiger population four years ahead of schedule (2022) of the St. Petersburg Declaration on tiger conservation.
- India's strategy of tiger conservation attaches topmost importance to involving local communities.

Tiger Conservation Projects in India:

- **Project Tiger 1973:** Project Tiger is a Centrally Sponsored Scheme of the Ministry of Environment, Forests and Climate Change (MoEFCC) launched in 1973. It provides havens for tigers in the country's national parks.
- Recently, the National Tiger Conservation Authority (NTCA) has designated the combined areas of the Guru Ghasidas National Park and Tamor Pingla Wildlife Sanctuary as the 53rd Tiger Reserve in India.
- **National Tiger Conservation Authority:** It is a statutory body under the MoEFCC and was established in 2005 following the recommendations of the Tiger Task Force.

8. Endangered Bryde's Whale:

- Recently, a carcass of an endangered Bryde's whale was found near the border of Puri and Ganjam districts of Odisha.
- It was a 48-foot-long female whale, buried near the shore.
- Exact cause of the death will be known only after getting post-mortem report.
- Two whales, one male and the other female, were found near the coast. It is likely that, carcass is of a female got stuck in the sea bed because of low water level.
- Bryde's whale comprises of three species of rorqual and maybe four. "Complex" means the number and its classification remains unclear due to lack of definitive information & research.
- Common Bryde's whale is a larger form occurring worldwide in warm temperate and tropical waters
- Sittang or Eden's whale is a smaller form, which are restricted to the Indo-Pacific.
- A smaller & coastal form of B. Brydei is found off southern Africa.
- Brydei have got its specific and common name from Johan Bryde, who was a Norwegian consul to South Africa. He helped in establishing the first modern whaling station. B. edeni gets its specific and common names from Sir Ashley Eden who was the former High Commissioner of Myanmar.
- Brydei occurs in Atlantic, Pacific, and Indian Oceans in between the 40th parallels of latitude. They prefer highly productive, tropical, subtropical, and warm, temperate waters having 16–22 °C. They also occur in Honshu in the north Pacific, west & southern California as well as in Washington in the United States.



9. NITI Aayog's 'e-Sawari India E-Bus Coalition':

- NITI Aayog in association with the Convergence Energy Service Limited (CESL) & World Resources Institute, India launched the "e-Sawari India Electric Bus Coalition" (e-Sawari India e-Bus Coalition). This coalition is also supported by Transformative Urban Mobility Initiative (TUMI).
- With the launch of "**e-Sawari India Electric Bus Coalition**", central government agencies, state government agencies, city-level government agencies, original equipment manufacturers (OEMs), transit service providers, financing institutions, and ancillary service providers would be able to share their learnings and knowledge on e-bus adoption in India.
- In India, electrification of public transport especially across bus sector is key to decarbonization strategy. The launch of e-Sawari India Electric Bus Coalition is a step of ensuring steady and paced electrification of bus transport system in the country. It will help in address the challenges of procurement, operations & financing e-bus deployment in a bid to achieve net zero emissions.
- Adoption of electric bus has gained traction in India. Several cities and their governments have embarked for electrifying their bus-based transport system. Government has been aggregating e-bus demand from the nine largest Indian cities under the Faster Adoption and Manufacturing of Electric Vehicles in India (FAME) scheme.

NITI Aayog:

- NITI AAYOG is a premiere policy think tank of the Government of India. It was established with the aim to achieve sustainable development goals by active involvement of state government in the planning process
- This premiere policy think tank was established in 2015 via an executive resolution by replacing the Planning Commission of India

10. 'Sponge city' in Water Management:

- Chennai is all set to adopt innovative water management strategies and transform into a sponge city to curb the urban flooding.
- Sponge city concept seeks to make urban areas more permeable, have more open spaces to store rainwater as well to allow it to percolate to aquifers.
- Water Resources Department in Chennai is looking over possibility of digging recharge shafts in smaller water bodies across the city.
- These recharge shafts can be dug up to a depth of 80-90 feet. It will help replenish water table.
- As per plan, smaller water bodies & temple tanks could be used as structures for storing surplus water during intense rain. Water can be treated, drawn, and supplied to the city as per need.

What is a sponge city?

- Sponge city is a new urban construction model for flood management, and to strengthen ecological infrastructure & drainage systems. This concept was proposed by Chinese researchers in 2000.
- The Chinese Communist Party (CCP) and State Council accepted this concept as "urbanism policy" in 2014. This system helps in alleviating urban flooding, urban heat island effect and water resources shortage.

- It also improves the ecological environment and biodiversity by absorbing & capturing rain water and using it to reduce floods. Sponge city policies are nature-based solutions, which use natural landscapes for catching, storing and cleaning water. This concept was inspired by ancient wisdom of adaptation to climate challenges, specifically in monsoon world.

Page|50 **Sponge Cities Mission:**

- The main idea of the sponge city is to make cities more permeable in order to hold and use water which falls upon it. These can all be delivered effectively by an urban mission along the lines of National Heritage City Development & Augmentation Yojana (HRIDAY), Atal Mission for Rejuvenation & Urban Transformation (AMRUT), and Smart Cities Mission.
- In India, there is a need of Sponge cities because,
 1. Urban flooding has become recurring phenomenon in Indian metros.
 2. India's Land policy has not been effective in managing or controlling the recurrence of major floods in urban areas.
 3. Urban cities lack proper drainage network.
 4. Concrete structures in urban cities are causing water wastage.

11. Flatbill flycatcher- New Species of Bird Discovered in South America:

- In South America, a New Species of Bird named Flatbill flycatchers have been discovered.
- Flatbill flycatcher are members of genus Rhynchocyclusin exclusively New World family Tyrannidae.
- Four known species in this genus are distributed across southern Mexico to north-eastern Bolivia, Brazil and eastern Venezuela.
- The newly discovered species has been named as cryptic flatbill (Rhynchocyclus cryptus) after its remarkable morphological cryptic nature, it strongly contrasts with its high levels of vocal and genetic differentiation.
- The species prefers seasonally flooded floodplain forests (varzea), including degraded patches near to human settlements. It can be found towards south of the Amazon River, banks of Madeira River in Amazonas & Acre in Brazil, west of Marañon River in Peru, and south to north or central Bolivia in the Mamore.

The main threats for the species are:

- Deforestation due to rapid progress of livestock farms
- Monocultures and implementation of large hydroelectric dams on the Madeira River. It affects the flow of sediments.

12. Project RE- HAB:

- Project **RE-HAB** is **Reducing Elephant Human-Attacks** using Bees. It was recently launched in Assam.
- The **Project RE- HAB** creates "bee fences". The honey bees in these fences' thwart elephant attacks in human habitations. They dissuade the elephants without harming them. It is highly cost - effective as compared to erecting fences or digging trenches. Simultaneously, it increases honey production and increases farmer income. Also, the project helps to address climate change issues by regenerating forest cover.

How does the project work?

- Under the project, the bee boxes are placed in the premises of human habitation. They are placed as fences. Around 15 to 20 bee boxes are placed around the habitation that is to be protected. The buzz of the bees irritate the elephants the most. They fear that the honey bees might sting them in their trunks and eyes. And therefore, they do not walk ahead of the boxes. The boxes are connected with a string.
- When the elephants try to pass through the string, a pull or tug causes the bees to swarm towards the elephant.
- The Project RE - HAB is implemented by the Khadi and Village Industries Commission (KVIC). The KVIC is a statutory body established under Khadi and Village Industries Commission Act, 1956. The main function of KVIC is to plan, promote, organize and implement programmes for the development of village industries in rural areas.
- The **Project RE- HAB** is a sub mission to National Honey Mission of KVIC. It was launched to provide awareness and training in using bee boxes along the bee colonies. The mission was launched in 2017 and is in line with Sweet Revolution.
- The Project was first launched in **Karnataka**. Upon its huge success in the state, it is to be launched in West Bengal, Odisha, Jharkhand, Chhattisgarh, Tamil Nadu and Kerala.
- Between 2014 and 2019, around 403 deaths occurred due to elephant - human conflict. 397 deaths occurred in Odisha, 349 in Jharkhand, 332 in Assam, 170 in Karnataka and 289 in Chhattisgarh. Also, around 500 elephants died in human - elephant conflict in the last five years alone.

13. Tiger Deaths in India in 2021:

- Recently, a tiger was found dead in Chhindwara, Madhya Pradesh, taking toll to 44 in MP in 2021. NTCA is investigating the cause of the recent death of Tiger in Madhya Pradesh.
- Before that, a tigress died in the Dindori area of Madhya Pradesh, allegedly due to poisoning.
- Madhya Pradesh with 44 tiger deaths, is followed by Maharashtra (26) and Karnataka (14).
- According to National Tiger Conservation Authority (NTCA), in 2021 India reported the death of around 126 tigers.
- The tiger is globally listed as “endangered” on the International Union for the conservation of Nature (IUCN) Red List. As of 2015, global wild tiger population was estimated between 3,062 and 3,948 mature individuals. Most of the population are living in small isolated pockets. Presently, India hosts the largest population of tiger.
- Major reasons for declining population include- habitat destruction, poaching and habitat fragmentation. They are also victims of human-wildlife conflict.

The Royal Bengal Tiger:

- The Bengal Tiger is a tiger from specific population of Panthera tigris tigris subspecies. They are native to the Indian subcontinent. Tiger population in India was estimated at 2,603-3,346 individuals, as of 2018. Around 300-500 tigers are there in Bangladesh, 220-274 in Nepal while 103 tigers in Bhutan.

National Tiger Conservation Authority:

- National Tiger Conservation Authority (NTCA) is a statutory body under the Ministry of Environment, Forests and Climate Change.
- It was established in 2005 following the recommendations of the Tiger Task Force.

- It was constituted under enabling provisions of the Wildlife (Protection) Act, 1972, as amended in 2006, for strengthening tiger conservation, as per powers and functions assigned to it.

Project Tiger:

- Project Tiger is an ongoing Centrally Sponsored Scheme of the Ministry of Environment, Forests and Climate Change providing central assistance to the tiger States for tiger conservation in designated tiger reserves.
- India now has as many as 2,967 tigers in the wild, with more than half of them in Madhya Pradesh and Karnataka, according to the latest tiger estimation report for 2018.
- The population of tigers have increased by 33% since the last census in 2014 when the total estimate was 2,226.

14. Largest ever Rhino Transfer:

- Recently, 30 white rhinos were transferred from South Africa to Rwanda, onboard a Boeing 747 chartered plane. They were transferred in light of increasing threat of illegal poaching. It was the largest single transfer of white rhinos ever.
- White Rhinoceros are also known as square-lipped rhinoceros while their scientific name is *Ceratotherium simum*. They are the largest extant species of rhinoceros. They have a wide mouth, which they use for grazing. They are considered as the most social among all rhino species.
- As per latest IUCN assessment of 2020, the Northern White Rhinoceros are considered as “Critically Endangered” or Possibly Extinct in the Wild.

White rhinoceros comprises of two subspecies:

1. Southern White Rhinoceros- Estimated 19,682–21,077 wild-living animals, as of 2015.
2. Northern White Rhinoceros- They are rare and have few remaining individuals. Only two female rhinoceros were confirmed left in 2018. Sudan was the last known male northern white rhinoceros of the world, who died in Kenya in 2018. They are formerly found in several countries of East and Central Africa. The subspecies is a grazer of grasslands and savanna woodlands.

Polity & Governance

1. Good Governance Index-2021:

- On the occasion of the Good Governance Day (25th December), the government released the Good Governance Index 2021.
- The index was prepared by the Department of Administrative Reforms and Public Grievances (DARPG), Ministry of Personnel, Public Grievances and Pensions.
- Earlier this year, India was ranked 49th in the Chandler Good Government Index (CGGI).

About:

- GGI is a comprehensive and implementable framework to assess the State of Governance across the States and UTs which enables ranking of States/Districts.

- The objective of GGI is to create a tool that can be used uniformly across the States to assess the impact of various interventions taken up by the Central and State Governments including UTs.
- Based on the GGI Framework, the Index provides a comparative picture among the States while developing a competitive spirit for improvement.
- The GGI 2021 says that 20 States have improved their composite GGI scores over the GGI 2019 index scores.
- The GGI is envisaged as a biannual exercise.

Basis of the Ranking:

- It is based on ten sectors and 58 indicators. The sectors are:
 1. Agriculture and Allied Sectors
 2. Commerce & Industries
 3. Human Resource Development
 4. Public Health
 5. Public Infrastructure & Utilities
 6. Economic Governance
 7. Social Welfare & Development
 8. Judicial & Public Security
 9. Environment
 10. Citizen-Centric Governance

Ranking of the States:

- The Index categorises States and UTs into four categories, i.e.,
- **Other States - Group A:** Gujarat has topped the composite ranking in the Good Governance Index 2021 covering 10 sectors, followed by Maharashtra and Goa.
- **Other States - Group B:** Madhya Pradesh tops the list followed by Rajasthan and Chhattisgarh.
- North-East and Hill States: Himachal Pradesh topped the list followed by Mizoram and Uttarakhand.
- Union Territories: Delhi tops the composite rank registering a 14% increase over the GGI 2019 indicators.
- Other Initiatives for Good Governance:
 1. National e-Governance Plan
 2. Right to Information Act, 2005
 3. Digital India
 4. MyGov

2. Anti-Doping Bill:

- Recently, "Anti-Doping Bill was introduced in the Lok Sabha.
- The bill seeks to provide statutory framework for the functioning of National Anti-Doping Agency (NADA).
- Bill empowers NADA to conduct raids and strengthen measures of tackling drug abuse in Indian
- It will also provide statutory framework for the operation National Dope Testing Laboratory (NDTL) and other dope testing laboratories as well.
- It also provides for creation of a National Board for Anti-Doping in Sports in order to strengthen anti-doping activities in sport.

Power to NADA:

- The bill seeks to provide NADA with the powers of investigation, powers of inspection, sample collection and sharing & free flow of information, levying sanctions for Anti-Doping Rule Violations and disciplinary procedures to be adopted.
- Clause 19 of the bill provides NADA the power of “entry, search and seizure” by any person authorised by it, in order to determine if any anti-doping rule violation has been committed.
- However, the procedure to be adopted has to be in accordance with the provisions of Code of Criminal Procedure, 1973.
- Earlier, NADA had no authority of conducting raids and the anti-doping appeal panel of NADA has held the same. Many former sportspersons, head of National Sports Federations and experts have been calling for an anti-doping legislation to give more teeth to the existing rules made under the WADA Anti-Doping Code.
- The World Anti-Doping Agency (WADA) has currently suspended the NDTL as it failed to meet technical requirements.
- India has signed the “United Nations Educational, Scientific and Cultural Organisation International Convention” in 2005 against Doping in Sport and ratified it in November 2007. Following this, Indian Government had established the NDTL in 2008 and NADA in 2009. Both were established as societies under Societies Registration Act. With this bill, both the agencies will be dissolved and reconstituted.
- The NADA will be constituted as a body corporate, with same name. Its head office will continue to be in New Delhi. It will be headed by a Director General, who will be appointed by central government.

