

2021 SEPTEMBER MAGZINE

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Economy

1. E-Gopala App

Why in News?

The web version of e-GOPALA application developed by National Dairy Development Board (NDDB) has been launched on Saturday to aid dairy farmers.

About

- The App provides **real-time information to dairy farmers** for better productivity of dairy animals.
- The **e-GOPALA platform** will **help farmers to manage their livestock** including buying and selling of disease-free germplasm in all forms (semen, embryos, etc); **informs about availability of quality breeding services** and guides farmers for animal nutrition, treatment of animals using appropriate Ayurvedic ethno veterinary medicine.
- There is a **mechanism to send alert** (on due date for vaccination, pregnancy diagnosis, calving etc) and **inform farmers** about various government schemes.
- This portal will also **facilitate real time checking of coverage and progress** of various projects and government schemes.
- Web portal was launched in line with Prime Minister Narendra Modi's dream of '**Digital India**'.

National Dairy Development Board's (NDDB)

- NDDB is a **statutory body** set up by an Act of Parliament of India.
- It is under the jurisdiction of **Ministry of Fisheries, Animal Husbandry and Dairying**, Government of India.
- The Board was **created in 1965 to finance, support and support producer-owned and controlled organisations**.
- Its **programmes and activities seek to strengthen farmer cooperatives** and **support national policies** that are favourable to the growth of such institutions. Cooperative principles and cooperative strategies are fundamental to the board's efforts.

2. Special Drawing Rights (SDR)

Why in News?

Recently, the International Monetary Fund (IMF) has made an allocation of Special Drawing Rights (SDR) 12.57 billion (equivalent to around \$17.86 billion at the latest exchange rate) to India. Now, the total SDR holdings of India stand at SDR 13.66 billion.

About

- What is it? → The SDR is **neither a currency nor a claim on the IMF**. Rather, it is a **potential claim** on the freely usable currencies of IMF members. SDRs can be exchanged for these currencies.
- The SDR serves as the **unit of account of the IMF** and some other international organizations.
- The currency value of the SDR is **determined by summing the values in US dollars**, based on market exchange rates, of a SDR basket of currencies.
- The **SDR basket** of currencies includes the **US dollar, Euro, Japanese yen, pound sterling** and the **Chinese renminbi** (included in 2016).
- The SDR currency value is **calculated daily** (except on IMF holidays or whenever the IMF is closed for business) and the **valuation basket is reviewed and adjusted every five years**.
- Quota (the amount contributed to the IMF) of a country is **denominated in SDRs**.
 - **Members' voting power** is related directly to their quotas.
 - IMF makes the general SDR allocation to its members in proportion to their existing quotas in the IMF.

- India's foreign exchange reserves also **incorporate SDR** other than gold reserves, foreign currency assets and Reserve Tranche in the IMF.

International Monetary Fund (IMF):

- Created in **1945**, the IMF is governed by and **accountable to the 190 countries** that make up its near-global membership. India joined in December 1945.
- The IMF's primary purpose is to **ensure the stability of the international monetary system** — the system of exchange rates and international payments that enable countries (and their citizens) to transact with each other.
- Its mandate was **updated in 2012** to include **all macroeconomic and financial sector issues** that bear on global stability.
- Reports by IMF →
 - Global Financial Stability Report
 - World Economic Outlook.

3. Financial Stability and Development Council

Why in News?

Recently, the Finance Minister chaired the 24th meeting of the Financial Stability and Development Council (FSDC).

About

- What is it? → It is a **non-statutory apex council** under the Ministry of Finance constituted by the Executive Order in 2010.
- The **Raghuram Rajan Committee (2008)** on financial sector reforms first proposed the creation of FSDC.
- Composition of FSDC →
 - Chairperson → The **Union Finance Minister** of India.
 - Members → **Governor Reserve Bank of India (RBI)**, **Finance Secretary** and/ or **Secretary, Department of Economic Affairs (DEA)**, **Secretary, Department of Financial Services (DFS)**, **Secretary, Ministry of Corporate Affairs**, **Chief Economic Advisor, Ministry of Finance**.
 - Other members include the **Chairman of SEBI**, **IRDA**, **PFRDA** and **IBBI**
 - The **FSDC Sub Committee** is Chaired by the Governor of the RBI.
 - All the members of the FSDC are also members of the Sub-committee.
- Functions →
 - To **strengthen and institutionalize the mechanism for maintaining financial stability**, enhancing inter-regulatory coordination and promoting financial sector development.
 - To **monitor macro-prudential supervision** of the economy. It assesses the functioning of the large financial conglomerates.

4. Account Aggregator

Why in News?

Recently, eight major banks have joined the Account Aggregator (AA) network that will enable customers to easily access and share their financial data.

About

- It is a **Non-Banking Financial Company** engaged in the business of providing the **service of retrieving or collecting financial information** pertaining to its customer, under a contract.
- It was created through an **inter-regulatory decision by RBI** and other regulators including SEBI, IRDA, and PFRDA through an initiative of the Financial Stability and Development Council (FSDC).

- The objective of Account Aggregator (AA) is to aggregate all financial information of an individual.

How does it work?

- It has a three-tier structure
 1. Account Aggregator
 2. FIP (Financial Information Provider)
 3. FIU (Financial Information User)
- An FIP is the data fiduciary, which holds customers' data. It can be a bank, NBFC, mutual fund, insurance repository or pension fund repository
- An FIU consumes the data from an FIP. An FIU is a lending bank that wants access to the borrower's data to determine if the borrower qualifies for a loan
- Banks play a dual role – as an FIP and as an FIU
- There are 19 categories of information that fall under 'financial information', besides various other categories
- For sharing of such information, the FIU is required to initiate a request for consent by way of any platform/app run by the AA.
- Such a request is received by the individual customer through the AA, and the information is shared by the AA, after consent is obtained
- AA will not provide any transaction in financial assets by its customers. His only role will be that of account aggregation

Significance of NBFC-AA

- Provides information on various accounts held by a customer in a consolidated, organised and retrievable manner

5. PLI Scheme for textiles

Why in News?

Recently, the Union cabinet has approved the Production Linked Incentive (PLI) scheme for the textile sector.

About

- Objective →
 - To attract investments in the production of in-demand textile products like man-made fibre (MMF) fabric, garments and technical textiles.
 - To make Indian textiles more competitive in international markets.
- Duration of the Scheme → Five Years.

Features of the PLI Scheme for textiles

- Incentives → Under the scheme, two types of investment are possible with a different set of incentive structures:
 - First Type: Any person, (which includes firm/company) willing to invest a minimum of ₹300 Crore in Plant, Machinery, Equipment and Civil Works (excluding land and administrative building cost) to produce products of Notified lines (MMF Fabrics, Garment) and products of Technical Textiles, shall be eligible to apply for participation.
 - Second Type: In this, any person, (which includes firm/company) willing to invest a minimum of ₹100 Crore shall be eligible to apply for participation.
- Priority Areas → Under the scheme, priority will be given for investment in Aspirational Districts, Tier 3, Tier 4 towns and rural areas. Hence, industries will be incentivized to move to backward areas.