3. Linking voter rolls to Aadhar-Merits and Demerits:

- Recently, the Election Laws (Amendment) Bill, 2021 was passed in the Lok Sabha which seeks to link electoral roll data and voter ID cards with the Aadhaar ecosystem.
- The bill seeks to ensure de-duplication of electoral rolls and provide multiple qualifying dates to the voters. However, there are a lot of things wrong with this bill.
- The bill was passed in the Lok Sabha on the same day it was introduced. Not only does it undermine the fundamental premise of a Parliamentary democracy, but also deprives the elected representatives the opportunity to voice their concerns over an issue.
- Better Parliamentary scrutiny and ensuring the rights of elected representatives is essential for preserving a parliamentary democracy in its true means. An unwillingness to allow meaningful debate and invite wider consultation can undo even the progressive aspects of problematic legislation.

Salient Features of the Election Laws (Amendment) Bill, 2021:

- It provides for amendment of section 23 of the Representation of People’s Act, 1950, enabling the linking of electoral roll data with the Aadhaar ecosystem.
- This aims to curb the menace of multiple enrollment of the same person in different places.
- The language for registration of ‘wives of service voters’ will now be replaced by ‘spouse’.
- The bill proposes four qualifying dates (the first day of the months - January, April, July and October) for updating the voting rolls to include those who have turned 18 as compared to only one date previously (1st January).

Significance:

- The seeding of Aadhar data with voter identities will allow for remote voting, a measure that could help migrant voters.
- Aadhar linking is believed to be helpful in stopping bogus voting and fraudulent votes.
- Changing the language from 'wives' to 'spouse' will make the laws more "gender-neutral".

Page|55 **Concerns:**

- **Government gets the Final Say:** It is the Central government who has the final say in prescribing the conditions under which an individual will be permitted to enter or remain on the electoral rolls, in case of her "inability" to furnish their Aadhaar.
- This means that the Central government will decide what reasons are considered acceptable for a voter to remain on the electoral roll.
- **Burden Shifting:** Instead of the Government proactively ensuring registration on the electoral rolls to achieve universal adult franchise, the burden now shifts to individuals who may be unable/unwilling to link their Aadhaar to justify their retention on the rolls.
- Moreover, it will lead to the deletion from the voter rolls without any procedural safeguards since at the moment, the law does not provide for a right to a hearing before such deletion.

Privacy Concerns:

- Electoral data at present is held by the Election Commission of India (ECI) in its own database and is separate from other government databases.
- The proposed linkage Aadhaar and election database will make it available to the ECI and UIDAI. This could lead to infringement of the privacy of citizens.
- The legitimate voters will be disenfranchised merely upon their unwillingness/inability to submit Aadhaar details.
- **Identification of Beneficiary Voters:** The amendment will result in political profiling. By linking electoral IDs with Aadhaar numbers, it is much easier for the Government to track any voter who has accessed welfare subsidies and benefits using their Aadhaar.
- This can be used by political parties to selectively target their messages to specific voters, using information that is not publicly available.

Way Forward:

- **Reforms in Legislative Procedures:** The Government must invite public opinion and allow deeper parliamentary scrutiny before implementing any new provisions.
- It is of utmost importance in a Parliamentary democracy like India that not just the ordinary citizens but also the elected representatives are not being deprived of their rights and opportunities.
- A productive debate raising the concerns as well as the significance of a proposed bill is essential to identify and eliminate the concerns a legislation may pose.
- **Alternative Ways for Eliminating De-Duplication:** There are indeed issues of voters being registered in more than one constituency or the enrollment of non-citizens, but these can be addressed by other identification processes.
- In fact, the Aadhaar database may be irrelevant to verify voter identity because it is an identifier of residents and not citizens.
- **Need for Comprehensive Legislation:** An error-free Electoral Roll is sine qua non of a free and fair election. The Government should come with a comprehensive bill so that proper discussion can take place in the Parliament.

- Also, the bill should specify the extent of data sharing between the two databases, the methods through which consent will be obtained, and whether consent to link the databases can be revoked.
- **Ensuring the Privacy of Citizens:** Before pursuing the Aadhaar-voter ID integration, the government shall first go for enacting the Personal Data Protection (PDP) law.
- The PDP regime must also apply to the government entities and require them to obtain the explicit consent of an individual before sharing their data across various government institutions.

4. Women's Marriage Age:

- Recently, the Union Cabinet cleared a proposal to bring uniformity in the marriageable age of men and women.
- By amending the Prohibition of Child Marriage Act (PCMA), 2006 and other personal law, the legal age of marriage of women will be raised from 18 to 21 years.
- The decision is based on the recommendation of a four-member task force led by former Samata Party chief Jaya Jaitly.
- The task force was set up to re-examine the age of marriage and its correlation to health and social indices such as infant mortality, maternal mortality, and nutrition levels among mothers and children.

Background:

- In India, the minimum age of marriage was prescribed for the first time by the law known as the Sarda Act, 1929. It was later renamed as the Child Marriage Restraint Act (CMRA), 1929.
- In 1978, the law was amended to raise the minimum age of marriage to 18 years for girls and 21 years for boys.
- This position remains the same even in the new law called the Prohibition of Child Marriages Act (PCMA), 2006, which replaced the CMRA, 1929.

Marriage Minimum Age For Different Religion:

- For Hindus, The Hindu Marriage Act, 1955 sets 18 years as the minimum age for the bride and 21 years as the minimum age for the groom.
- In Islam, the marriage of a minor who has attained puberty is considered valid.
- 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.
- For the new age of marriage to be implemented, these laws are expected to be amended.

Pros of Raising Minimum Age for Marriage For Women:

- **Women and Child Welfare:** The poverty of the mother plays the greatest role of all by far — both in relation to her undernourishment and that of her child.
- An early age of marriage, and consequent early pregnancies, also have impacts on nutritional levels of mothers and their children, and their overall health and mental wellbeing.
- **Women's Empowerment and Gender Parity:** The mother's age at childbearing affects educational level, living conditions, health conditions, decision-making power of women.
- **Tackling Child Marriage:** India is home to the largest number of underage marriages in the world. The law will help to curb the menace of Child Marriage.

Cons of raising Minimum Age for Marriage For Women:

- **Difficulty in Fighting Child Marriage:** The implementation of the child marriage law is difficult.
- The evidence suggests that when the law is used, it is mostly to penalise young adults for self-arranged marriages.
- The law to prevent child marriage does not work very well.
- **While child marriage has declined, it has been marginal:** from 27% in 2015-16 to 23% in 2019-20, according to National Family Health Survey (NFHS) 5.
- 70% of early marriages take place in deprived communities such as Scheduled Castes and Scheduled Tribes, and the law will simply push these marriages underground instead of preventing them.
- **Criminalisation of a Large Number of Marriages:** The change will leave the vast majority of Indian women who marry before they are 21 without the legal protections that the institution of marriage otherwise provides, and make their families criminalisable.
- **Lack of Education is a Bigger Problem:** According to the State of the World Report 2020 by UNFPA, in India, 51% of young women with no education and 47% of those with only a primary education had married by age 18.
- Further, a study by the International Centre for Research on Women has found that girls out of school are 3.4 times more likely to be married or have their marriage already fixed than girls who are still in school.

Way Forward:

- **Boosting Education:** Activists say the answer to delaying child marriages lies in ensuring access to education since the practice is a social and economic issue.
- Skill & business training and sex education in schools, will also help.
- **Increasing Accessibility to Schools:** The government needs to look into increasing access to schools and colleges for girls, including their transportation to these institutes from far-flung areas.
- **Mass Awareness Program:** An awareness campaign is required on a massive scale on the increase in age of marriage, and to encourage social acceptance of the new legislation, which they have said would be far more effective than coercive measures.

5. MIS portal for rankings of States & UTs in Land Acquisition Projects:

- Recently, the Union Minister for Rural Development & Panchayati Raj launched MIS (Management Information System) portal to ranking of States/UTs in Land Acquisition Projects.
- With the launch of this portal, states/UTs will be ranked in Land Acquisition Projects under RFLARR Act, 2013, which is dubbed as “Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013”.
- Based on the ranking and performance, the top 3 States and top 3 districts will be awarded.

Significance of the portal:

- MIS portal is being dubbed as a ‘Vikas Portal’. Portal will not only show data and figures but also the speed of development in India. It is a result of the vision of Prime Minister Narendra Modi to provide impetus to the Gati Shakti Mission.

- Delayed implementation of the projects in India increases the project cost as well as disturb the pace of development. This portal will help in mitigating this concern. Because of ranking available to all the States, it will be easier to monitor the progress of developmental projects. This in turn will increase the speed of projects.
- MIS portal was developed by the Department of Land Resources. It is a software-driven program for submitting information by respective State/UTs on land acquisition on developmental projects. It was developed in house by the NIC team of the land resource department with zero cost. Link to the portal is larr.dolr.gov.in.
- MIS portal was launched to capture information on several parameters of land acquisition, which are necessary to rank the State/UTs.

6. Issue Aadhaar, voter cards to sex workers:

- Recently, the **Supreme Court** observed that fundamental rights are guaranteed to every citizen irrespective of vocation and directed the central government to start the process of issuing voter ID, Aadhaar and ration cards to sex workers.
- The **Supreme Court** also directed centre to keep providing **dry ration to sex workers**.
- The bench further directed that, authorities can take assistance from **National AIDS Control Organisation (NACO)** and state AIDS control societies while preparing a list of sex workers after verifying information provided by the community-based organisations.
- It also asked that, status report related to issuance of ration cards, voter ID cards and Aadhaar cards them should be filed within a period of four weeks from the date of direction.
- State governments and UTs have also been directed to continue distribution of dry ration to sex workers without asking their ration cards and other proofs of identity.
- The Supreme Court direction came while hearing a plea filed by NGO 'Durbar Mahila Samanwaya Committee'.
- The plea raised problems faced by sex workers amid the COVID-19 pandemic. Supreme Court has been passing orders for the welfare of sex workers. On September 29, 2020 court had asked the Centre and others to provide dry ration to them without asking their identity proof.
- In 2011, a bench comprising of justices L Nageswara Rao, BR Gavai and BV Nagarathna had ruled that, Supreme Court direction on providing ration cards to sex workers were passed in 2011. But they are not yet implemented.

7. NDPS (Amendment) Bill, 2021:

- Recently, the NDPS (Amendment) Bill, 2021 was introduced in the Lok Sabha.
- The bill will amend the Narcotic Drugs and Psychotropic Substances Act, 1985.
- Narcotic Drugs and Psychotropic Substances Act, 1985.
- The Act regulates certain operations-such as manufacture, transport and consumption - related to narcotic drugs and psychotropic substances.
- Under the Act, financing certain illicit activities such as cultivating cannabis, manufacturing narcotic drugs or harbouring persons engaged in them is an offence.
- Persons found guilty of this offence will be punished with rigorous imprisonment of at least 10 years - extendable up to 20 years - and a fine of at least Rs.1 lakh.

- It also provides for forfeiture of property derived from, or used in, illicit traffic in narcotic drugs and psychotropic substances.
- It also provides for death penalty in some cases where a person is a repeat offender.
- The Narcotics Control Bureau was also constituted in 1986 under the Act.

Page|59 Objective of the Bill:

- To help victims of drug abuse to come out of addiction.
- To Decriminalise possession of a limited quantity of drugs for personal use while regulating certain operations such as manufacturing, transport and consumption of narcotic drugs and psychotropic substances.

About the Bill:

- The bill would replace an ordinance promulgated earlier this year (2021) to correct a drafting error in a 2014 amendment to the Act.
- Before the 2014 amendment, clause (viii-a) of Section 2 contained sub-clauses (i) to (v), which defined the term “illicit traffic”.
- In 2014, the Act was amended and the clause number of the definition for such illicit activities was changed.
- However, the section (27A) on penalty for financing these illicit activities was not amended and continued to refer to the earlier clause number of the definition.
- The ordinance amended the section on penalty to change the reference to the new clause number.
- In a recent judgment, Tripura High Court has held that ‘until the appropriate legislative change occurs by amending Section 27A of the NDPS Act appropriately, sub-clauses (i) to (v) of clause (viii-a) of Section 2 of the NDPS Act shall suffer effect of deletion.

Section 27A of the NDPS Act:

- The provision reads that whoever indulges in financing, directly or indirectly, any of the activities specified in sub-clauses (i) to (v) of clause (viii-a) of section 2 or harbours any person engaged in any of the aforementioned activities.
- He shall be punishable with rigorous imprisonment for a term which shall not be less than ten years but which may extend to twenty years and shall also be liable to fine which shall not be less than one lakh rupees but which may extend to two lakh rupees:
- Provided that the court may, for reasons to be recorded in the judgment, impose a fine exceeding two lakh rupees.

Reason of Section 27A getting Inoperable:

- The text of the provision says that offences mentioned under Section 2 (viii-a) sub-clauses i-v are punishable through Section 27A.
- However, Section 2 (viii-a) sub-clauses i-v, which is supposed to be the catalog of offences, does not exist after the 2014 amendment.
- So, if Section 27A penalises a blank list or a non-existent provision, it can be argued that it is virtually inoperable.

Concerns Related to the Bill:

- The new provision is giving retrospective effect from 1st May 2014.
- That means a criminal provision is given, which will not hold in good law.
- It also violates the fundamental rights in Article 20 because a person can be punished for an offence for which there is a law in existence at the time of commission of the offence.
- Article 20 grants protection against arbitrary and excessive punishment to an accused person, whether citizen or foreigner or legal person like a company or a corporation.

8. High Court and Supreme Court Judges (Salaries and Conditions of Service) Amendment Bill, 2021:

- Recently, the High Court and Supreme Court Judges (Salaries and Conditions of Service) Amendment Bill, 2021 was introduced in Lok Sabha.
- The Bill seeks to amend the High Court Judges (Salaries and Conditions of Service) Act, 1954, and the Supreme Court Judges (Salaries and Conditions of Service) Act, 1958.
- About the Bill:
- It seeks to bring clarity on when Supreme Court and High Court judges are entitled to an additional quantum of pension or family pension on attaining a certain age.
- The Bill clarifies that the increase in pension of retired judges which come after attaining a certain age shall be implemented from the first day of the month in which they complete the age specified and not from the first day of his entering the age specified.
- Current Provisions:
- 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.
- 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).

9. 'Section 124A of the Indian Penal Code' in the News:

- Recently, the Central government noted in Lok Sabha that there is no proposal under its consideration to do away with the sedition law.
- As per a written reply to a question in Lok Sabha, Union Law Minister Kiren Rijiju stated that, on May 31, 2021 Supreme Court in its order on a writ petition had observed that "ambit & parameters of provisions of Sections 124A, 505 and 153A of the Indian Penal Code (IPC), 1860 requires interpretation, especially with respect to right of electronic & print media to communicate news".
- As per minister, SC has also issued notice to Centre on a plea in which petitioners have asked for an appropriate writ, order or direction to declare Section 124A of IPC, 1860 unconstitutional and void.

What is Sedition law?

- Section 124A of the Indian Penal Code (IPC) deals with the Sedition Law. This section defines sedition as an offence committed when "any person attempts to excite disaffection towards government established by law, by means of spoken or written words, or by signs, or by visible representation. Such disaffection includes disloyalty and feelings of enmity. Sedition is a non-bailable offence. Its punishment ranges from

imprisonment up to three years to a life term. Fines may also be added. A person charged with sedition law is barred from government job and they have to live without their passport.

Historical Background of Sedition Law:

- Sedition laws were enacted in 17th century England when lawmakers believed that only good opinions of the government should survive, as bad opinions were detrimental to the government and monarchy.
- The law was originally drafted in 1837 by Thomas Macaulay, the British historian-politician, but was inexplicably omitted when the Indian Penal Code (IPC) was enacted in 1860.
- Section 124A was inserted in 1870 by an amendment introduced by Sir James Stephen when it felt the need for a specific section to deal with the offence.
- It was one of the many draconian laws enacted to stifle any voices of dissent at that time.

India's freedom fighters fought sedition law

Some of the most famous sedition trials of the late 19th and early 20th century involved Indian nationalist leaders. The initial cases that invoked the sedition law included numerous prosecutions against the editors of nationalist newspapers.

The first among them was the trial of **Jogendra Chandra Bose** in 1891. Bose, the editor of the newspaper, *Bangobasi*, wrote an article criticizing the Age of Consent Bill for posing a threat to the religion and for its coercive relationship with Indians.

The most well-known cases are the three sedition trials of **Bal Gangadhar Tilak** and the trial of **Mahatma Gandhi** in 1922. Gandhi was charged, along with Shankerlal Banker, the proprietor of Young India, for three articles published in the weekly.

10. Rajya Sabha passed Pharmaceutical Education Bill:

- Recently, the Rajya Sabha passed the National Institute of Pharmaceutical Education and Research (Amendment) Bill, 2021.
- Under this bill, six more institutes of pharmaceutical education and research, other than an institute at Mohali, will be accorded the status of institute of national importance.
- In these institutes, undergraduate and diploma courses will be introduced and an advisory council will be set for them.
- This Bill was cleared by a voice vote, in Lok Sabha on December 6.

Background:

- In Lok Sabha, the National Institute of Pharmaceutical Education and Research (Amendment) Bill, 2021 was introduced on March 15, 2021. The bill seeks to amend National Institute of Pharmaceutical Education and Research Act, 1998. This act established the National Institute of Pharmaceutical Education and Research in Punjab and declared it an Institution of National Importance.

Key provisions of the Bill:

- Bill declares more of six National Institute of Pharmaceutical Education and Research as the Institutions of National Importance. These institutes are located in Ahmedabad, Hyderabad, Hajipur, Raebareli Kolkata and Guwahati.
- It provides for a Council to coordinate activities among institutes, in a bid to ensure development of pharmaceutical education, research and maintenance of standards.
- Important functions of the Council are:
 - Advising on matters like course duration, and admission standards in the institutes
 - Formulating policies for recruitment, fees and conditions of service
 - Examining and approving development plans for the institutes
 - Examining annual budget estimates for institutes

Council will include following members:

- Chairperson: Minister in charge of Ministry or department of the central government, who is having administrative control of pharmaceuticals (ex officio)
- Vice Chairperson: Minister of State of the Ministry or department of central government, who is having administrative control of the pharmaceuticals (ex officio)
- Chairperson of each Board of Governors (ex officio)
- Director of every institute (ex officio).

11. Police Commissionerate system in Bhopal & Indore:

- Recently, the Madhya Pradesh government issued notification to implement the police Commissionerate system in Bhopal and Indore.
- With the announcement made by Home Minister of MP, Narottam Mishra, both the cities will now get police commissioners of ADG rank.
- Police commissioners in both the districts will be assisted by two IG rank officers and nine SP rank officers.
- Under this system, a woman officer of SP rank will also be posted to deal with crime cases against women and for women's security.
- This system will be implemented after 11 years, since its first announcement.
- However, state went ahead in compliance with the directive of Prime Minister's office.

What is Police Commissionerate System?

- The Police Commissionerate System essentially divide a district in two parts from policing point of view. Under this system, part of the city that forms large urbanised settlement are made a geographical area where responsibilities of District Superintendent of Police get transferred to Commissioner of Police.
- Apart from that, powers of the Sub-divisional Magistrates (SDM), District Magistrate (DM), and Executive Magistrates of crime, law & order also get transferred to the Police Commissioner.

12. Bills on ART and surrogacy passed in Rajya Sabha:

- The Rajya Sabha passed the Assisted Reproductive Technology (Regulation) Bill, 2020 and the Surrogacy (Regulation) Bill, 2020 in the absence of Opposition on December 8, 2021. The bill has excluded single men, live-in couples, and the LGBTQ community.
- Central Government was working on the bill to regulate the ART industry since 2008. The bill was first drafted by the Indian Council of Medical Research (ICMR). It was first introduced in 2020 in the Lok Sabha but it referred the bill to a standing committee.

Provisions of the ART Bill:

- Bill proposes to establish a “National Registry and Registration Authority for all medical professionals and clinics. The Authority will help in maintaining the database of all the clinics and professionals working in the field. Registration authorities will be appointed by state governments to facilitate registration process.
- Bill also seeks to regulate and supervise Assisted Reproductive Technology (ART) clinics and ART banks, adopt safe & ethical practices and prevent misuse.
- It also proposes to constitute a National Board. Board will set minimum standards of physical infrastructure, diagnostic equipment, expert manpower and laboratory.
- Bill further seeks stringent punishment people practicing sex selection, and sale of human embryos or gametes, or people found running agencies, organisations rackets for such practices in violation of the law.

Penalty on violation of Law:

- Bill provides for a penalty of Rs. 5 lakhs to Rs. 10 lakhs, for the first-time offenders.
- Subsequent Contraventions are punishable with imprisonment for 8 to 12 years and a fine between Rs. 10 to Rs. 20 Lakh.
- Any Clinic or Bank which are advertising or offering Sex-Selective ART would be punishable with imprisonment of 5-10 years or a fine between Rs. 10 lakh to Rs. 25 Lakh, or both.

What was the need of this bill?

- The bill was needed to standardize protocols. There are several ART clinics that are running without regulation. Furthermore, there are implications on health of those undertaking the procedure. Thus, a standard protocol is required to stop unethical practices.

13. 19th Tranche of Electoral Bonds Approved:

- Recently, the Central government approved the issuance of 19th tranche of electoral bonds on December 31, 2021, ahead of assembly elections in five states.
- Sale of electoral bonds will be open from January 1 to 10, 2022.
- State Bank of India (SBI) has been authorised to issue and encash the bonds through its 29 Authorized Branches.

What is Electoral Bond?

- Electoral Bond is a financial instrument for making donations to political parties.
- Electoral Bond is a financial instrument for making donations to political parties.
- The bonds are issued in multiples of Rs. 1,000, Rs. 10,000, Rs. 1 lakh, Rs. 10 lakh and Rs. 1 crore without any maximum limit.
- State Bank of India is authorised to issue and encash these bonds, which are valid for fifteen days from the date of issuance.
- These bonds are redeemable in the designated account of a registered political party.
- The bonds are available for purchase by any person (who is a citizen of India or incorporated or established in India) for a period of ten days each in the months of January, April, July and October as may be specified by the Central Government.
- A person being an individual can buy bonds, either singly or jointly with other individuals.
- Donor’s name is not mentioned on the bond.

14. Extension of AFSPA in Nagaland:

- Recently, the Central government declared entire Nagaland as a “disturbed area” for six more months, under the AFSPA Act.

Armed Forces (Special Powers) Act, 1958:

- A reincarnation of the British-era legislation that was enacted to quell the protests during the Quit India movement, the AFSPA was issued by way of four ordinances in 1947.
- The ordinances were replaced by an Act in 1948 and the present law effective in the Northeast was introduced in Parliament in 1958 by the then Home Minister, G.B. Pant.
- It was known initially as the Armed Forces (Assam and Manipur) Special Powers Act, 1958.
- After the States of Arunachal Pradesh, Meghalaya, Mizoram, and Nagaland came into being, the Act was adapted to apply to these States as well.

About:

- The ASFPA gives unfettered powers to the armed forces and the Central armed police forces deployed in “disturbed areas” to kill anyone acting in contravention of law and arrest and search any premises without a warrant and with protection from prosecution and legal suits.
- The law first came into effect in 1958 to deal with the uprising in the Naga Hills, followed by the insurgency in Assam.

Disturbed Areas:

- The Act was amended in 1972 and the powers to declare an area as “disturbed” were conferred concurrently upon the Central government along with the States.
- Currently, the Union Home Ministry issues periodic “disturbed area” notification to extend AFSPA only for Nagaland and Arunachal Pradesh.
- The notification for Manipur and Assam is issued by the State governments.
- Tripura revoked the Act in 2015 and Meghalaya was under AFSPA for 27 years, until it was revoked by the MHA from 1st April 2018.
- The Act was implemented in a 20-km area along the border with Assam.
- Jammu and Kashmir has a separate J&K Armed Forces (Special Powers) Act, 1990.

Controversy around the Act:

Human Rights Violations:

- The law empowers security personnel, down to non-commissioned officers, to use force and shoot “even to the causing of death” if they are convinced that it is necessary to do so for the “maintenance of public order”.
- It also grants soldiers executive powers to enter premises, search, and arrest without a warrant.
- The exercise of these extraordinary powers by armed forces has often led to allegations of fake encounters and other human rights violations by security forces in disturbed areas while questioning the indefinite imposition of AFSPA in certain states, such as Nagaland and J&K.

Recommendations of Jeevan Reddy Committee:

- In November 2004, the Central government appointed a five-member committee headed by Justice B P Jeevan Reddy to review the provisions of the act in the northeastern states.

The committee recommended that:

- AFSPA should be repealed and appropriate provisions should be inserted in the Unlawful Activities (Prevention) Act, 1967

- The Unlawful Activities Act should be modified to clearly specify the powers of the armed forces and paramilitary forces and Grievance cells should be set up in each district where the armed forces are deployed.

Second ARC Recommendation:

- The 5th report of the Second Administrative Reforms Commission (ARC) on public order has also recommended the repeal of the AFSPA. However, these recommendations have not been implemented.

Supreme Court Views on the Act:

- The Supreme Court has upheld the constitutionality of AFSPA in a 1998 judgment (Naga People's Movement of Human Rights v. Union of India).
- In this judgment, the Supreme Court held that
 1. a suo-motu declaration can be made by the Central government, however, it is desirable that the state government should be consulted by the central government before making the declaration.
 2. the declaration has to be for a limited duration and there should be a periodic review of the declaration 6 months have expired.
 3. while exercising the powers conferred upon him by AFSPA, the authorized officer should use minimal force necessary for effective action.

Way Forward:

- The status quo of the act is no longer the acceptable solution due to numerous human rights violation incidents that have occurred over the years.
- The AFSPA has become a symbol of oppression in the areas it has been enacted. Hence the government needs to address the affected people and reassure them of favourable action.
- The government should consider the imposition and lifting of AFSPA on a case-by-case basis and limit its application only to a few disturbing districts instead of applying it for the whole state.
- The government and the security forces should also abide by the guidelines set out by the Supreme Court, Jeevan Reddy Commission, and the National Human Rights Commission (NHRC).

15. Karnataka announces Reservation for Transgenders in Police:

- Recently, the Karnataka Government has announced to give 1 per cent reservation to transgenders in Police.
- Reservation will be given to them across all the ranks in police department.
- This move will help in changing the perception towards transgenders. It will bring them into mainstream and remove all the prejudices against them in society.
- Karnataka police department is also recruiting both men and women by giving them equal opportunities.
- There was reservation for women in police department, three-four decades back. But now the department aims to reach 25 per cent of women in the police force.

First Transgender Police in India:

- K Prithika Yashini is the first transgender women police officer in India. She has been appointed as sub-inspector in Tamil Nadu.

Defence & Security

1. India: Launch of 27 Border Infrastructure Projects:

- Recently, the Defence Minister virtually inaugurated 24 bridges and three roads, which have been constructed by the **Border Roads Organisation (BRO)**.
- These bridges and roads have been constructed across four States and two Union Territories in India
- On the occasion, Defence Minister commended BRO for completing these projects, despite the challenges of high altitudes and sub-zero temperatures.
- The bridges and roads were constructed with the aim of ensuring swift movement of troops across India's borders with China and Pakistan. These projects will also boost tourism in the region as well as ensure socio-economic development.
- Minister also announced to set up of 'BRO Cafes' at 75 places, under the 'Azadi Ka Amrit Mahotsav' celebrations.
- Out of all the inaugurated bridges, most significant was India's first indigenous Class 70 140-foot Double-Lane Modular Bridge. It has been built at 11,000 feet at Flag Hill Dokala in Sikkim.
- Inauguration of Ladakh's Chisumle-Demchok road at Umling La Pass in Ladakh, at over 19,000 feet is also significant.
- The road holds the **Guinness World Record of World's highest motorable road**. This road will provide an alternate route from Leh to Demchok.
- Inauguration of Flag Hill-Dokla Road will reduce travel time for Indian troops to reach Dokla area near Doklam plateau.

2. Surface-to-Surface Missile 'Pralay' flight-tested:

- **Defence Research and Development Organisation (DRDO)** successfully conducted second flight-test of indigenously developed conventional Surface-to-Surface missile 'Pralay' from Dr APJ Abdul Kalam Island off the coast of Odisha on December 23, 2021.
- **Pralay ballistic missile** was flight-tested from Dr APJ Abdul Kalam Island off the coast of Odisha.
- Missile followed the desired quasi-ballistic trajectory and reached to the designated target with high-degree accuracy. Thus, validated the control, guidance and mission algorithms.
- **Pralay** is a canisterised surface-to-surface, short-range ballistic missile (SRBM). It has been developed by DRDO for battlefield use.
- This missile is the amalgamation of technologies developed for exoatmospheric interceptor missile Prithvi Defence Vehicle (PDV) and Prahaar tactical missile. Project to develop Pralay was sanctioned in March 2015 with an outlay of Rs 332.88 crore.

What is ballistic missile?

- It is a rocket-propelled self-guided strategic-weapons system that follows a ballistic trajectory to deliver a payload from its launch site to a predetermined target.
- Ballistic trajectory is the path of an unpowered object, as a missile, moving only under the influence of gravity and possibly atmospheric friction and with its surface providing no significant lift to alter the course of flight.
- It can carry conventional high explosives as well as chemical, biological, or nuclear munitions.

- The International Code of Conduct against Ballistic Missile Proliferation (ICOC), now known as the Hague Code of Conduct against Ballistic Missile Proliferation (HCOG), is a political initiative aimed at globally curbing ballistic missile proliferation.
- India is a signatory to this convention.
- Established in April 1987, the voluntary Missile Technology Control Regime (MTCR) aims to limit the spread of ballistic missiles and other unmanned delivery systems that could be used for chemical, biological, and nuclear attacks.
- India has joined the MTCR.