6. Minimum support price

Why in News?

The Cabinet Committee on Economic Affairs (CCEA) has approved the increase in the MSP for all mandated Rabi crops for the Rabi Marketing Season 2022-23.

About

- What is it? → MSP is the rate at which the government buys grains from farmers. Currently, it fixes MSPs for 23 crops grown in both Kharif and Rabi seasons.
- MSP is a “minimum price” for any crop that the government considers as remunerative for farmers and hence deserving of “support”.
- How is it calculated? →
 - The MSP is the rate at which the government purchases crops from farmers, and is based on a calculation of at least one-and-a-half times the cost of production incurred by the farmers.
 - The Union Budget for 2018-19 had announced that MSP would be kept at levels of 1.5 the cost of production.
 - The MSP is fixed twice a year on the recommendations of the Commission for Agricultural Costs and Prices (CACP), which is a statutory body and submits separate reports recommending prices for kharif and rabi seasons.
- Which production costs are taken in fixing the MSPs? →
 - The CACP considers both ‘A2+FL’ and ‘C2’ costs while recommending MSP.
 - A2 costs cover all paid-out expenses, both in cash and kind, incurred by farmers on seeds, fertilisers, chemicals, hired labour, fuel and irrigation, among others.
 - A2+FL covers actual paid-out costs plus an imputed value of unpaid family labour.
 - The C2 costs account for the rentals and interest forgone on owned land and fixed capital assets respectively, on top of A2+FL.

7. Main Bhi Digital 3.0

Why in News?

The Ministry of Housing and Urban Affairs in collaboration with the Ministry of Electronics and Information Technology has launched ‘Main Bhi Digital 3.0’ Campaign.

About

- What is it? → It is a special campaign for Digital Onboarding and Training of street vendors under the PM SVANidhi scheme.
- Coverage → The campaign has been launched across 223 cities in the country.
- Features →
 - Under the campaign, BharatPe, Mswipe, PhonePe, Paytm, Aceware are participating to issue UPI IDs, QR codes and provide digital training to street vendors.
 - The street vendors will also be trained to accept and make digital payment transactions.

PM Street Vendor's AtmaNirbhar Nidhi (PM SVANidhi)

- Launched by → Ministry of Housing and Urban Affairs in 2020 as a Central Sector Scheme.
- Purpose → To facilitate affordable working capital loans of up to ₹10,000 with an interest subsidy @7% on regular repayment. The street vendors are not required to pay any collateral for the loan.
- Implementing Agency → SIDBI has been appointed as the implementation agency for scheme administration.
- Key Features of the scheme
 - The scheme provides Graded Guarantee Cover, to Lending Institutions, on a portfolio basis.

- The street vendors also stand a chance to **avail a loan of ₹20,000** and **₹50,000** in the second and third tranches respectively on timely repayment of the loan.
- To **encourage digital transactions** a **cashback up to ₹1,200** on digital transactions at ₹100 per month is provided to the street vendors under the scheme.
- Target → The scheme targets to cover **50 lakh street vendors**, who had been vending on or **before March 24, 2020**.

8. Transport and Marketing Assistance (TMA) scheme

Why in News?

The Centre has revised “Transport and Marketing Assistance” (TMA) scheme for Specified Agriculture Products’.

About TMA Scheme

- Launched by → **Ministry of Commerce & Industry** in **2019**.
- The objective of the Scheme → The scheme aims to provide **assistance for the international component of freight** and **marketing of agricultural produce**.
- The assistance will help **mitigate the disadvantage of higher freight costs** faced by the Indian exporters of agriculture products.
- Coverage → **All exporters, duly registered with relevant Export Promotion Council as per Foreign Trade Policy**, of eligible agriculture products, shall be covered under this scheme.
- The scheme **covers freight** and **marketing assistance for export** by air as well as by sea (both normal and reefer cargo).
- Duration of the Scheme → The scheme was initially **applicable for exports affected** during the period **from 01.03.2019 to 31.03.2020** and was later extended for exports affected up to 31.03.2021.

📌 Revised Transport and Marketing Assistance (TMA) for Specified Agriculture Products Scheme

- The revised TMA scheme will be available for **exports affected** on or **after 01.04.2021 up to 31.03.2022**.
- The following major changes have been made in the revised scheme →
 - **Dairy products**, which were not covered under the earlier scheme, will be **eligible for assistance** under the revised scheme.
 - **Rates of assistance** have been **increased, by 50%** for exports by sea and by 100% for exports by air.

9. UDAN scheme

Why in News?

The Civil Aviation Ministry has announced its agenda over the next 100 days. It includes: Launching 50 new routes under the UDAN scheme. Rationalising the value added tax (VAT) charged on aviation turbine fuel (ATF).

About

- The scheme is aimed **at enhancing connectivity to remote and regional areas of the country** and making air travel affordable.
- It is a **key component** of **Centre’s National Civil Aviation Policy** led by Prime Minister Narendra Modi and launched in June 2016.
- Under the scheme, nearly **half of the seats in Udan flights** are **offered at subsidised fares**, and the participating carriers are provided a certain amount of viability gap funding (**VGF**) – an amount shared between the Centre and the concerned states.
- The scheme will be jointly funded by the **central government** and **state governments**.
- The scheme will **run for 10 years** and can be **extended thereafter**.

UDAN 4.0

- The 4th round of UDAN was launched in **December 2019** with a **special focus on North-Eastern Regions, Hilly States, and Islands**.
- The airports that had already been developed by **Airports Authority of India (AAI)** are given **higher priority for** the award of VGF (**Viability Gap Funding**) under the Scheme.
- Under UDAN 4, the **operation of helicopters** and **seaplanes** is also been incorporated.

10. T+1 settlement system

Why in News?

Recently, Securities and Exchange Board of India (SEBI) allowed stock exchanges to start the T+1 system as an option in place of T+2 for completion of share transactions.

About

- T+1 (T+2) are abbreviations that **refer to the settlement date of security transactions**. The “T” stands for **transaction date**, which is the day the transaction takes place.
- T+1 means settlements will have to be **cleared within one day** after the actual transaction takes place. This means the **trades executed on Monday gets settled on Tuesday**, the next working day.
- T+1 vs T+2 Settlement → On the other hand, **T+2 means** if an investor **sells shares on Tuesday**, settlement of the **trade takes place in two working days** (T+2). The broker who handles the trade will get the **money on Thursday**, but will credit the amount in the investor's account only by Friday. In effect, the investor will get the money only after three days.

Benefits of T+1 Settlement

- A shortened cycle not only reduces settlement time but also **reduces** and **frees up the capital required to collateralise** that risk.
- Secondly, it will provide **liquidity to the investors** as they get their funds for the shares sold/ credited to their account earlier.
- Thirdly, it **reduces** the **number of outstanding unsettled trades** at any instant, and thus decreases the unsettled exposure to Clearing Corporation by 50%.
- Lastly, a **shortened settlement cycle** will also help in reducing systemic risk.

Concerns of Foreign Investors

- Foreign investors have raised concerns as they would **face issues while operating from different geographies — time zones, information flow process and foreign exchange problems**.

11. National Financial Reporting Authority

Why in News?

As it seeks to enhance engagement with stakeholders, the National Financial Reporting Authority (NFRA) will set up a single stakeholders' advisory group as well as a research cell to support the group.

About

- Formation → It was constituted on **1st October, 2018** under section 132 (1) of the Companies Act, 2013.
- Composition → The Companies Act requires the NFRA to have a **chairperson** who will be **appointed by the Central Government** and a **maximum of 15 members**.
- Functions and Duties →

- Recommend **accounting and auditing policies and standards** to be adopted by companies for approval by the Central Government;
- **Monitor and enforce compliance** with accounting standards and auditing standards;
- **Oversee the quality of service** of the professions associated with ensuring compliance with such standards and suggest measures for improvement in the quality of service;
- **Perform** such **other functions and duties** as **may be necessary** or incidental to the aforesaid functions and duties.
- Powers →
 - It can **probe listed companies** and those **unlisted public companies** having paid-up capital of **no less than Rs 500 crore** or annual turnover of no less than Rs 1,000 crore.
 - It can **investigate professional misconduct** committed by members of the Institute of Chartered Accountants of India (ICAI) for prescribed class of body corporate or persons.

12. Index of Industrial Production

Why in News?

India's industrial output grew by 11.5% in July compared to a 10.5% contraction a year ago, as per quick estimates from the National Statistical Office (NSO).

About

- What is it? → IIP is an **indicator** that **measures the changes in the volume of production of industrial products** during a given period.
- Compiled and published by → It is compiled and published **monthly** by the **National Statistical Office (NSO)**, Ministry of Statistics and Programme Implementation.
- Indicator → It is a **composite indicator** that measures the growth rate of industry groups classified under:
 - **Broad sectors**, namely, Mining, Manufacturing, and Electricity.
 - **Use-based sectors**, namely Basic Goods, Capital Goods, and Intermediate Goods.
- Base Year for IIP → **2011-2012**.
- Significance of IIP →
 - It is **used by government agencies** including the Ministry of Finance, the Reserve Bank of India, etc, for policy-making purposes.
 - IIP remains extremely relevant for the **calculation of the quarterly** and **advance GDP** (Gross Domestic Product) **estimates**.

📌 Eight Core Sectors

- These comprise **40.27%** of the weight of items included in the Index of Industrial Production (IIP).
- The eight core sector industries in decreasing order of their weightage: **Refinery Products**> **Electricity**> **Steel**> **Coal**> **Crude Oil**> **Natural Gas**> **Cement**> **Fertilizers**.

13. Hydrogen fuel

Why in News?

The Ministry of Railways has decided to close down the Indian Railways Organization for Alternate Fuels' (IROAF) with effect from September 7, 2021.

About Hydrogen

- What is it? → It is the **lightest** and **first element on the periodic table**. Since the weight of hydrogen is less than air, it **risers in the atmosphere** and is therefore **rarely found** in its pure form, H₂.

- At standard temperature and pressure, hydrogen is a nontoxic, nonmetallic, odorless, tasteless, colorless, and highly combustible diatomic gas.
- Occurrence of Hydrogen →
 - Molecular hydrogen is not available on Earth in convenient natural reservoirs.
 - Most hydrogen on Earth is bonded to oxygen in water and to carbon in live or dead and/or fossilized biomass. It can be created by splitting water into hydrogen and oxygen.
- Benefits →
 - Due to its ability to power fuel cells in zero-emission electric vehicles, its potential for domestic production, and the fuel cell's potential for high efficiency hydrogen is considered an alternative.
 - Water is the only by-product that results from the usage of hydrogen fuel that makes the fuel 100 per cent clean.
 - Hydrogen can also serve as fuel for internal combustion engines.
- Government Missions towards hydrogen fuel:
 - The Finance Minister in the Union budget for 2020-21 formally announced the National Hydrogen Mission which aims for generation of hydrogen from green power resources.
 - The Ministry of New and Renewable Energy (MNRE) has also disclosed that the draft regulations for NHM will be finalised by the end of this month and will thereafter proceed for approval of the Union Cabinet.

14. Stablecoins

Why in News?

Stablecoins might be the most ironically named innovation of the cryptocurrency era.

About

- What is it? → A stablecoin is a type of cryptocurrency that is typically pegged to an existing government-backed currency.
- The majority of the dozens of stablecoins that currently exist use the dollar as their benchmark asset, but many are also pegged to other fiat currencies issued by governments like the euro and yen.
- As a result, the price of stablecoins fluctuates very little, unlike high-profile cryptocurrencies like bitcoin and ethereum that are prone to sudden ups and downs.
- Stablecoins are useful because they allow people to transact more seamlessly in cryptocurrencies that function as investments, such as Bitcoin. They form a bridge between old-world money and new-world crypto.
- The first stablecoin, created in 2014, was Tether, which many other stablecoins are modeled after.

15. Rail Kaushal Vikas Yojana

Why in News?

Recently, the Ministry of Railways launched Rail Kaushal Vikas Yojana (RKVY) under Pradhan Mantri Kaushal Vikas Yojana (PMKVY).

About

- Purpose → This is a skill development programme, where training will be provided to youth with a special focus on jobs that are relevant to the Railways.
- Four trades → The training will be provided in four trades viz. Electrician, Welder, Machinist and Fitter and other trades will be added by zonal railways and Production units based on regional demands and needs assessment.
- Training will be provided to apprentices under the Apprentices Act 1961.
- Objectives →
 - To impart training skills to the youth in various trades to bring qualitative improvement.

- To **train 50,000 candidates** over the next three years.
- Eligibility → Candidates who are **10th passed** and **between 18-35 years** shall be **eligible to apply**. Participants in the scheme shall however have no claim to seek employment in Railways on the basis of this training.
- Significance → The scheme will **not only improve the employability** of the youth but **also upgrade the skills** of self-employed and those who are working with contractors through reskilling and up-skilling.

16. Global Innovation Index 2021

Why in News?

The Global Innovation Index (GII) 2021 has been released.

About

- Published by → the **World Intellectual Property Organization** (WIPO) in partnership with the Portulans Institute and with the support of corporate network partners.
- Objective → The index **ranks 132 world economies** according to their innovation capabilities.
- Indicators → The index ranks world economies **according to their innovation capabilities** and **consists of roughly 80 indicators** grouped into innovation inputs and outputs.
 - **Innovation inputs** → Institutions; Human capital and research; Infrastructure; Market sophistication; Business sophistication.
 - **Innovation outputs** → Knowledge and technology outputs; Creative outputs

👉 key findings

- Top Five → **Switzerland, Sweden, U.S., and U.K.** continue to lead the innovation ranking, and have all ranked in the top 5 in the past three years.
- The **Republic of Korea** joins the top 5 of the GI for the first time in 2021.
- Related to India →
 - India has been **ranked 46th** in the Global Innovation Index 2021 rankings. It was **ranked at 48th in 2020**.
 - India has been on a **rising trajectory** over the past several years in the Index, from a rank of 81 in 2015 to 46 in 2021.
 - **Graduates** in **science and engineering disciplines** and **global corporate research and development investors** are India's strengths.