Some of India's Ballistic Missiles:

1. Shaurya missile
2. Prithvi missile
3. Agni P missile
4. Dhanush
5. Sagarika etc.



Advantages of Ballistic Missile

- They have very long range, as they travel above the atmosphere, experience less drag and use gravity and earth's rotation.
- They are highly fuel efficient. Only fuel requirements are during lift-off phase and during course correction measures.
- Multiple independent targetable re-entry vehicles (MIRV) capability can be achieved in ballistic missiles.
- Due to fuel efficiency, their payload carrying capacity is significantly more than cruise missiles.

3. Indigenous Armoured Engineer Reconnaissance Vehicle inducted into Army:

- The first batch of next-generation Armoured Engineer Reconnaissance Vehicles (AERV), was formally inducted into the Indian Army.

Armoured Engineer Reconnaissance Vehicle:

- It is indigenously designed and developed by DRDO and manufactured by the Pune unit of Bharat Electronics Limited.
- It is a versatile BMP-IIK amphibious Infantry Combat Vehicle (ICV) fitted with instruments for water reconnaissance, land reconnaissance, navigation and data backup.
- It can navigate terrain using Military Grid Coordinate System, measure and plot underwater beds and water currents of rivers or canals, store data from various instruments on Control Console for further analysis and decision-making.

Features:

- It is designed to meet the tactical and combat requirements of Military Engineers for carrying out terrestrial and underwater surveys in hostile terrains.
- It provides Combat Engineering Support for offensive & defensive operations in plains, desert and riverine terrains.

Significance:

- The system will enhance the existing engineer reconnaissance capabilities of the Indian Army and would be a major game-changer in support of mechanised operations in future conflicts.

4. Indian Navy conducts first sea trials for Mormugao:

- Recently, Indian Navy conducted the first sea trials for Indian Navy's indigenously built stealth destroyer called Mormugao, in the Arabian Sea.
- The maiden sea voyage of the warship has been built under the project P-15B.
- Its development coincides with the 60th anniversary of liberation of Goa from Portuguese rule.
- Mormugao is the second indigenous stealth destroyer, that is being built under Project P-15B.
- It is likely to be commissioned in mid-2022.
- Stealth destroyer Mormugao is being built at Mazagon Dock Shipbuilders Ltd (MDSL).
- INS Visakhapatnam was the first ship built under project P-15B. The ship was commissioned into Indian Navy on November 21, 2021 in Mumbai.
- Indigenous Destroyer construction programme of India was commenced in late 1990s with three Delhi class (P-15 class) warships. It was followed by three Kolkata class (P-15A) destroyers.

Project-15B:

- Under this project, a total of four warships have been planned namely, Visakhapatnam, Mormugao, Imphal and Surat. These Guided missile destroyers are under construction at M/s Mazagaon Dock Shipbuilders Limited, Mumbai. Contract for these ships was signed in 2011. These ships are counted among most technologically advanced Guided Missile Destroyers worldwide. It comprises of features like state-of-the-art weapon or sensor package, high degree of automation and advanced stealth features.

5. DRDO demonstrates controlled aerial delivery system:

- Recently, a flight demonstration of the Controlled Aerial Delivery System of 500 kg capacity (CADS-500) was conducted by Aerial Delivery Research and Development Establishment (ADRDE).
- Aerial Delivery Research and Development Establishment (ADRDE) is a Research & Development laboratory of the Defence Research and Development Organisation (DRDO).
- The flight demonstration is part of a series of activities organised towards celebrating 'Azadi Ka Amrit Mahotsav', commemorating 75 years of Independence.
- The CADS-500 is used for precise delivery of payload upto 500 kgs at predetermined location by making use of manoeuvrable capabilities of Ram Air Parachute (RAP).
- It uses the Global Positioning System for the coordinates, altitude and heading sensors for the heading information during its flight.
- The CADS, with its onboard electronics unit, autonomously steers its flight path using waypoint navigation towards target location by operating controls.

What is Positioning System?

- A positioning system is a tool to determine the location of an individual or object. The technology requires global coverage and sharp accuracy to achieve the exact location.
- For Example: 'Google Maps' is one of the positioning and navigation systems that helps individuals to find their exact location as well as a path to their destination. However, the system only offers a satellite view of the region under navigation.

Global Positioning System (GPS):

- GPS is a satellite navigation system, used to determine the ground position of an object. It is a U.S.-owned utility that provides users with positioning, navigation, and timing (PNT) services.
- It is a network 24 satellite which provides service to civilian and military users. The civilian service is freely available to all users on a continuous, worldwide basis. The military service is available to U.S. and allied armed forces as well as approved Government agencies.

6. 'Agni P' test fired:

- Recently, the Defence Research and Development Organisation (DRDO) successfully tested the new generation nuclear capable ballistic missile 'Agni P'.
- Agni P was launched from Dr APJ Abdul Kalam island off the coast of Odisha.
- Trajectory and parameters of the missile was tracked and monitored by several telemetry, electro-optical stations, radar, and down range ships positioned along eastern coast.
- **Agni P** followed textbook trajectory and met all the objectives of mission with high level of accuracy.
- Agni P is a two-stage canisterised solid propellant ballistic missile, having a dual redundant navigation and guidance system. It is a medium-range ballistic missile, developed by Defence Research and Development Organisation (DRDO) as the successor of Agni-I and Agni-II missiles. It is the sixth missile in Agni (missile) series of ballistic missile. The missile can be either transported on train or stored in canister.

7. MHA: No official nomenclature as 'Martyrs':

- Recently, the Ministry of Home Affairs (MHA) informed in Rajya Sabha that there was no official nomenclature such as martyrs.
- The Minister of State for Home, Nityanand Rai, in a written reply to the question of 'whether Government has any plan regarding the status of martyr', said there is no such official nomenclature.
- However, Ministry of Home Affairs issued instructions for issuing Operational Casualty Certificate to the next kin of Central Armed Police Forces (CAPFs) and Assam Rifles personnel, killed in action.
- Central Armed Police Forces (CAPF)
- The Central Armed Police Forces (CAPF) refers to seven security forces in India. It works under the authority of Ministry of Home Affairs. The seven security forces under it are:
 1. Assam Rifles (AR)
 2. Border Security Force (BSF)
 3. Central Industrial Security Force (CISF)
 4. Central Reserve Police Force (CRPF)
 5. Indo Tibetan Border Police (ITBP)
 6. National Security Guard (NSG)
 7. Sashastra Seema Bal (SSB)

The Assam Rifles:

- The **Assam Rifles** was established in the year 1835, as a militia called the 'Cachar Levy'. It was set up for protecting British Tea estates and their settlements against tribal raids.
- The Assam Rifles contributed in opening the region to commerce and administration. Over time, they came to be called as "right arm of the civil and left arm of the military".
- Assam Rifles is the only paramilitary force, having a dual control structure. The administrative control of the force is with Ministry of Home Affairs (MHA) while its operational control is with the Indian Army, which comes under Ministry of Defence (MoD). Thus, salaries & infrastructure for the force is provided by MHA. While deployment, posting, transfer & deputation of the personnel is decided by Indian Army.

8. Indian Air Force helicopter crash:

- Recently, Indian Air Force Helicopter Mi-17V5 crashed in the Nilgiris, near Coonoor city. This helicopter crash is another addition to the list of accidents involving VVIPs.
- The helicopter crash has killed Chief of Defence Staff Gen Bipin Rawat, his wife along with 11 members of his personal staff. Reasons for the crash are not yet known.
- In similar accident on September 2, 2009, helicopter carrying Andhra Pradesh Chief Minister, Y.S. Rajasekhara Reddy, crashed into the hills near Kurnool. Then, the pilot was pressured to go ahead even when weather was bad.
- On September 30, 2001, former Civil Aviation minister Madhavrao Scindia, insisted to proceed to Kanpur in bad weather for a meeting. Aircraft crashed and all died.
- Crash near Coonoor indicates that, Mi-17V5 was flying low, possibly to keep terrain in sight. It then struck trees and crashed.

General Bipin Rawat:

- He was an Indian military officer and a four-star general of the Indian Army. He was appointed as the first Chief of Defence Staff (CDS) of the Indian Armed Forces and he served as CDS from January 2020 until his death in December 2021.

- Before CDS, he served as 57th and last Chairman of the Chiefs of Staff Committee and 26th Chief of Army Staff of the Indian Army.
- Bipin Rawat was commissioned into 5th battalion of 11 Gorkha Rifles in 1978. He had much experience in high-altitude warfare. He spent ten years conducting counter-insurgency operations. He commanded a company in Uri, Jammu & Kashmir, as a major. He also commanded the 5th battalion 11 Gorkha Rifles as a colonel, along the Line of Actual Control at Kibithu.
- In 2016, he was appointed as the 27th Chief of the Army Staff.

9. Vertical launch- Short Range Surface to Air Missile:

- Recently, the Defence Research and Development Organisation (DRDO) tested the “vertical launch-short range surface-to-air missile”, successfully.
- The missile was test fired from integrated test range in Chandipur, off the Odisha coast.
- Its launch was conducted from a vertical launcher towards an electronic target at a very low altitude.
- The launch of short-range surface-to-air missile was conducted in a bid to validate integrated operation of all weapon system components such as canisterised flight vehicle, vertical launcher unit with controller, weapon control system etc., which are needed for future launches from Indian naval ships.
- The launch of this system will further boost the defence capability of Indian Naval Ships against aerial threats. It has also paved the way for integration of weapon systems onboard the Indian naval ships.

Short Range Surface to Air Missile (VL-SRSAM):

- VL-SRSAM is a quick reaction surface-to-air missile, that has been developed by DRDO. It comprises of features like mid-course inertial guidance through fibre-optic gyroscope as well as active radar homing during terminal phase.
- The missile has the capability of ‘lock on before launch (LOBL)’ and lock on after launch (LOAL). As a result, it receives mid-course update via datalink. It seeks to replace “Barak 1 surface to air missile system” onboard Indian Navy warships.

10. Exercise Ekuverin:

- Recently, the 11th Edition of Joint Military Exercise EKUVERIN between India & Maldives has been started at Kadhdhoo Island, Maldives.
- Earlier, the 15th edition of the biennial trilateral Coast Guard Exercise ‘Dosti’ involving India, the Maldives and Sri Lanka was held in the Maldives.
- India and Maldives have been conducting Exercise Ekuverin meaning ‘Friends’ in the Maldivian language since 2009.
- The 14 days Joint Exercise is held alternatively in India and Maldives.



- It focuses on enhancing interoperability between the two forces for carrying out counter insurgency and counter-terrorism operations in a semi-urban environment under the United Nations mandate.
- This year's exercise will also include cultural and sports activities to enhance defence cooperation and bilateral relations. The exercise will go a long way in strengthening India's relations with Maldives amidst emerging security dynamics in the Indian Ocean Region.

Art and Culture

1. World Sangeet Tansen Festival:

- The 97th edition of the World Sangeet Tansen Festival was started in Gwalior, Madhya Pradesh on December 25, 2021.
- World Sangeet Tansen Festival is a five-day festival that started from December 25 and will conclude on December 30, 2021.
- The stage of the festival has been constructed on the theme of "Siddhanath temple" which is situated in Omkareshwar.
- The formal opening of the ceremony took place on December 26, 2021.
- Programs at the festival
- In the music festival, many artists are taking part from India as well as from abroad.
- During the festival, a total of nine musical concerts will be held.
- All the programs are being held in in 2 shifts.
- Morning shift starts from 10 am to 3pm while the evening function starts from 6 pm to 10 pm.
- First seven concerts were held at the stage that was prepared at mausoleum of Tansen and the tomb of Mohammad Ghaus.

Eighth concert:

- The Eighth concert is scheduled to held on banks of River Jhilmil, on December 30. It will be held in Behat, which is the Birthplace of Tansen. The last brief concert will be held at Gwalior Fort on December 30 itself.

Who was Tansen?

- Tansen, also known as Miyan Tan Sen or Ramtanu Pande, was a prominent figure of Hindustani classical music. He was born in a Hindu family and learnt his art in Madhya Pradesh. He started his career and spent most of his adult life in the court and patronage of king of Rewa, Raja Ramchandra Singh. In the court, Tansen's musical abilities and studies gained huge fame. His reputation gained the attention of Mughal Emperor Akbar, who requested Tansen to join the musicians at Mughal court. In 1562, he joined the Akbar's court.

2. Thai Vaazhthu" declared Tamil Nadu's State Song:

- The Tamil Nadu government has declared Tamil Thai Vaazhthu, a prayer song sung in praise of Mother Tamil, as the State Song.

- The 55-second song, which is familiar to almost everyone in Tamil Nadu, is sung, like the national anthem, at the beginning of functions in all educational institutions, government offices, public sector undertakings, and similar public events in the state.
- The government order came after after the Madurai Bench of Madras High Court said that "There is no statutory or executive order requiring the attendees to stand up when Tamil Thai Vaazhthu is sung."
- The court recalled that the Government of Tamil Nadu had, by a GO dated June 17, 1970, directed that the song from 'Manonmaneeyam', the famous Tamil drama written by P Sundaram Pillai, should be sung as a prayer song at the commencement (and not at the end) of all functions organised by government departments, local bodies and educational institutions.

3. Durga Puja to its Intangible Heritage list:

- Recently, Durga Puja in Kolkata has been inscribed on the UNESCO's Representative List of the Intangible Cultural Heritage (ICH) of Humanity.
- It is the first festival in Asia to achieve recognition as UNESCO ICH of Humanity.
- Earlier, UNESCO announced the Harappan city of Dholavira in Gujarat as India's 40th world heritage site.
- 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'.
- It is one of the largest cultural carnivals and street art festivals of the country.
- During this time, intricately-designed clay models of the Goddess are worshiped in 'pandals' and pavilions where people get together.
- Folk music, culinary, craft, and performing arts traditions are a part of the celebration.
- 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.

What is the Significance of the move?

- It acknowledges the festival's contribution in sustaining and safeguarding a multitude of traditional arts and crafts, well-being and economic empowerment of communities, and energizing creativity.
- Earlier this year (2021), the British Council in India had mapped the creative economy of Durga Puja to over Rs. 32,000 crore for the year 2019 and added that the festival contributes 2.58% of West Bengal's Gross Domestic Product (GDP).

UNESCO's List of Intangible Cultural Heritage:

- This coveted list is made up of those intangible heritage elements that help demonstrate diversity of cultural heritage and raise awareness about its importance.
- According to UNESCO cultural heritage does not end at monuments and collections of objects.
- It also includes traditions or living expressions inherited from our ancestors and passed on to our descendants, such as oral traditions, performing arts, social practices, rituals, festive events, knowledge and practices concerning nature and the universe or the knowledge and skills to produce traditional crafts.
- The list was established in 2008 when the Convention for Safeguarding of the Intangible Cultural Heritage came into effect.

- The Ministry of Culture (India) has also launched the draft National List of Intangible Cultural Heritage (ICH) of India.
- The National ICH List is an attempt to recognize the diversity of Indian culture embedded in its intangible heritage.
- This initiative is also a part of the Vision 2024 of the Ministry of Culture.
- India is also a signatory of the 2003 UNESCO Convention which aims for the Safeguarding of the Intangible Heritage along with traditions and living expression.

Existing Traditions of India Recognised by UNESCO			
1.	Tradition of Vedic chanting, 2008	8.	Buddhist chanting of Ladakh: recitation of sacred Buddhist texts in the trans-Himalayan Ladakh region, Jammu and Kashmir, India, 2012
2.	Ramlila, the traditional performance of the Ramayana, 2008	9.	Sankirtana, ritual singing, drumming and dancing of Manipur, 2013
3.	Kutiyattam, Sanskrit theatre, 2008	10.	Traditional brass and copper craft of utensil making among the Thatheras of Jandiala Guru, Punjab, India, 2014
4.	Ramman, religious festival and ritual theatre of the Garhwal Himalayas, India, 2009	11.	Yoga, 2016
5.	Mudiyettu, ritual theatre and dance drama of Kerala, 2010	12.	Nowruz, 2016
6.	Kalbelia folk songs and dances of Rajasthan, 2010	13.	Kumbh Mela, 2017
7.	Chhau dance, 2010		

4. Kashi Vishwanath Corridor:

- Recently, the Prime Minister inaugurated the **Kashi Vishwanath Corridor** in Varanasi.
- This project was a long pending dream of PM for creating an easily accessible pathway between Kashi Vishwanath Temple and banks of Ganga River.
- The project is spread across 5 lakh square feet area, comprising of more than 40 ancient temples restored and beautified. Under the project, 23 new buildings were constructed for providing diverse facilities to the devotees.
- The Kashi corridor also spread the message of environmental protection. the corridor has been adorned by Rudraksh, Parijat, Bael, Amla and Ashok trees. Special arrangements have been made to plant trees across the temple premises and mandir chowk.

The Kashi Vishwanath Temple:

- The famous Hindu temple is dedicated to Lord Shiva. It is situated in Vishwanath Gali of Varanasi in Uttar Pradesh. It stands on the western bank of River Ganga. The temple is among the twelve Jyotirlingas, the holiest of Shiva Temples. Main deity of the temple is known by the names like Shri Vishwanath and Vishweshwara, which means Lord of the Universe.
- It is the massive makeover and the first after the 1780 AD when the Maratha queen **Ahilyabai Holkar** of Indore renovated the Kashi Vishwanath temple and the area surrounding it.

- The foundation was laid in March, 2019. The project was conceptualised to create an easily accessible pathway for the pilgrims, who had to meander through congested streets to take a dip in the Ganga and offering the water of the holy river at the temple.
- More than 40 ancient temples were rediscovered during the work on the project. They were restored while ensuring there is no change in the original structure.



5. Hornbill Festival:

- **Hornbill Festival** is celebrated in **Nagaland** to encourage inter-tribal interaction.
- It is one of the largest indigenous festival organised by the state government of Nagaland to promote tourism in the state.
- The festival is celebrated annually in the first week of December in order to preserve, protect and revive the uniqueness and richness of the Naga heritage.
- The festival is considered the “Festival of Festivals” in Nagaland.
- 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.
- The bird is also closely identified with the social and cultural life of the Nagas, as reflected in various tribal dances, songs and folklores.
- Hornbill festival exposes the culture and tradition of the tribal people and reinforces the identity of the Nagaland.

6. Sahitya Akademi Award 2021:

- Recently, the Sahitya Akademi announced the Sahitya Akademi Award 2021 in 20 languages. The Akademi also announced Yuva Puraskar and Bal Sahitya Puraskar for 2021.
- 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.

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 the award.
- Other Sahitya Akademi Awards:
- Sahitya Akademi Bal Sahitya Puraskar is given to an author based on his/her total contribution to children literature and relates to books first published during the five years immediately preceding the year of Award.
- Sahitya Akademi Yuva Puraskar relates to books published by an author of the age of 35 and below.

Literary critic **D.S. Nagabhushan** has been awarded the Kendra Sahitya Akademi award for 2021 for his work Gandhi Kathana , biography of Mahatma Gandhi

Jnanpith Award:

- The Jnanpith award is the highest literary award in India and can only be conferred annually upon an Indian citizen.
- English along with other languages mentioned in Indian Constitution (8th Schedule) is considered for the Award.
- The prize carries a cash award of Rs. 11 lakhs, a citation, and a bronze replica of Vagdevi (Saraswati), the goddess of learning.
- It is sponsored by the cultural organization Bharatiya Jnanpith.
- Assamese poet Nilmani Phookan Jr has won the 56th Jnanpith Award (2021), and Konkani novelist Damodar Mauzo has won the 57th Jnanpith Award (2022).

International Affairs

1. India's Chairship at UNSC Counter Terrorism Committee:

- India will chair the UNSC counterterrorism committee, after 10 long years.
- The Counter terrorism committee is of a greater significance for India, because, India has been pitching pertinent measures to fight terrorism across the global platform.
- India last chaired the committee in 2012.
- India's Permanent Representative to the United Nations Ambassador TS Tirumurti had announced on January 8, 2021 that, India will chair three important communities at the UNSC in 2021-22. The three committees are- Taliban Sanctions Committee, Counter-terrorism Committee and Libya Sanctions Committee.

India's resolution on counter-terrorism:

- India's annual resolution on counter-terrorism issue was co-sponsored by more than 75 countries. The resolution was adopted by consensus in the First Committee of the UNSC.
- India has encouraged stronger international cooperation for preventing terrorists from acquiring weapons of mass destruction and their delivery systems in the annual resolution called "Measures to Prevent Terrorists from Acquiring Weapons of Mass Destruction."

- India has been at the forefront of emphasising the threat to international peace and security that terrorist groups pose, because India has been a victim of state-sponsored cross-border terrorism.
- At United Nations, India had called for stronger national measures for addressing this issue before the UN Security Council's adoption of Resolution 1540.
- UNSC Resolution 1540 requires all states to refrain from supporting non-state stakeholders in developing, manufacturing, acquiring, possessing, transferring, transporting, or using nuclear, biological or chemical weapons.

Counter-Terrorism Committee:

- Counter-Terrorism Committee is a subsidiary body of United Nations Security Council. It is a 15-member committee, established in the aftermath of 9/11 attack in United States to monitor the UNSC resolution 1373.
- The resolution was adopted mandates all States to criminalize assistance for terrorist activities, share information on groups planning terrorist attacks and deny financial support & safe haven to terrorists.

2. 'India Out' campaign:

- The 'India Out' campaign in the Maldives is against the opposition to the **Uthuru Thila Falhu (UTF)** harbour development deal with India in February 2021, which is being seen as a way of allowing Indian military presence on native soil.

In details:

- The 'India Out' campaign, is widely spreading across social media platforms.
- Reports are being published in Maldives media alleging that the present incumbent government is allowing India to establish a military base in the island by signing secret agreements, in exchange for financial assistance or other material benefits.
- This allegation is made against the government because the leader of the current ruling party Mohamed Nasheed urged India to intervene militarily to restore peace and democracy in 2018.
- Progressive Party of Maldives (PPM) of former President Abdulla Yameen and its coalition partner People's National Congress (PNC) are trying to mobilise people against the current government by spreading misleading propaganda against India.
- **India out campaign** was launched by the opposition coalition PPM and PNC both on the street as well as on social media demanding the expulsion of Indian military personnel present in the country.
- How India has become a victim of the internal political situation in the Maldives.
- Former President Abdullah Yameen is perceived as a friend of China. During Yameen's term as President from 2013 to 2018, New Delhi-Male relations deteriorated drastically.
- On the other hand, the present Solih administration opt for an 'India first' foreign policy.
- The Solih government has rejected the 'India Out' campaign and has expressed concern at attempts to spread "misguided and unsubstantiated information to propagate hatred towards India".

Why this campaign is gaining ground again?

- Although campaign gained popularity in the past year or so, its root cause can be traced back to 2013 when Abdulla Yameen Abdul Gayoom of the Progressive Party (PPM) became the president.

- The next presidential election is scheduled in 2023, and Mr. Yameen is trying to make a political comeback, tapping on both the anti-incumbency, and the anti-India sentiments among sections loyal to him.

India's reaction:

- India's requested to take action against local media and have repeatedly urged people to not spread hate against India.
- Foreign ministry's urged the media not to affect bilateral relations and, as per article 29 of the Vienna Convention on Diplomatic Relations, it is the responsibility of the Maldives to treat the diplomats with due respect, and take all appropriate steps to prevent any attack on freedom, and dignity of foreign diplomats.

India-Maldives bilateral Relations:

- India and Maldives are neighbors as they share a maritime border. Relations have been friendly and close in strategic, economic and military cooperation. India continues to contribute to maintaining security on the island nation.

Major challenges:

- **Chinese influence:** India has been quite apprehensive of the growing Chinese influence in Maldives even as it continues to give utmost priority to the island nation.
- There have been growing concerns regarding China's role in the Maldivian economy through so-called "debt-trap diplomacy."
- Maldives incurred a debt of about \$1.4 billion owing to loans from China to finance several of its infrastructure projects.
- Maldives and China had also entered into a free trade agreement.
- **India's position in Male crisis:** During the pro-Beijing regime of their former President Abdulla Yameen, ties between the nations got strained. In fact, there came a point in 2018 when India even contemplated a military intervention.

Way forward:

- Past learning's: Despite repeated calls for intervention, India firmly avoided military action against the Yameen regime. New Delhi thoughtfully coordinated its diplomatic response with other stakeholders, and put enormous pressure on Yameen to hold the presidential elections in a fair and transparent manner. This patience seems to have yielded a positive outcome as India finds itself in an advantageous situation now.
- Cautious approach: India needs to remain careful if it wants to avoid a Nepal-like situation, where New Delhi's perceived interference in Nepal's internal affairs had turned the Nepali people against India. Having a lighter diplomatic footprint is the only way forward in the Maldives.'

Operation Cactus:

- On November 3, 1988, a group of Maldivians assisted by a Sri Lankan militant organisation unsuccessfully attempted to overthrow the government in the island republic of Maldives. India supported the government through Operation Cactus.
- After the successful operation, the relations between both the countries have expanded significantly. India has provided economic aid and has participated in bilateral programmes to develop infrastructure, telecommunications, health, and labour resources. India established the Indira Gandhi Memorial Hospital in Male.

3. Desmond Tutu:

- Archbishop Desmond Tutu, a veteran of South Africa's struggle against apartheid died aged 90.
- About Archbishop Desmond Tutu.

Early Life:

- He was born in 1931 in Klerksdorp, Transvaal. His father was a teacher, and he himself was educated at Johannesburg Bantu High School and in 1954 he graduated from the University of South Africa.
- Career
- He worked as a teacher and recalled how the system of educating blacks infuriated him.
- He quit teaching in 1957 to join the church and was ordained as a priest in 1961.
- In 1975 he was appointed Dean of St. Mary's Cathedral in Johannesburg, the first black to hold that position.
- He was named the first Black Archbishop of Cape Town in 1986.
- He is an honorary doctor of a number of leading universities in the USA, Britain and Germany.



Contributions:

- He is regarded as a contemporary anti-apartheid icon Nelson Mandela and became the face of the moment outside the country.
- He was one of the driving forces behind the movement to end racial segregation and discrimination by the white minority government in South Africa from 1948 till the year 1991.
- He spearheaded grassroots campaigns around the world that fought against apartheid.
- He has been regarded as an outspoken human rights activist who highlighted and spoke out on a range of issues around the world including climate change, Israel-Palestine conflict, among others.
- Awards to honour him:
- He was awarded the Nobel Prize in 1984 for his role in the struggle to abolish the apartheid system.
- The prize highlighted the non-violent manner in which he fought against the system.

4. Trincomalee oil tank farm deal:

- Recently, India inks deal with Sri Lanka to develop Trincomalee oil tank.
- The signing of the deal will reflect a positive sign, amidst strained relationship between the two countries.

About Trincomalee Oil Tank Farms:

- The oil tank farm was built by the British during World War II as a refuelling station,
- It is located in 'China Bay' in close proximity to the internationally coveted deep water natural harbour of Trincomalee.
- The proposal of this joint development was envisaged 35 years ago, in the Indo-Lanka Accord 1987.
- It comprises 99 storage tanks, with a capacity of 12,000 kilolitres each, spread across Lower Tank farm and Upper Tank Farm.

- In 2003, Indian Oil Corporation set up its Sri Lankan subsidiary called Lanka IOC, to work on this oil farm.
- Currently, Lanka IOC runs 15 tanks. The new agreement is being negotiated for the remaining tanks.

Significance of the deal:

- The Trincomalee Oil Tank Farms have been bestowed with several favourable factors of location. For example:-
- **Easily Accessible:** It is located on a deep water natural harbour of Trincomalee.
- **Strategic Location in the Indian Ocean:** These oil farms are located along some of the world's busiest shipping lanes.
- Thus, a well-developed oil storage facility and refinery adjacent to the Trincomalee Port would have great economic value for both India and Sri Lanka.



India-Sri Lanka Cooperation: Recent Developments:

- **Four-Pillar Initiative:** Recently, India and Sri Lanka agreed to a four-pronged approach to discuss initiatives on food and energy security to help mitigate Sri Lanka's economic crisis.
- This Four-Pillar Initiative comprises Lines of Credit, currency swap agreement, Modernisation Project (like The Indian Housing Project) and Indian Investments.
- **Joint Exercises:** India and Sri Lanka conducted joint Military (Mitra Shakti) and Naval exercise (SLINEX).
- **Participation in Groupings:** Sri Lanka is also a member of regional groupings like BIMSTEC (Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation) and SAARC in which India plays a leading role.
- **SAGAR Vision:** Sri Lanka supports India's concern for the security of the Indian Ocean with its 'Neighbourhood First' policy and SAGAR (Security and Growth for all in the Region).

Issues in India-Sri Lanka Relations:

- **China's Intervention:** China's rapidly growing economic footprint (and political clout as a corollary) in Sri Lanka is straining India-Sri Lanka relations.
- China is already the largest investor in Sri Lanka, accounting for 23.6% of the total Foreign Direct Investment (FDI) during 2010-2019 as against 10.4% from India.
- China is also one of the largest export destinations for Sri Lankan goods and holds over 10% of its external debt.
- China is also handling Hambantota Port of Sri Lanka, the port is viewed as a part of China's String of Pearls Strategy.
- Katchatheevu Island Issue: India ceded the uninhabited island to its southern neighbour in 1974 under a conditional accord.
- However, many times the fisherman issue arises more out of a domestic tussle rather than the India-Sri Lanka view on the issue.