17. Khavda Renewable Energy Park

Why in News?

Khavda Renewable Energy Park – In News.

About

- It is the **world's largest renewable energy park** in **Gujarat's Kutch**.
- The park will be built along the **Indo-Pak border at Khavda**.
- The park will **generate 30GW of clean energy**. It will be a hybrid renewable energy park, as it will produce power **using both solar energy** and **wind energy**.
- What are Large Battery Storage systems used for? →
 - Large battery storages can **help keep power grids stable**, given electricity is produced intermittently from clean energy sources such as solar and wind.
 - One of the most critical advantages of battery storage is the **ability to store energy** as it is generated and then redistribute it when needed rather than as it is produced.

- This ability **reduces the need to curtail renewable generation** and allows the energy to be deployed during periods of high electricity demand.

18. Spin Scheme

Why in News?

The SPIN (Strengthening the Potential of India) scheme was recently launched by the Khadi and Village Industries Commission (KVIC) to help potters become self-sufficient.

About

- It is an initiative through which **KVIC** will **make it easier for potters to obtain low-interest bank loans**, allowing them to diversify their businesses and increase their income.
- Objective → It is aimed at **sustainable development** by **creating local self-employment** which is aligned with the Prime Minister's commitment of "**Job to Every Hand**" (Har Hath Me Kaam).
- Features →
 - It is a **no-subsidy program**.
 - KVIC facilitates potters to **get bank loans** under **Pradhan Mantri Shishu Mudra Yojana**.
 - **No financial burden** on the exchequer.
 - Beneficiaries can **repay** the loans in **easy installments**.
- Significance → It will **reduce their dependence** on government subsidy and thus make potters self-reliant.

👉 KVIC

- A **statutory body** established under the Khadi and Village Industries Commission Act, 1956.
- It functions under the **Ministry of Micro, Small and Medium Enterprises**.
- In 2017-18, it launched the **Honey Mission programme**.
- Recently, it launched a project named **Bamboo Oasis on Lands in Drought (BOLD)** from the village Nichla Mandwa in Udaipur, Rajasthan.

19. National Single Window System

Why in News?

The Union Minister of Commerce and Industry has launched the National Single Window System (NSWS) for investors and businesses.

About

- Agencies Involved → **DPIIT** along with **Invest India** initiated the process of developing the portal as a National Single Window System (NSWS).
- Purpose → The portal offers a **single dashboard**, allowing businesses to **apply for clearances**, **track progress** and **respond to queries**.
- It would become a "**one stop shop**" for **state and Central government compliances** and bring transparency, accountability and responsiveness in the ecosystem.
- It will also offer a **Know Your Approvals service** to inform businesses of the details of all the approvals they need to obtain as well as a common registration form, document repository and e-communication module.
- It will provide **strength to other schemes** e.g. Make in India, Startup India, PLI scheme etc.

👉 Also Remember

- DPIIT → DPIIT (Department for Promotion of Industry and Internal Trade) comes **under the Ministry of Commerce and Industry**.

- Invest India → Invest India is the **National Investment Promotion and Facilitation Agency of India** and acts as the first point of reference for investors in India.
 - It was set up in **2009** as a **non-profit venture** under the Department for Promotion of Industry and Internal Trade, Ministry of Commerce and Industry.

20. Medical device parks scheme

Why in News?

In line with Atmanirbhar Bharat, the Ministry of Chemicals and Fertilizers recently created the Scheme for "Promotion of Medical Device Parks" to help the medical device industry.

About

- The medical device industry is a **unique blend of engineering** and **medicine**. It **involves the creation of machines** that are used to support life within the human body.
- Objectives →
 - Medical device parks provide **easy access to standard testing** and **infrastructure facilities** by establishing world-class common infrastructure facilities.
 - Reduce medical device production costs and **improve medical device availability** and **affordability** in the home market.
- Duration → The tenure of the scheme is **from FY 2020-2021 to FY 2024-2025**.
- Financial Assistance →
 - The total financial outlay of the scheme is **Rs 400 crore**.
 - Financial assistance to a selected Medical Device Park would be **70% of the project cost** of common infrastructure facilities.
 - In the case of the **North-Eastern States** and **the Hilly States**, financial assistance would be **90%** of the project cost.
 - Maximum assistance** under the scheme for one Medical Device Park would be **limited to Rs. 100 crores**.
 - The Centre has granted in-principal approval for the parks in **Himachal Pradesh, Tamil Nadu, Madhya Pradesh** and **Uttar Pradesh**.

21. CIPS Excellence in Procurement Awards 2021

Why in News?

Government e Marketplace (GeM) was announced as the winner in the Best Use of Digital Technology category at the CIPS Excellence in Procurement Awards 2021 (CIPS Awards).

About CIPS Awards

- Given by → the London based **Chartered Institute of Procurement & Supply** (CIPS), a non-profit organization.
- The awards are given to **celebrate the best work** and **teams in the procurement profession**.

Government e-Marketplace

- Government e-Marketplace is a **100% Government owned** Section 8 Company set up under **the aegis of the Department of Commerce, Ministry of Commerce and Industry**.
- Purpose: It is an **online marketplace** for the procurement of goods and services **by Central and State Government organizations**.
- The procurement of goods and services by Ministries and the Central Public Sector Enterprises (**CPSEs**) is **mandatory for goods and services available** on GeM.
- What are the recent updates on GeM?

- The Government of India has made it **mandatory for sellers** to **enter the Country of Origin** while registering all new products on GeM.
- Moreover, GeM has also enabled a provision for indication of the **percentage of local content in products**.
- Hence, with this new feature, now, the **Country of Origin** as well as the **local content percentage** are visible in the marketplace for all items.

22. Patents (Amendment) Rules, 2021

Why in News?

The Union Government has introduced the Patents (Amendment) Rules, 2021.

About key features

- Patent Fees for Educational Institutions has been **reduced drastically by 80%**. →
 - Higher fees have been found as a **greater deterrent** for educational institutions engaged in R&D activities.
 - The patent fee has been **reduced by amending provisions of Patents Rules, 2003**.
 - Benefits related to 80% reduced fee **for patent filing & prosecution** have been **extended to all educational institutions**.
 - This benefit was **earlier available to all recognised educational institutions** owned by the government.
- Expedited Examination System →
 - The **fastest granted patent** is the one which was granted in **41 days** after filing of such request. This facility of Expedited Examination system was initially provided for patent applications filed by Startups.
 - It has been now **extended to 8 more categories** of **Patent Applicants**:
 - SME (Small and Medium Enterprises), Female applicants, Government Departments, Institutions established by a Central, Provincial or State Act, Government Company, an Institution wholly or substantially financed by the Government and applicants under Patents Prosecution Highway.

Patents

- A patent is a **form of preservation of intellectual property**. It is an **exclusive right granted for an invention**, which is a product or a process that provides, in general, a new way of doing something, or offers a new technical solution to a problem.
- To get a patent, **technical information** about the invention **must be disclosed** to the public in a patent application.
- Patentability Criteria for an Invention →
 - It should be **novel**.
 - Must involve an **inventive step** (technical advancement)
 - Capable of **industrial application**
- Term of Patent → **Twenty years** from the date of filing the patent application, **irrespective of whether it is filed with provisional or complete specification**.
- Patents Act, 1970 → In India came into force in the **year 1972**. It **replaced** the **Indian Patents and Designs Act 1911**.
 - The Act was amended by the Patents (Amendment) Act, 2005, wherein product patent was **extended to all fields of technology** including food, drugs, chemicals and microorganisms.
 - After the amendment, the **provisions relating to Exclusive Marketing Rights (EMRs)** have been **repealed**, and a provision for enabling grant of compulsory license has been introduced.
 - The provisions relating to **pre-grant** and **post-grant opposition** have also been **introduced**.

23. SAUBHAGYA Scheme

Why in News?

SAUBHAGYA Scheme has completed four years of successful implementation.

About

- It was launched in **2017** to **ensure electrification of all households** in the country in rural as well as urban areas.
- Objective → To achieve **Universal Household Electrification** in the country through last-mile connectivity and providing access to electricity to all un-electrified households in rural areas and poor households in urban areas.
- Nodal Agency → **REC Limited** (Rural Electrification Corporation) has been designated as the nodal agency for the Saubhagya scheme.
- key features →
 - **All DISCOMs including** Private Sector DISCOMs, State Power Departments and RE Cooperative Societies shall be **eligible for financial assistance** under the scheme **in line with** Deendayal Upadhyaya Gram Jyoti Yojana (DDUGJY).
 - The prospective beneficiary households for **free electricity connections** under the scheme would be **identified using SECC 2011 data**.
 - However, un-electrified households **not covered under SECC data** would also be provided electricity connections under the scheme on **payment of Rs. 500** which shall be recovered by DISCOMs in 10 instalments through electricity bill.
 - The electricity connection to households includes the release of electricity connections by drawing a service cable from the nearest pole to the household premise, **installation of an energy meter, wiring for a single light point with an LED bulb** and a **mobile charging point**.

24. PMFME Scheme Seed Capital Module

Why in News?

The Ministry of Food Processing Industries in association with the Ministry of Housing and Urban Affairs has launched the Pradhan Mantri Formalisation of Micro food processing Enterprises(PMF ME) Scheme Seed Capital Module.

About

- The PMFME Scheme Seed Capital Module has been **launched on the** Deendayal Antyodaya Yojana-National Urban Livelihoods Mission(**DAY-NULM**) **MIS Portal**.
- Purpose → To **provide seed capital assistance** to members of urban Self Help Groups working in the food processing sector in India.
- Seed Capital Limit → The Self Help Groups(SHG) can avail the seed capital assistance of **Rs.40,000 per SHG member** under the PMFME Scheme.

PMFME Scheme

- The PMFME Scheme is a **centrally sponsored scheme** launched by the Ministry of Food Processing Industries(**MOFPI**).
- Aim → To **enhance the competitiveness of existing individual micro-enterprises** in the unorganized segment of the food processing industry. The scheme also aims to promote formalization of the sector and provide support to Farmer Producer Organizations, Self Help Groups, and Producers Cooperatives along their entire value chain.
- With an **outlay of Rs.10,000 crore** over a **period of five years** from 2020-21 to 2024-25, the scheme envisions to **directly assist the 2,00,000 micro food processing units** for providing financial, technical, and business support for upgradation of existing micro food processing enterprises.
- Benefits under PMFME Scheme →
 - **Capital assistance** of Rs. 40,000 per SHG member.
 - **Credit linked subsidy** for capital investment up to 35% with a ceiling of Rs. 10 lakh.
 - **Credit linked grant support** up to 35% for establishing common infrastructure.
 - **Handholding support** for DPR (Detailed Project Report) preparation.

- **Capacity building** and **training support**.

DAY-NULM

- It is **Centrally Sponsored Scheme**, launched in **2014**, **aims to uplift urban poor** by enhancing sustainable livelihood opportunities through skill development.
- Its intended beneficiaries are **urban poor** (street vendors, slum dwellers, homeless, rag pickers), **unemployed** and **differently-abled**. It provides skill training and employment to these people.
 - It also provides **subsidies to urban poor** i.e. interest subsidy of 5% – 7% for setting up individual micro-enterprises with the loan of up to 2 lakhs and for group enterprises with a loan limit of up to Rs.10 lakhs.

25. Pusa Basmati 1979 and Pusa Basmati 1985

Why in News?

Recently, the Prime Minister of India officially released new varieties of rice named 'Pusa Basmati 1979' and 'Pusa Basmati 1985'.

About

- Developed by → The **Indian Agricultural Research Institute** (IARI) developed the country's first-ever non-GM (genetically modified) herbicide-tolerant rice varieties.
- The new varieties contain a **mutated AcetoLactate Synthase (ALS) gene** making it possible for farmers to spray Imazethapyr, a broad-spectrum herbicide, to control weeds.
 - The **ALS gene** in rice codes for **an enzyme (protein) that synthesises amino acids** for crop growth and development.
 - The herbicide **sprayed on normal rice plants binds itself to the ALS enzymes**, inhibiting their production of amino acids.
- **Imazethapyr, effective against a range of broadleaf, grassy and sedge weeds**, can't be used on normal paddy, as the chemical does not distinguish between the crop and the invasive plants.
- However, the new basmati varieties contain a **mutated ALS gene** whose **DNA sequence** has been **altered using ethyl methanesulfonate**, a chemical mutant.
 - As a result, the **ALS enzymes no longer** have **binding sites for Imazethapyr** and amino acid synthesis isn't inhibited.
- The plants can now **"tolerate" application of the herbicide**, and hence it kills only the weeds.
- It is important to note that, as there is **no foreign gene involved** in the process, the herbicide-tolerance is through mutation breeding. Thus, it is **not a Genetically modified organism**.

Benefits

- Direct Seeding of Rice Activity → The new varieties simply **replace water with Imazethapyr** and there's no need for nursery, puddling, transplanting and flooding of fields.
- Cheaper Option → DSR cultivation is currently **based on two herbicides, Pendimethalin and Bispyribac-sodium**.
- Safer Option → **Imazethapyr**, moreover, has a **wider weed-control range** and **is safer**, as the ALS gene isn't present in humans and mammals.