- **13th Amendment of the Sri Lankan Constitution:** Indo-Sri Lankan Accord was signed in 1987 to provide a political solution to Sri Lanka's conflict.
- It envisages devolution of necessary powers to the provincial councils to address the just demand of the Tamil people for equality, justice, peace, and respect within a united Sri Lanka.
- The provisions of this accord were made in the Sri Lankan constitution, by the Thirteenth Amendment.
- However, still the provisions are not implemented on ground. Even to this day, a lot of Srilankan Tamils who evaded from Srilankan civil war (2009) are seeking refuge in Tamil Nadu.
- **Back Tracing of Sri-Lanka:** Recently, Sri Lanka backed out from a tripartite partnership with India and Japan for its East Container Terminal Project at the Colombo Port, citing domestic issues.

5. India's Aid to Mozambique:

- Recently, Indian Naval Ship (INS) Kesari reached Port of Maputo, Mozambique carrying 500 tonnes of food aid as part of **SAGAR Mission**, which is dubbed as "Security and Growth for All in the Region" Mission.
- The aid were shipped to support the efforts of Government of Mozambique to tackle the challenges of ongoing drought and covid-19 pandemic.
- India is also committed to support the capacity building efforts of the Mozambique Armed Forces. To support thus, INS Kesari also carried two Fast Interceptor Craft and self-defence equipment, which will be handed over to the Armed Forces of Mozambique.
- Extending aid to Mozambique was the eighth such deployment in accordance with Prime Minister Narendra Modi's vision of SAGAR. It is being conducted in association with the Ministry of External Affairs, and other agencies. Such deployments were conducted in solidarity with extended maritime neighbourhood of India. It also highlights the importance India accords to these special relationships.

6. UNSC resolution on Afghan assistance:

- Recently, the United Nations Security Council (UNSC) unanimously passed a resolution permitting a carve-out in sanctions against the Taliban to facilitate the delivery of humanitarian aid to Afghanistan.

Key Points:

- This carve-out covers urgently needed humanitarian assistance and other activities that support basic human needs in Afghanistan.
- The resolution (2615) mandates a review of the carve-out every six months.
- It also requests that an Emergency Relief Coordinator brief the UNSC every six months on the delivery of assistance and any obstacles to implementation.
- It also "calls on all parties" to respect human rights and observe international humanitarian law.

United Nations Security Council:

- The UNSC is one of the six principal organs of the United Nations
- It is charged with the maintenance of international peace and security.
- Permanent members (P5): Russia, UK, France, China, and USA

- The Security Council also has 10 non-permanent members, elected on a regional basis to serve two-year terms.
- The body's presidency rotates monthly among its 15 members.

Page|82 **7. World Anti-Doping Agency (WADA):**

- Recently, the World Anti-Doping Agency (WADA) published its report on "Rule Violations", recently.
- In 2018 WADA report, India was placed at fourth position, with 107 ADRVs. It was left Russia with 144 ADRVs, Italy with 132 ADRVs and France with 114 ADRVs.
- The number of offenders in India and increased in 2019, making India among top-three of world's biggest doping violators.
- Bodybuilding, weightlifting and athletics have contributed majorly to India's embarrassing record.
- In 2019, 152 Anti-doping Rule Violations (ADRVs), accounting for 17 percent of world's total, were reported in India.
- Out of total offenders, maximum dope offenders reported from bodybuilding (57).
- Among Olympic sports, weightlifting leads with 25 ADRVs. It is followed by athletics (20) and wrestling (10).
- Boxing and judo reported four ADRVs, each.
- Four cricketers also committed ADRVs in 2019.
- Worldwide, Russia has topped the list with 167 ADRVs. Russia is followed by Italy with 157 ADRVs. Brazil with 78 ADRVs is at fourth position and Iran with 70 ADRVs is at fifth position.
- Russia was banned from fielding its national team in Tokyo Olympics as it did not comply with international anti-doping rules. It has now been ranked at top position in violators' list. Russia has reported more cases as compared to 2018.

World Anti-Doping Agency (WADA):

- WADA is a foundation initiated by International Olympic Committee. It is based in Canada for promoting, coordinating, and monitoring the fight against drugs in sports.
- Key activities of the foundation include scientific research, development of anti-doping capacities, education, and monitoring of the World Anti-Doping Code.

8. 8th Indian Ocean Dialogue:

- The eighth Indian Ocean Dialogue was held on December 15, 2021.
- The dialogue was jointly hosted by External Affairs Ministry and Indian Council of World Affairs.
- Dialogue was hosted under the theme-"Leveraging Digital Technologies for Health, Education, Development, and Trade in Indian Ocean Rim Association (IORA) Member States".

Indian Ocean Rim Association (IORA):

- IORA was formerly known as Indian Ocean Rim Association for Regional Cooperation (IOR-ARC) and Indian Ocean Rim Initiative.
- It is an international organisation comprising of 23 states which share borders with the Indian Ocean. It is a regional forum, tripartite in nature.
- It brings together representatives of Government, Academia and Business to promote co-operation and closer interaction between them.

- IORA is based on the principles of Open Regionalism to strengthen Economic Cooperation, especially on Trade Facilitation & Investment, Promotion and Social Development of the region.
- Coordinating Secretariat of IORA is situated at Ebene in Mauritius.
- IORA was first established in March 1995, as Indian Ocean Rim Initiative. It was formally launched in March 1997 with the conclusion of a multilateral treaty called “Charter of the Indian Ocean Rim Association for Regional Co-operation”.

9. India’s WTO dispute over sugar subsidies:

- Recently, a dispute resolution panel of the World Trade Organisation has ruled against India’s sugar subsidies and in favour of complainants three major sugar-exporting nations namely Brazil, Guatemala, and Australia.

In Details:

- The case was filed before the WTO in 2019 by Brazil, Guatemala and Australia alleging that India had broken WTO rules by providing excessive domestic support and export subsidies for sugar and sugarcane.
- The WTO observed that for five sugar seasons between 2014-15 and 2018-19, India provided domestic support to its sugarcane producers in excess of the maximum level of 10% permitted by a global agriculture deal.
- The panel also said that India failed to notify a WTO committee of its sugar export subsidies, violating a separate agreement.
- However, it did not uphold one of Australia's allegations that India had maintained buffer sugar stocks which it should have reported to the WTO in the 1990s.

What are Export subsidies?

- Export subsidies are subsidies given to traders to cover the difference between internal market prices and world market prices. Export subsidies consist of all subsidies on goods and services that become payable to resident producers when the goods leave the economic territory or when the services are delivered to non-resident units; they include direct subsidies on exports, losses of government trading enterprises in respect of trade with non-residents, and subsidies resulting from multiple exchange rates.
- Export subsidies are now subject to value and volume restrictions under the Uruguay Round Agreement on Agriculture.

What is India's position?

- India is set to file an appeal and thus the ruling is unlikely to come into effect immediately.
- Also, at present, there is no functional appellate body at the WTO to issue a final ruling.

What is the Appellate Body of WTO?

- The Appellate Body is the highest Dispute Settlement Body (DSB) of WTO. It is composed of seven members who are appointed by the Dispute Settlement Body (DSB) to serve for four-year terms.
- Currently, the Appellate Body is unable to review appeals given its ongoing vacancies. The term of the last sitting Appellate Body member expired on 30 November 2020.
- The United States' blockage of appointments to the Appellate Body plunged the multilateral rules-based trading system into crisis. The US grievances include questions of delay, judicial over-reach, precedence, and transition rules.

Sugarcane cultivation in India:

- Sugarcane growing countries of the world lay between the latitude 36.7° north and 31.0° south of the equator extending from tropical to subtropical zones.
- India is the second-largest producer of sugar in the world after Brazil.
- In the last few decades, sugarcane cultivation in India has expanded. Factors like policies that incentivize production, including a minimum price, guaranteed sales of sugarcane and public distribution of sugar, have helped India become the second-largest producer of the commodity worldwide.
- India encouraged overseas sales of sugar for three years in a row, helping the country emerge as a significant, stable exporter of the commodity.

10. Joint use of Chabahar Port:

- Recently, India, Iran and Uzbekistan held talks on joint use of the Chabahar Port. They also underlined the importance role played by the port in enhancing regional connectivity.
- During the meeting, the three countries discussed further development of transportation corridor across the port.
- It was the second such virtual meeting among them on developing the strategically important port.
- Participating countries also highlighted the increase in transit traffic between South Asia and Central Asia through the Shahid Behesti Terminal at Chabahar Port. They also discussed the development of transportation corridor.

How this port is strategically important?

- The Shahid Beheshti Terminal at Chabahar Port is strategically important as it has handled shipments and trans-shipments from countries like Russia, Brazil, Germany, Thailand, Oman, Ukraine, Bangladesh, Romania, Kuwait, Australia, Kuwait, UAE and Uzbekistan.

Chabahar Port:

- The Chabahar Agreement was signed in June 2015 and approved by Iran's Guardian Council in November 2016. Chabahar is being seen as a gateway for trade by India, Iran and Afghanistan with Central Asian countries.

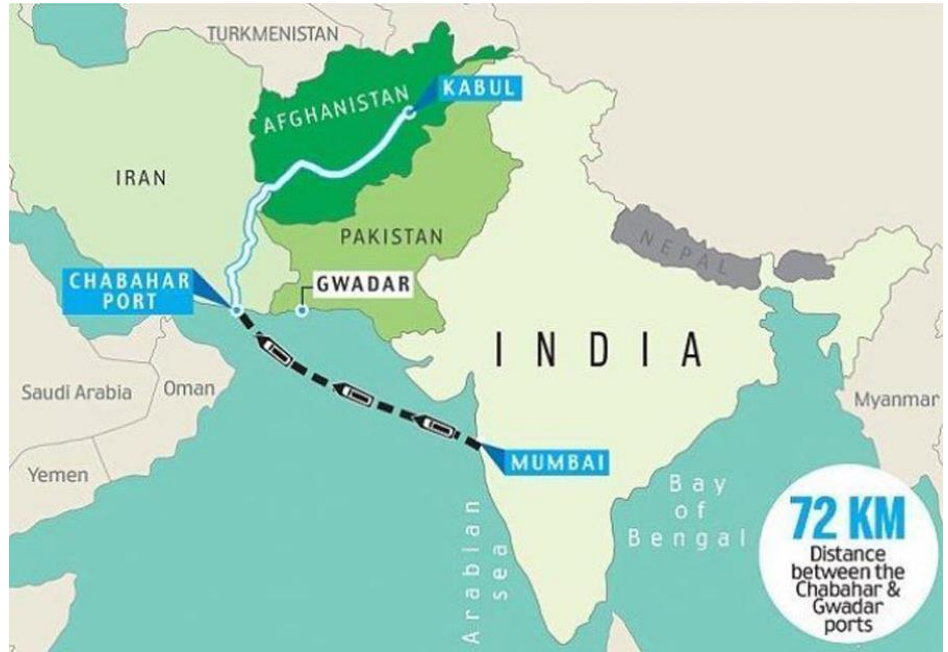
Where is Chabahar port?

- Iran's Chabahar port is located on the Gulf of Oman and is the only oceanic port of the country. The port gives access to the energy-rich Persian Gulf nations' southern coast.

Why Chabahar port is crucial for India?

1. The first and foremost significance of the Chabahar port is the fact that India can bypass Pakistan in transporting goods to Afghanistan. Chabahar port will boost India's access to Iran, the key gateway to the International North-South Transport Corridor that has sea, rail and road routes between India, Russia, Iran, Europe and Central Asia.
2. Chabahar port will be beneficial to India in countering Chinese presence in the Arabian Sea which China is trying to ensure by helping Pakistan develop the Gwadar port. Gwadar port is less than 400 km from Chabahar by road and 100 km by sea.
3. With Chabahar port being developed and operated by India, Iran also becomes a military ally to India. Chabahar could be used in case China decides to flex its navy muscles by stationing ships in Gwadar port to reckon its upper hand in the Indian Ocean, Persian Gulf and Middle East.

4. With Chabahar port becoming functional, there will be a significant boost in the import of iron ore, sugar and rice to India. The import cost of oil to India will also see a considerable decline. India has already increased its crude purchase from Iran since the West imposed ban on Iran was lifted.
5. Chabahar port will ensure in the establishment of a politically sustainable connectivity between India and Afghanistan. This will in turn, lead to better economic ties between the two countries.
6. From a diplomatic perspective, Chabahar port could be used as a point from where humanitarian operations could be coordinated.



11. EU: Malta legalises cannabis at home and for personal use:

- Malta has become the first country in European Union to legalise cannabis at home and for personal
- Under the new law, Malta has allowed people aged 18 and above to have up to seven grams of cannabis.
- They would also be allowed to grow up to four plants at home.
- The legislation also allows various non-profit organisations comprising of up to 500 people to grow the drug for their members. However, consumption of cannabis in public is still illegal and punishable by a 235 euro fine. Furthermore, consuming the cannabis in front of a child, either in public or at home, would attract a penalty of 300 and 500 euros.
- The law further provides easier penalties for people found with larger amounts of the drug.
- Adults in possession of 7 to 28 grams of cannabis for their personal use would have to face a tribunal rather than court. They could also be fined with a maximum of 100 euro.
- Minors who will be caught with cannabis will be referred to a tribunal. It might lead to a care plan or treatment.

Which countries have legalised recreational use of cannabis?

- Countries that have legalized recreational use of cannabis include- Canada, Georgia, Mexico, Malta, Uruguay and South Africa. Apart from that, 18 states, 2 territories & District of Columbia in United States have legalised it. Australian Capital Territory in Australia have also legalised recreational use of the drug.

Schedule I drug:

- Under the Single Convention treaty, Cannabis is classified as a Schedule I drug. Schedule I drug means that, signatories can allow its medical use. However, it is considered to be an addictive drug having a serious risk of abuse.

What is Cannabis?

- As per World Health Organisation, cannabis is a generic term denoting the several psychoactive preparations of Cannabis sativa plant. It is the most widely cultivated, trafficked and abused illicit drug worldwide, by far. Major psychoactive constituent of cannabis is Delta9 tetrahydrocannabinol (THC).
- Cannabinoids are a group of chemicals, which interact with cannabinoid receptors present principally in the brain. Natural cannabinoids are obtained from the inflorescences of the plant Cannabis sativa. The flower tops, leaves and the resin of cannabis plant are used in various combinations to produce marijuana, hashish, charas and ganja. Generally taken by inhalation and oral ingestion, these are known for their effects on cardiovascular system of the body.



Flowering branch of *Datura*



Leaves of *Cannabis sativa*

12. Myanmar officially accepts Tether Cryptocurrency:

- Myanmar's anti-junta govt/ National Unity Government recognises Tether as its 'official' currency, meant to be a dollar proxy, for "domestic use".
- The **National Unity Government (NUG)** comprises of pro-democracy groups and some members from Myanmar's civilian administration, which was overthrown in a military coup recently. The NUG has been working to raise funds for its revolution of toppling the ruling military government in Myanmar. In the other move, the Military government has outlawed and designated NUG as a terrorist.
- Tether is a cryptocurrency, which is hosted on the Ethereum blockchain. Its tokens are issued by Tether Limited. Tether limited is controlled by owners of Bitfinex. Tether is called a stablecoin, since it was originally designed to always be worth US1.00 in reserves. It can be transferred in a similar way as cryptocurrencies such as Bitcoin. Thus, it becomes difficult for governments and other authorities to track or prevent payments.