Environment

1. Latham's Snipe

Why in News?

Urban development continues to threaten Latham's Snipe habitats. Several snipe sites in eastern Australia are at risk from housing developments and large infrastructure projects.

About

- Latham's Snipe, formerly known as the Japanese Snipe, was once a popular game bird.
- Latham's Snipe is the largest snipe in Australia, with cryptic, mainly brown, plumage.
- It has incredible endurance, undertaking a non-stop, over-ocean flight between its breeding and non-breeding grounds.
- Their brown mottled feathers help them hide in wetlands.
- Distribution →
 - Latham's Snipe breed in Japan and on the east Asian mainland.
 - Latham's Snipe is a non-breeding migrant to the south east of Australia including Tasmania, passing through the north and New Guinea on passage.
- Habitat →
 - They are seen in small groups or singly in freshwater wetlands on or near the coast, generally among dense cover. They are found in any vegetation around wetlands.
- Threats → Hunting and wetland loss
- Protection Status → IUCN Red List: Least Concern.

2. Leaded Petrol

Why in News?

According to UNEP, World has completely eradicated the use of Leaded Petrol.

About

- Achieving of this milestone will prevent more than 1.2 million premature deaths and save world economies over \$2.4 trillion annually.
- Algeria — the last country to use the fuel — exhausted its supplies last month.
- India banned leaded petrol in March 2000.
- Harmful effects of leaded petrol →
 - Lead exposure can have serious consequences for the health of children. At high levels of exposure, lead attacks the brain and central nervous system to cause coma, convulsions and even death. Children who survive severe lead poisoning may be left with mental retardation and behavioral disorders.
 - Lead in bone is released into blood during pregnancy and becomes a source of exposure to the developing fetus.
 - Lead also causes long-term harm in adults, including increased risk of high blood pressure and kidney damage.

👉 United Nations Environment Programme

- The UNEP is a leading global environmental authority established on 5th June 1972.
- Functions → It sets the global environmental agenda, promotes the sustainable development within the United Nations system, and serves as an authoritative advocate for global environment protection.

- Major Reports → Emission Gap Report, Adaptation Gap Report, Global Environment Outlook, Frontiers, Invest into Healthy Planet.
- Major Campaigns → Beat Pollution, UN75, World Environment Day, Wild for Life.
- Headquarters → Nairobi, Kenya.
- Agreements Administered/Provided Secretarial Functions →
 - Convention on Biological Diversity (CBD)
 - Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)
 - Convention on the Conservation of Migratory Species of Wild Animals (CMS)
 - Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal
 - Stockholm Convention on Persistent Organic Pollutants
 - Minamata Convention on Mercury
 - Vienna Convention for the Protection of the Ozone Layer.

3. Crocodiles

Why in News?

Odisha's Kendrapara became the only district in India to be home to all three species of crocodilians found in the country.

About Gharial (Gavialis gangeticus)

- It is also known as the gavial or the fish-eating crocodile. It is the longest among all living crocodilians.
- Conservation →
 - Critically Endangered (IUCN Red List).
 - Schedule I: Indian Wildlife Protection Act, 1972.
 - Appendix I: CITES.
- Threats → Loss of habitat because of sand mining and conversion to agriculture, depletion of fish resources and detrimental fishing.

👉 Mugger Crocodile:

- Mugger Crocodile is also called marsh crocodile or broad-snouted crocodile. It is an egg-laying and hole-nesting species.
- It is native to freshwater habitats from southern Iran and Pakistan to the Indian subcontinent and Sri Lanka.
- Conservation →
 - IUCN Status: Vulnerable.
 - Indian Wildlife Protection Act, 1972: Schedule 1.
 - CITES: Appendix I.

👉 Saltwater Crocodile:

- It is considered as the Earth's largest living crocodile species native to saltwater habitats and brackish wetlands.
- Habitat → It is found throughout the east coast of India, Southeast Asia and northern Australia.
- Bhitarkanika National Park in Odisha houses 70% of India's estuarine crocodiles or saltwater crocodiles.
 - IUCN Status: Least Concern
 - Indian Wildlife Protection Act, 1972: Schedule 1
- Threats → a) Illegal hunting b) habitat loss and c) antipathy toward the species because of its reputation as a man-eater

4. Behler Turtle Conservation Award

Why in News?

Indian biologist Shailendra Singh has been awarded the Behler Turtle Conservation Award for bringing three critically endangered turtle conservation species back from the brink of extinction.

About

- Given by → Several global bodies involved in turtle conservation such as Turtle Survival Alliance, IUCN/SSC Tortoise and Freshwater Turtle Specialist Group, Turtle Conservancy, and the Turtle Conservation Fund.
- Given for → He was awarded for bringing three critically endangered turtle conservation species back from the brink of extinction.
- These species are red-crowned roofed turtle (Batagur kachuga), northern river terrapin (Batagur baska), and black softshell turtle (Nilssonia nigricans).

👉 Northern river terrapin

- Northern river terrapin is a species of riverine turtle native to Southeast Asia. It is one of Asia's largest freshwater and backwater turtles.
- Habitat → The species is currently found in Bangladesh (in the Sundarbans), Cambodia, India (parts- West Bengal & Odisha), Indonesia and Malaysia.
- IUCN Status → Critically Endangered
- Indian Wildlife (Protection) Act of 1972 → Schedule I.

👉 Red Crowned Roofed Turtle

- Red Crowned Roofed Turtle is a species of freshwater turtle endemic to South Asia.
- The last known stronghold for this river turtle is on the Chambal River in central India, however, small isolated populations may still exist in the Ganges and Brahmaputra river basins.
- IUCN Status → Critically Endangered
- Indian Wildlife (Protection) Act of 1972 → Schedule I.

👉 Black Softshell Turtle(Nilssonia nigricans)

- Black Softshell Turtle is a species of freshwater turtle. It is found in India and Bangladesh.
- Distribution →
- Brahmaputra's drainage and Near Temple Ponds in Assam
- Bangladesh (Chittagong and Sylhet)
- IUCN Status → Critically Endangered
- Indian Wildlife Protection Act,1972 → It does not enjoy legal protection.

👉 Turtle Survival Alliance(TSA)

- It was formed in 2001 as an International Union for Conservation of Nature(IUCN) partnership for sustainable captive management of freshwater turtles and tortoises.

👉 Turtle Conservation Fund(TCF)

- It was established in 2002 as a partnership initiative of Conservation International, IUCN Tortoise and Freshwater Turtle Specialist Group (TFTSG), and Turtle Survival Alliance (TSA). Later, it was joined by other organizations.
- The fund is focused on ensuring the long-term survival of tortoises and freshwater turtles.

5. Irrawaddy Dolphin

Why in News?

Irrawaddy dolphin found dead in Chilika Lake. This is the 8th dolphin death in Odisha in 8 months.

About Irrawaddy Dolphin

- Scientific Name → **Orcaella Brevirostris**.
- Habitat → Irrawaddy dolphins are found in coastal areas in South and Southeast Asia, and in three rivers: the Ayeyarwady (Myanmar), the Mahakam (Indonesian Borneo) and the Mekong.
- The concentrated lagoon populations are found in Chilika Lake in Odisha, and Songkhla Lake in southern Thailand.
- Conservation Status →
 - IUCN Red List: **Endangered**
 - CITES: **Appendix I**
 - CMS (Convention on Migratory Species): **Appendix I**
 - Wildlife Protection Act, 1972: **Schedule I**.

Chilika Lake

- Chilika is Asia's largest and world's second largest lagoon.
- It is the largest wintering ground for migratory birds on the Indian sub-continent and is home to a number of threatened species of plants and animals.
- In 1981, Chilika Lake was designated the first Indian wetland of international importance under the Ramsar Convention.
- Major attraction at Chilika is Irrawaddy dolphins which are often spotted off Satpada Island.
- The large Nalabana Island (Forest of Reeds) covering about 16 sq km in the lagoon area was declared a bird sanctuary in 1987.
- Kalijai Temple – Located on an island in the Chilika Lake.

6. Ubreathe Life

Why in News?

IIT Ropar's startup company has developed a living plant-based air purifier, "Ubreathe Life" that amplifies the air purification process in indoor spaces.

About

- What is it? → It is the world's first, state-of-the-art 'Smart Bio-Filter' that can purify the air.
- It amplifies the air purification process in indoor spaces. These indoor spaces can either be hospitals, schools, offices and your homes.
- Developed at → IIT Ropar, which is a designated iHub – AWaDH (Agriculture and Water Technology Development Hub) of the Department of Science and Technology.
- How does Ubreathe Life work? →
 - The technology works through the air-purifying natural leafy plant. The room air interacts with leaves and goes to the soil-root zone where maximum pollutants are purified.
 - The technology used in this product is the 'Urban Munnar Effect' along with patent-pending "Breathing Roots" to exponentially amplify the phytoremediation process of the plants.
 - Note: Phytoremediation is a process by which plants effectively remove pollutants from the air.
- Significance →
 - 'Ubreathe Life' effectively improves indoor air quality by removing particulate, gaseous, and biological contaminants while increasing the oxygen levels in the indoor spaces.
 - This is done through specific plants, UV disinfection, and a stack of Pre-filter, Charcoal filter, and HEPA (high-efficiency particulate air) filter fitted in a specially designed wooden box.

7. Snow leopard, Black necked

Why in News?

The Administration of Union Territory of Ladakh has declared 'snow leopard' as its state animal and black-necked crane as its State Bird.

About Snow Leopards

- It lives at **high altitudes** in the steep mountains of Central and Southern Asia, where the **climate is extremely cold**.
- Indicator Species → The Snow Leopard (also known as Ghost of the mountains) **acts as an indicator of the health of the mountain ecosystem** in which they live. It is because of their position as the top predator in the food web.
- State Animal → It is also the **State animal of Himachal Pradesh**.
- Range Countries → Further, it is found in **12 range countries** namely Afghanistan, Bhutan, China, India, Kazakhstan, Kyrgyzstan, Mongolia, Nepal, Pakistan, Russia, Tajikistan, and Uzbekistan.
- India → In India, it inhabits the higher **Himalayan and trans-Himalayan landscape** in the states/union territories of **Jammu and Kashmir, Himachal Pradesh, Uttarakhand, Sikkim, and Arunachal Pradesh**.
- Conservation Status →
- IUCN Status: **Vulnerable**
- CITES: **Appendix I**
- Indian Wildlife (Protection) Act 1972: **Schedule I**

👉 Black Necked Crane

- The black-necked crane is **endemic to the Tibetan Plateau**. It is a **medium-sized crane** that is mostly grey with a black head and neck with a red crown on the head.
- The largest populations of the bird are in **China**, with smaller numbers extending into **Vietnam, Bhutan, and India**.
- In India, **eastern Ladakh** is the only known **breeding ground** for Black-necked cranes outside China.
- Conservation Status →
 - IUCN Red List: **Near Threatened**
 - CITES: **Appendix I**
 - Indian Wildlife (Protection) Act, 1972: **Schedule I**
- Special Significance → The bird is revered by the **community of Monpas** (major Buddhist ethnic group of Arunachal Pradesh) as an embodiment of the sixth Dalai Lama (Tsangyang Gyatso).
 - Monpas inhabit the **West Kameng and Tawang districts**, are essentially Buddhists who follow the Mahayana sect.
- Note: Erstwhile Jammu and Kashmir state had the **black-necked crane** and **Kashmir stag** (Hangul) as its state bird and animal respectively.

8. Komodo Dragons

Why in News?

According to the IUCN red list, the Komodo dragon is threatened with extinction as rising water levels, driven by the climate crisis, shrink its habitat.

About

- Scientific Name → **Varanus komodoensis**.
- The dragon is a monitor lizard of the **family Varanidae**.
- It is the **world's largest lizard**.

- Discovery → **Europeans discovered** Komodo dragons only in the early 20th century and were immediately fascinated by the creatures.
- It Grows up to **3 metres long** and **weighs more than 150kg**.
- It **feeds mainly on** forest-dwelling pigs, deer, buffalo and fruit bats that hang in the low-lying mangrove trees.
- Habitat → Endemic to a handful of **Indonesian islands** and it lives on the edge of the forest or in open savannah, rarely venturing higher than 700 metres above sea level.
- Conservation Status → The International Union for Conservation of Nature (**IUCN**) has changed its **status from vulnerable to endangered**.
- Threats → (1) **Anthropogenic factors**; (2) **Less prey**; (3) **Climate change**.
- Rising water levels are set to **affect 30%** of its habitat in the **next 45 years**.

9. Bhitarkanika National Park

Why in News?

Odisha's Bhitarkanika National Park is under severe threat due to the planned diversion of freshwater from the Brahmani river basin.

About

- Location → **Kendrapara district in Odisha**.
- It became a **Ramsar site in 2002** (the second site after Chilika Lake in Odisha).
- Rivers → **Brahmani, Baitarani, Dhamra, Pathsala**.
- It is **India's second-largest mangrove forest** after the Sundarbans in West Bengal.
- Species → **Estuarine Crocodile** (the largest population in the Indian subcontinent), **Indian python, king cobra, black ibis**, etc.
- The floral diversity in Bhitarkanika is the 2nd largest after Papua New Guinea.
- It is the **only major mangrove patch** of the State of Odisha.

Brahmani River

- The Brahmani is a **major seasonal river** in the Odisha state of eastern India.
- The Brahmani is formed by the **confluence of the Sankh and South Koel rivers**.
- Together with the river Baitarani, it **forms a large delta** before emptying into the Bay of Bengal at Dhamra.

10. India's Tallest Air Purifier

Why in News?

Recently, India's tallest air purifier will be inaugurated in Chandigarh on the International Day of Clean Air for Blue Skies.