Controversy surrounding Tether:

- Tether Limited as well as Tether cryptocurrency are controversial because of alleged role of Tether Limited in manipulating the price of Bitcoin, and its failure to provide a promised audit on adequate reserves backing the Tether token.

About Cryptocurrency:

- Cryptocurrency is a collection of binary data, working as a medium of exchange.

- Cryptocurrency are not found in physical form like paper money. It is typically not issued by a central authority. It usually uses decentralized control, as opposed to central bank digital currency (CBDC). It is a tradable digital asset or digital money.
- Bitcoin was the first decentralized cryptocurrency, which was released in 2009. Bitcoin was invented in 2008.

13. UNSC Resolution to Securitise Climate Action:

- Recently, India and Russia opposed a United Nations Security Council (UNSC) draft resolution on climate change.
- The resolution was co-sponsored by Ireland and Niger and it was first proposed by Germany in the UNSC in 2020.
- It was supported by 113 UN member countries (of a total of 193), which includes 12 of the 15 UNSC members.
- The draft resolution sought to create a formal space in the Security Council for discussions on climate change and its implications on international security.
- It also asked that the UN Secretary-General provide periodic reports on how risks from climate change can be addressed to prevent conflicts.
- It also asked the Secretary General to appoint a special envoy for climate security.
- Further, it asked UN field missions to regularly report on climate change assessments in their areas of operation and take the help of climate experts in carrying out their routine functions.

Reasons Given:

- It has been argued that climate change had an international security dimension.
- Climate change-induced food or water shortage, loss of habitat or livelihood, or migration can exacerbate existing conflicts or even create new ones.
- This can have implications for the UN field missions that are deployed across the world in peacekeeping efforts.

Criticism:

- India said that it was an attempt to shift climate talks from the United Nations Framework Convention on Climate Change (UNFCCC) to the Security Council and a “step backward” for collective action on the issue.
- At the annual climate change conference also, India had forced a last-minute amendment in the final draft agreement to ensure that a provision calling for “phase-out” of coal was changed to “phase-down”.
- The draft resolution, as per India, would undermine the progress made in the right direction.
- It has been argued that the UNFCCC must remain the appropriate forum for addressing all climate change-related issues, and claimed the Security Council does not have the expertise to do so.
- Unlike UNFCCC, where decisions are taken by consensus of all the 190-plus countries, the UNSC would enable climate change decision-making by a handful of developed countries.
- The UNSC members are “major contributors to climate change due to historic emissions
- Also, the decision of bringing the issue to the Security Council was made without the involvement of most developing countries and without recognising consensus.

14. Asian Development Outlook report:

- Recently, the Asian Development Bank released its Asian Development Outlook Report and reduced its growth forecasts for developing Asia for year 2021.
- This move came in line with the uncertainty that new Omicron coronavirus variant has brought.
- ADB now sees 2021 gross domestic product (GDP) growth of 7.0% for developing Asia, as opposed to 7.1% forecast.
- For 2022, it forecasted the growth of 5.3%.
- Most of developing Asia's sub-regions are expected to grow slower than previous forecast in 2021.

ADB on China's growth:

- ADB has projected China's growth as 8.0% in 2021 and will slow down to 5.3% in 2022. China's economy, which staged an impressive rebound from last year's pandemic slump, has lost momentum in recent months as it grapples with surging prices, a slowing manufacturing sector, debt problems in the property market and persistent COVID-19 outbreaks.
- The ADB has reduced its 2021 growth forecast to 9.7% for India as opposed to the 10.0% estimate of September 2021. However, 2022 growth forecast has been unchanged.

Asian Development Bank:

- ADB is a regional development bank established in 1966.
- It has 68 members. India is a founding member.
- 49 are from within Asia and the Pacific and 19 outside.
- It aims to promote social and economic development in Asia and the Pacific.
- As of 31st December 2019, ADB's five largest shareholders are Japan and the United States (each with 15.6% of total shares), the People's Republic of China (6.4%), India (6.3%), and Australia (5.8%).
- It is headquartered in Manila, Philippines.
- Asian Development Outlook is an annual publication by Asian Development Bank (ADB). The outlook offers economic analysis and forecasts. It also examines the social development issues, for Asian countries.

15. World Talent Ranking report:

- Recently, IMD World Competitive Centre published its "World Talent Ranking Report" on December 9, 2021.
- This report is annually published by the IMD World Competitive Centre.
- Report grades 64 economies on the basis of a range of factors like:
 - How economies invest in and develop local personnel
 - Their ability to attract & retain skilled workers, and
 - Quality of domestic talent pools.

Key Findings of the report:

- In the report, Europe has dominated the ranking in 2021. Global top 10 countries are from this region.
- Switzerland has retained its top spot.
- The UAE continues have improved its global talent ranking. Ranking has improved by one position to 23rd. In 2019, it was ranked at 30th
- In the Arab world, UAE maintained its top position.

- In the Middle East & North Africa, UAE maintained its second position, following Israel (first in this region).
- Israel has been ranked 22nd
- Taiwan has been ranked at third place in Asia while at 16th place overall. Its ranking has improved by four places as compared to 2020.
- In Asia, Taiwan has been ranked behind Hong Kong (11) and Singapore (12) but ahead of South Korea (34), China (36), and Japan (39).

The ranking is structured based on three factors:

1. Investment and development,
 2. Appeal and
 3. Readiness
 4. Readiness of skilled labour
- The UAE has been ranked first in sub-indexes of readiness of skilled labour, student mobility inbound, competent senior managers and appeal for zero personal income tax.

16. UNGA grants Observer Status to International Solar Alliance:

- Recently, the United Nations General Assembly (UNGA) has granted Observer Status to International Solar Alliance (ISA).
- It is a historic decision and ISA has become an example of positive global climate action through partnerships in order to benefit global energy growth & development.

Fourth General Assembly of ISA:

- The fourth general assembly of the International Solar Alliance (ISA) was held in October 2021. In the event, a total of 108 countries participated, including 74 member countries and 34 observer & prospective countries participated.
- Apart from that, 23 partner organisations and 33 special invitee organisations also participated.

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.
- It is an Indian initiative that was launched by the Prime Minister of India and the President of France on 30th November 2015 in Paris, France on the side-lines of the UNFCCC Conference of the Parties (COP-21), with 121 solar resource rich countries lying fully or partially between the tropic of Cancer and tropic of Capricorn as prospective members.
- It aims to collectively address key common challenges to the scaling up of solar energy in ISA member countries.
- Till date, 102 countries have signed the ISA Framework Agreement out of which 81 countries ratified the same.
- The **Headquarters** is in India with its Interim Secretariat being set up in **Gurugram**.
- New ISA programmes have been launched on management of solar PV panels & battery usage waste and solar hydrogen programme.

17. Regional Comprehensive Economic Partnership (RCEP):

- The RCEP will come into effect on January 1, 2022, marking the formation of the world's largest free trade zone in terms of trade volume.
- RCEP is a trade deal between the 10-member Association of Southeast Asian Nations (ASEAN) and China, Japan, South Korea, Australia and New Zealand.

Objectives of RCEP:

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- To lower tariffs, open up trade in services and promote investment to help emerging economies catch up with the rest of the world.
- To help reduce costs and time for companies by allowing them to export a product anywhere within the bloc without meeting separate requirements for each country.
- It also touches on intellectual property, but will not cover environmental protections and labour rights.

Significance:

- RCEP will cover about 30% of global gross domestic product (GDP), worth \$26.2 trillion (€23.17 trillion), and nearly a third of the world's population, some 2.2 billion people.
- Under RCEP, around 90% of trade tariffs within the bloc will eventually be eliminated.
- RCEP will also set common rules around trade, intellectual property, e-commerce and competition.
- India withdrew from the RCEP largely because of concerns it would open it up to Chinese goods amid an already wide trade imbalance with China, and the failure of the agreement to adequately open up to services.

Need for India's presence in RCEP:

- India had "a crucial role" to play in helping the region build an inclusive architecture at a time of increasing global instability.
- Such trade pacts will also give Indian companies a platform to showcase their strengths across even larger markets.
- Besides, Rising U.S.-China tensions were "deeply worrying" for the region with the pandemic resulting in "heightened tension".

18. BRICS Bank-new member:

- Recently, the BRICS New Development Bank (NDB) announced to add Egypt as its new member.

About New Development Bank:

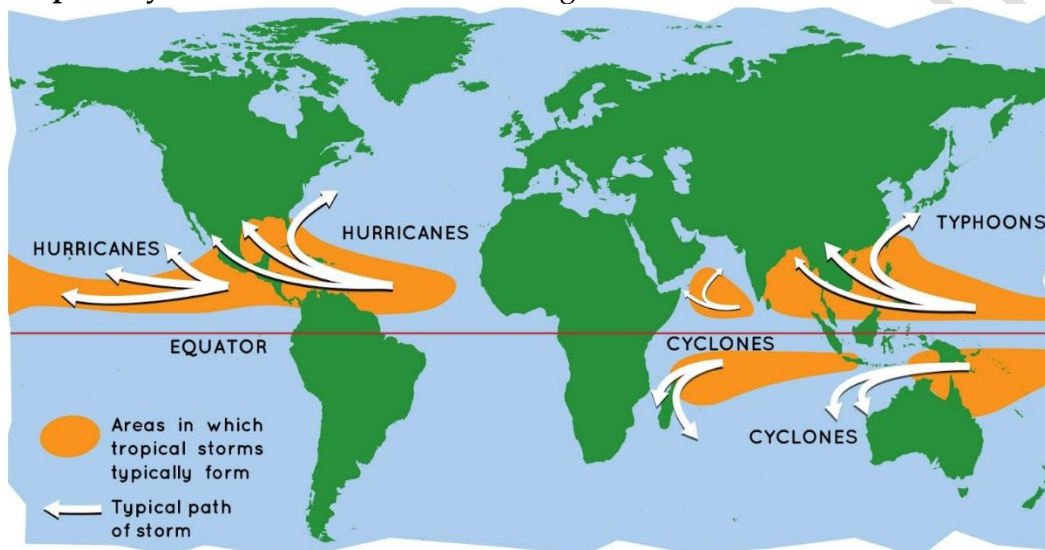
- It aims to mobilize resources for development projects in BRICS, emerging economies, and developing countries.
- It formerly referred to as the BRICS Development Bank.
- It is a multilateral development bank established by the BRICS states (Brazil, Russia, India, China and South Africa).
- It support public or private projects through loans, guarantees, equity participation and other financial instruments.
- The bank is headquartered in Shanghai, China.
- In September 2021, Bangladesh, the United Arab Emirates and Uruguay joined the NDB.
- In December 2021, the NDB admitted Egypt as new member.

Geography

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1. Typhoon Rai hits Philippines:

- Rai is the strongest storm to hit the disaster-prone archipelago this year (2021).
- **Typhoons** (mature tropical cyclone) are a kind of storm. The storms, depending on where they occur, may be called hurricanes, typhoons or cyclones.
- **Typhoons:** In the China Sea and Pacific Ocean.
- **Hurricanes:** In the West Indian islands in the Caribbean Sea and Atlantic Ocean.
- **Tornados:** In the Guinea lands of West Africa and southern USA.
- **Willy-willies:** In north-western Australia and
- **Tropical Cyclones:** In the Indian Ocean Region.



What is a tropical cyclone?

- A tropical cyclone (TC) is a **rotational low-pressure system** in tropics when the central pressure falls by 5 to 6 Hecto Pascal (hPa) from the surrounding and maximum sustained wind speed reaches 34 knots (about 62 kmph).
- It is a vast violent whirl of 150 to 800 km, spiraling around a centre and progressing along the surface of the sea at a rate of 300 to 500 km a day.
- The word cyclone has been derived from Greek word 'cyclos' which means 'coiling of a snake'. The word cyclone was coined by Heary Piddington who worked as a Rapporteur in Kolkata during British rule. The terms "hurricane" and "typhoon" are region specific names for a strong "tropical cyclone". Tropical cyclones are called
- "Hurricanes" over the Atlantic Ocean and "Typhoons" over the Pacific Ocean.

Why do 'tropical cyclones' winds rotate counter-clockwise (clockwise) in the Northern (Southern) Hemisphere?

- The reason is that the earth's rotation sets up an **apparent force (called the Coriolis force)** that pulls the winds to the right in the Northern Hemisphere (and to the left in the Southern Hemisphere). So, when a low pressure starts to form over north of the equator, the surface winds will flow inward trying to fill in the low and will be deflected to the right and a counter-clockwise rotation will be initiated. The opposite (a deflection to the left and a clockwise rotation) will occur south of the equator.

- This **Coriolis force** is too tiny to effect rotation in, for example, water that is going down the drains of sinks and toilets. The rotation in those will be determined by the geometry of the container and the original motion of the water. Thus, one can find both clockwise and counter-clockwise flowing drains no matter what hemisphere you are located. If you don't believe this, test it out for yourself.

What are the super cyclone, super-typhoon, a major hurricane and an Intense hurricane?

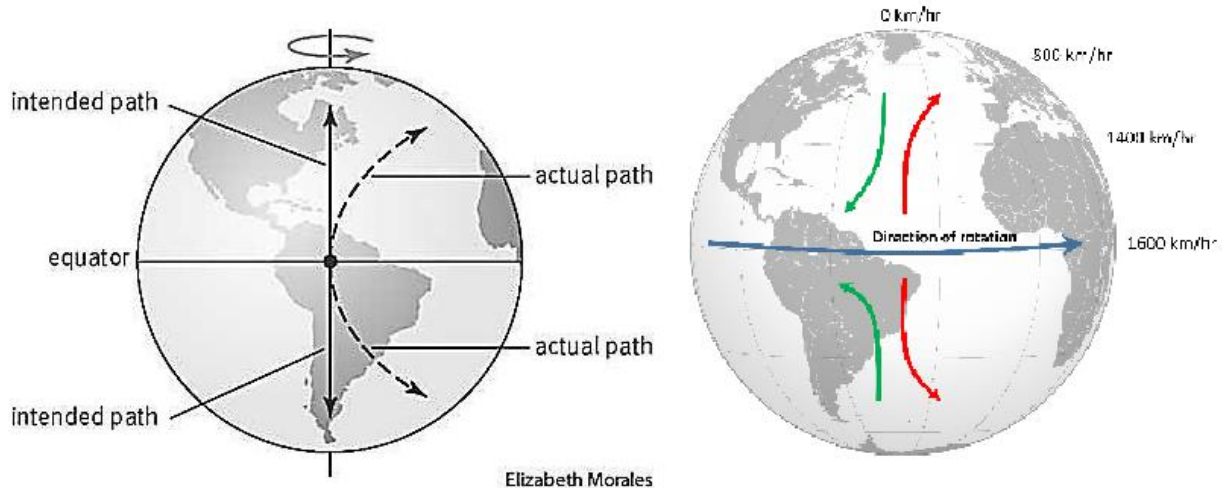
- When the maximum sustained 3 minutes surface winds are more than 119 knots, the low pressure system is called as "super cyclone" over north Indian.

What is landfall of a cyclone?

- Landfall is the event of a tropical cyclone coming onto land after being over water.

What is a "CDO"?

- "CDO" is an acronym that stands for "central dense overcast". This is the cirrus cloud shield that results from the thunderstorms in the eyewall of a tropical cyclone and its rainbands.
- Before the tropical cyclone reaches very severe cyclonic storm (64 knots), typically the CDO is uniformly showing the cold cloud tops of the cirrus with no eye apparent. Once the storm reaches the hurricane strength threshold, usually an eye can be seen in either the infrared or visible channels of the satellites.
- Tropical cyclones that have nearly circular CDOs are indicative of favourable, low vertical shear environments.



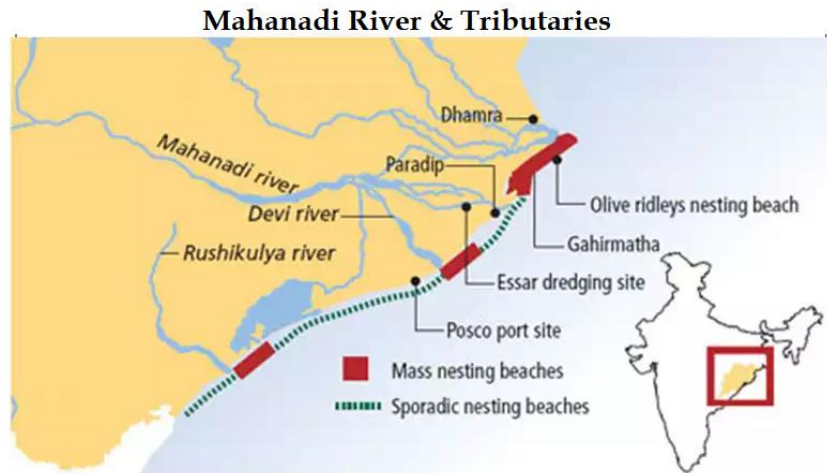
2. Bridge over Mahanadi:

- Recently, the Chief Minister of Odisha inaugurated T-Setu over River Mahanadi.
- T-Setu is Odisha's longest bridge. It is a 3.4 km long and 7.5 metre wide bridge.
- The bridge connects Gopinathpur in Badamba, Baidesar in Banki to Singhanath Pitha, which is located in the middle of Mahanadi River.
- The bridge has been built in the shape of English alphabet 'T'.
- T-Setu will benefit people of Cuttack and Khurda by reducing the distance between Badamba and Baidesar by 45 km.
- Bridge will facilitate communication for some five-lakh people from nearby localities.

- It will also improve agriculture, business and tourism activities in the area.
- It will benefit devotees, who are visiting Baba Singhanath's Bali Makar Jatra in Badamba block.

River Mahanadi:

- Mahanadi is a major river of East Central India, flowing through Chhattisgarh and Odisha.
- It has a total length of 900 kilometres and drains an area of around 132,100 square kilometres. This river is also famous for **Hirakud Dam**.
- Its main tributaries are the Seonath, the Jonk, the Hasdeo, the Mand, the ib, the Ong and the Tel.



3. Pacific Undersea Cable:

- Western Allies namely, the United States, Australia and Japan have announced to jointly fund the construction of an undersea cable in the Pacific Ocean.
- Development of undersea cable is the latest funding commitment of Western allies in telecommunications sector of the Pacific.
- The undersea cable in the Pacific will be used to boost internet access in three small Pacific countries, since the Western allies seek to counter increasing Chinese influence in this region.
- Allies will develop the cable for providing faster internet to Kiribati, Nauru, and the Federated States of Micronesia.
- This service will support the increased economic growth, help in improving living standards and drive development opportunities, as the region is recovering from harsh impacts of COVID-19.
- Cost of the project is not yet specified.
- In 2017, Australia have spent around 137 million Australian dollars for developing better internet access in Solomon Islands and Papua New Guinea.
- Western allies have launched this project as the US and its Indo-Pacific allies are of the views that cables laid by China might compromise regional security. Though, China has denied any intention to use commercial fibre-optic cables for spying. These fibre-optic cables have more data capacity than satellites.

Submarine Communications Cable:

- A **submarine communications cable** is laid on sea bed in between land-based stations in a bid to carry telecommunication signals across ocean & sea stretches.
- First ever submarine communications cables were laid in 1850s to carry telegraphy traffic.
- It had established the first instant telecommunications ties between continents. Subsequent generations of cables carried telephone traffic, followed by data

communications traffic. Modern cables use optical fibre technology in a bid to carry digital data, including internet, telephone and private data traffic.

4. Saryu Canal National Project:

- Recently, the Prime Minister inaugurated the **Saryu Canal** national project in Balrampur on which is envisaged to benefit 50 lakh farmers in eastern UP.
- It is known that the work of the Saryu Canal National Project was started four decades ago in the Bahraich district during the tenure of Indira Gandhi in the year 1978, then the cost of this project was less than 100 crores. In the year 1982, 9 districts including Balrampur were connected with this project.
- The length of this project is 318 km, while 6623 km long canal systems have been constructed, which are linked to this project. It was declared a national project in the year 2012.
- With this project, more than 30 lakh farmers of 6,227 villages of Bahraich, Shravasti, Balrampur, Gonda, Siddharthnagar, Basti, Sant Kabir Nagar, Gorakhpur and Maharajganj districts of Uttar Pradesh will be benefited and about 15 lakh hectares of these 9 districts will get irrigation facility.
- The Chief Minister said that the Saryu Canal National Project fulfills the dream of former Prime Minister Atal Bihari Vajpayee, 'River Connect Project'. This project connects Ghaghara River with Saryu River, Saryu River with Rapti River, Rapti River with Banganga River and Banganga River with Rohin River respectively.
- With this project, the farmers of this area will be able to do other agricultural work like vegetable and horticulture. The income of farmers will increase due to increase in agricultural production.
- In order to double the income of farmers by the year 2022, about 100 irrigation projects have been targeted in the country and the work of taking forward these irrigation projects in a time bound manner has started. Out of the 18 projects that were selected under this scheme, 17 projects have been completed.
- With the completion of these 17 irrigation projects, 22 lakh hectares of land is getting irrigation facility.

5. Ken-Betwa River interlinking project:

- Recently, the Union Cabinet has approved the funding and implementation of Ken-Betwa inter-linking of rivers project.
- The project envisages transferring water from the Ken River to the Betwa River, both tributaries of the Yamuna. The project will be completed in eight years.
- Ken meets with Yamuna in Banda district of UP and with Betwa in Hamirpur district of UP.
- Rajghat, Paricha and Matatila dams are over Betwa River.
- Ken River passes through Panna tiger reserve.

Implementing Agency:

- A Special Purpose Vehicle (SPV) called Ken-Betwa Link Project Authority (KBLPA) will be set up to implement the project.
- The National Interlinking of Rivers Authority (NIRA) has the powers to set up SPV for individual link projects.
- **Phases of the Project:** The project has two phases, with mainly four components.

- Phase-I will involve one of the components- Daudhan Dam complex and its subsidiary units such as Low Level Tunnel, High Level Tunnel, Ken-Betwa Link Canal and power houses.
- **Phase-II** will involve three components -Lower Orr Dam, Bina Complex Project and Kotha Barrage.

Page 95 **Benefits:**

- The project lies in Bundelkhand, a drought-prone region, which spreads across 13 districts of Uttar Pradesh and Madhya Pradesh.
- According to the Jal Shakti Ministry, the project will be of immense benefit to this water-starved region.
- Further, it will pave the way for more interlinking of river projects to ensure that scarcity of water does not become an inhibitor for development in the country.
- According to the Jal Shakti Ministry, the project is expected to provide annual irrigation of 10.62 lakh hectares, supply drinking water to about 62 lakh people, and generate 103 MW of hydropower and 27 MW of solar power.

6. Matua Island:

- Recently the Russian Military deployed its defence missile systems called the Bastion systems to the Matua Island.
- Matua is an uninhabited volcanic island located in the Kuril Islands chain in the Sea of Okhotsk. It is in the northwest Pacific Ocean. Also, the Matua Island is 16 km from Golovnin Strait. These islands are located on the Ring of Fire.
- The chain of islands, Kuril Islands, is claimed by **Japan** as well. Japan claims four of the islands in the chain and call them **Northern Territories**. These Islands were taken by the Soviet Union in the final days of World War II.
- During World War II, Japan had installed a military base in the island. After the disintegration of Soviet Union in 1991, the soviet military base established earlier was closed due to funding shortages.

Bastion Systems:

- The K-300P Bastion-P is a Russian mobile coastal defence missile system. The system was developed together with the Belarusian company Tekhnosoyuzproekt.

Sea of Okhotsk:

- The Sea of Okhotsk is a marginal sea of the western Pacific Ocean. It is surrounded by the Kamchatka Peninsula of Russia in the east; by the Kuril Islands in the southeast; Japan's Hokkaido island in the south-southwest; Sakhalin Island (Russia) in the southwest; and by the east coast of Russia in the north and west.
- On either side of Sakhalin Island, the Sea of Okhotsk is connected with the Sea of Japan via the La Pérouse Strait in the south and via the Gulf of Tartary and the Sakhalin Gulf in the west.



Sea of Okhotsk

South



South-Central

Vodopadnaya 2

Chirpoi

Urup

Aino Creek 1

Yankito 1/2

Iturup

Kunashir



Savushkino 1/2
North
Shur

Paramushir

Baik

North-Central

Mankanrushi

Trudnaya

Onekotan

Ekarma

Kharimkota

Chirinkotan

Drobnyye 1

Shiashtkotan

Matua

Rasshua

Rasshua 1

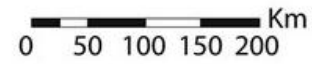
Kitoi

Ushishir

Simushir

Bussoi Strait

Pacific Ocean



Classic In

SEA OF OKHOTSK



Miscellaneous

1. Highest civilian honour of Bhutan:

- Recently, the Prime Minister of India has been conferred by Bhutan's highest civilian award, 'Order of the Druk Gyalpo' also known as "Ngadag Pel gi Khorlo".
- This is the highest decoration of Bhutan and is awarded in recognition of a lifetime of service to the people and the Kingdom of Bhutan.
- Order of the Dragon King was founded on 7th November 2008, to reward those who devoted a lifetime of service to the nation and people of Bhutan.

- The honours exist in two categories. Order of the Dragon King is the pinnacle of the honour system in Bhutan and also takes precedence over all other orders, medals and decorations.
- The announcement of the award coincided with the occasion of the 114th National Day of Bhutan.

Page 98 **Some of the Awards Won by the Indian PM:**

- **State Order of Ghazi Amir Amanullah Khan (2016):** The highest civilian honour of Afghanistan.
- **Order of Abdulaziz Al Saud (2016):** The highest honour of Saudi Arabia awarded to non-muslim dignitaries.
- **Grand Collar of the State of Palestine Award (2018):** The highest honour of Palestine awarded to foreign dignitaries.
- **Order of Zayed Award (2019):** The highest civilian honour of the United Arab Emirates.
- **Order of St. Andrew award (2019):** The highest civilian honour of Russia
- **Order of the Distinguished Rule of Nishan Izzuddin (2019):** The highest honour of the Maldives awarded to foreign dignitaries.
- **King Hamad Order of the Renaissance-First Class (2019):** Bahrain's top honour.
- **Legion of Merit by the US Government (2020):** The United States Armed Forces award given for exceptionally meritorious conduct in the performance of outstanding services and achievements.
- **Seoul Peace Prize (2018):** Seoul Peace Prize Cultural Foundation's biennial award (South Korea) to those individuals who have made their mark through contributions to the harmony of mankind, reconciliation between nations and world peace.
- **Champions of The Earth Award (2018):** The United Nation's highest environmental honour
- **First Philip Kotler Presidential award (2019):** Offered to the leader of a nation.
- **Global Goalkeeper Award:** Honour by Bill and Melinda Gates Foundation for Swachh Bharat Abhiyan (2019)
- **Global Energy and Environment Leadership Award (2021):** Awarded by the Cambridge Energy Research Associates CERA for commitment of leadership towards the future of global energy and the environment.

2. Veera Rani Abbakka:

- The silver jubilee of Veera Rani Abbakka Utsava will be celebrated on the premises Ullal City Municipality on December 21.
- Ullal Veera Rani Abbakka Utsava committee recently decided to present "Veera Rani Abbakka award" during Veera Rani Abbakka festival in December 2021.
- Veerarani Abbakka award will be given to the lady who has made substantial achievement in research and culture. Committee would also take mother, and, language and tradition into consideration for presenting the award.
- Award will be presented to a lady with Tulu background who has made substantial achievement in sports, arts, social service and other such sectors.

Who was Rani Abbakka Chowta?

- She was the first Tuluva Queen of Ullal. She fought the Portuguese in latter half of the 16th century.

- She belonged to the Chowta dynasty who ruled over parts of coastal Karnataka (Tulu Nadu), India.
- The port town of Ullal was their subsidiary capital. Ullal was strategically placed because of which, The Portuguese made several attempts to capture it. But the queen repulsed their attacks for over four decades.
- She came to be known as Abhaya Rani, because of her bravery.

Legacy of the Queen:

- Her legacy is celebrated in the form of folk songs, stories and performances of Yakshagana; a form of local theatre.
- During a local ritual dance, a person recounts the brave and heroic actions of Rani Abbakka Chowta.
- She has a museum in her name "Tulu Baduku Museum" in Kannada's Bantwal Taluk.
- The Indian navy, in order to honour her, named an Inshore Patrol Vessel after her.
- Her memory is cherished in her hometown of Ullal and the Veera Rani Abbakka Prashasti is an award given to distinguished women on that day.

3. Haiti's Freedom Soup:

- Recently, the United Nations cultural agency, UNESCO placed a traditional Haitian soup called 'Joumou Soup' in the intangible cultural heritage list.
- The Intangible Cultural Heritage Committee of UNESCO awarded Joumou soup a protected status on December 16, 2021.
- Haitian soup is widely considered as a symbol of Haiti's independence.
- Joumou soup is much more than a dish. It tells the story of heroes & heroines of Haitian independence as well as their struggle for human rights and hard-won freedom.
- It is a squash-based soup and it became a symbol of things long forbidden to slaves under the French domination until Haiti became independent on January 1, 1804.
- Haitians celebrated their freedom by consuming the soup.
- They traditionally serve the soup on New Year's Day for commemorating the anniversary of liberation from slavery.

What is Intangible Cultural Heritage?

- UNESCO says, **Intangible Cultural Heritage** includes traditions or living expressions inherited from our ancestors and passed on to our descendants, such as oral traditions, performing arts, social practices, rituals, festive events, knowledge and practices concerning nature and the universe or the knowledge and skills to produce traditional crafts.
- UNESCO established its Lists of Intangible Cultural Heritage with the aim of ensuring better protection of important intangible cultural heritages worldwide and the awareness of their significance.
- The list was established in 2008 when the 2003 Convention for the Safeguarding of the Intangible Cultural Heritage took effect.

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