About

- What is it? → It is a **24 meter long outdoor air purification tower** and is capable of purifying the air of a radius of around 1 km.
- It will also **show the quality index** of the air it inhales and the quality index of the air it will exhale.
- It functions through **electricity**.
 - Air purifiers are structures designed as large-scale air purifiers to reduce air pollution particles.
- Chandigarh is one of the **non-attainment cities** in the country according to National Clean Air Programme (**NCAP norms**), which means it has over a five-year period **not consistently met the National Ambient Air Quality Standards** (NAAQS) for harmful PM 10 (particulate matter that is 10 microns or less in diameter), PM 2.5 or NO₂ (nitrogen dioxide).

- After remaining “**satisfactory**” and “**moderate**” during the lockdown period and a few months after, the Air Quality Index (AQI) had again turned “**poor**” for the first time in November 2020.

International Day of Clean Air for Blue Skies

- Day → **7th September**.
- Aim → It aims to **prioritize the need for healthy air** for all while keeping conversations broad enough to encompass other critical issues such as climate change, human and planetary health as well as the Sustainable Development Goals.
- For 2021 the theme → **Healthy Air, Healthy Planet**.

11. PRANA Portal

Why in News?

The Union Ministry of Environment, Forests and Climate Change has launched ‘PRANA’ (prana.cpcb.gov.in) Portal.

About

- PRANA stands for **Portal for Regulation of Air-pollution in Non-Attainment cities**.
- Developed by → Central Pollution Control Board (**CPCB**) in **partnership with Knowledge Lens** (a B2B product company).
- Features →
- It is a portal for **monitoring the implementation of the National Clean Air Programme** (NCAP).
- It will **support tracking of physical** as well as **financial status of city air action plan** implementation and disseminate information on air quality management efforts under NCAP to the public.

National Clean Air Programme (NCAP)

- Launched in → **2019**.
- Implemented by → the **Ministry of Environment, Forest and Climate Change** and **CPCB**.
- Purpose → It is a **comprehensive initiative** in partnership with various Ministries and States to improve air quality at city, regional and national level.
- It is a focused and time bound scheme to **implement various sectoral policies**, **strengthen monitoring** and **enhance public participation** in more than 100 cities for effective air quality management.

12. Pilibhit Tiger Reserve

Why in News?

A herd of elephants from Shuklaphanta National Park damaged the crops of farmers in the Pilibhit Tiger Reserve in Uttar Pradesh.

About

- It is located in **Pilibhit** and **Shahjahanpur district of Uttar Pradesh**.
- It was notified as Tiger Reserve in **2014**.
- In **2020**, it bagged **international award TX2** for doubling up the number of tigers in the past four years.
- It forms the **part of Terai Arc Landscape** in the upper Gangetic Plain.
- The northern edge of the reserve lies along the **Indo-Nepal border** while the southern boundary is marked by the **river Sharada and Khakra**.
- Flora and Fauna →
 - It is home to a habitat for **over 127 animals**, **326 bird species** and **2,100 flowering plants**.

- Wild animals include **tiger**, **swamp deer**, **bengal florican**, **leopard**, etc.
- It has high **sal forests**, **plantation** and **grasslands** with several water bodies.

📌 Other Protected Areas in Uttar Pradesh

- Dudhwa National Park
- National Chambal Sanctuary
- Chandraprabha Wildlife Sanctuary
- Hastinapur Wildlife Sanctuary

📌 Terai Arc Landscape (Terai Meaning Moist Land)

- It is spread across the Indian states of **Uttarakhand**, **Uttar Pradesh** and **Bihar**, and the **low-lying hills of Nepal**.
- A strip of undulating former **marshland**, it stretches from the **Yamuna River in the west** to the **Brahmaputra River in the east**.
- Interspersed with the Tarai is the **Bhabar**.
- Bhabar is a region of **coarse gravel** and **shingle deposits** supporting sal forests.
- The landscape boasts of some of **India's most well-known** Tiger Reserves and Protected Areas such as →
 - Corbett Tiger Reserve,
 - Rajaji National Park,
 - Dudhwa Tiger Reserve,
 - Valmiki Tiger Reserve etc.

13. Climate Action and Finance Mobilization Dialogue

Why in News?

India and the United States of America (USA) have jointly launched the “Climate Action and Finance Mobilization Dialogue (CAFMD)”.

About CAFMD

- It is **one of the two tracks** of the **India-U.S. Climate and Clean Energy Agenda 2030 partnership** launched at the Leaders' Summit on Climate in April 2021.
- Purpose of CAFMD → To **help both the countries** move towards **decarbonising economies** in sync with their respective commitments to deal with climate change.
- The dialogue would have three pillars:
 1. Climate Action Pillar → It would have **joint proposals** looking at ways in which **emissions could be reduced in the next decade**.
 2. Finance Mobilisation Pillar → It would involve **collaborating on attracting finance** to **deploy 450 GW** of renewable energy and demonstrate at scale clean energy technologies.
 - Note: India has increased its renewable energy **target to 450 GW by 2030 from 175 GW by 2022**. Currently, India has already achieved the target of 100GW
 3. Adaptation and Resilience Pillar → The two countries will collaborate in building capacities to “**measure and manage climate risks**”.

14. Shoonya Initiative

Why in News?

With Rocky Mountain Institute (RMI) and RMI India's support, NITI Aayog has launched Shoonya Campaign.

About

- What is it? → It is an initiative to **promote zero-pollution delivery vehicles** by working with consumers and the industry.
- Aim → To **accelerate the adoption of electric vehicles (EVs)** in the urban deliveries segment and create consumer awareness about the benefits of zero-pollution delivery.
- As part of the campaign, a **corporate branding and certification programme** is being launched to recognise and promote the industry's efforts towards transitioning to EVs for final-mile deliveries.
- Moreover, an **online tracking platform** will share the campaign's impact through data such as vehicle-kilometres electrified, carbon savings, criteria pollutant savings and other benefits from clean delivery vehicles.
- Note → RMI is an **independent nonprofit organization** founded in **1982**.

Benefits

- Urban freight vehicles account for **10% of freight transportation-related CO2 emissions** in India, and these emissions may **grow by 114% percent by 2030**.
- EVs emit **no tailpipe emissions**, which can contribute immensely to an improved air quality.
- Even when accounting for their manufacture, they **emit 15-40% less CO2 compared** to their internal combustion engine counterparts and have lower operational cost.

15. Tarballs

Why in News?

Tarballs have resurfaced on Mumbai's beaches like Cuffe Parade shoreline and Juhu beach and Versova beaches.

About

- What is it? → Tarballs are **dark-coloured, sticky black oil-emanating balls** lying on the shore.
- Formation → Tarballs form when **crude oil floats** on the ocean surface. They are formed by **weathering of crude oil** in marine environments.
 - They are transported **from the open sea to the shores** by sea currents and waves.
 - Tarballs are usually **coin-sized** and are **found strewn on the beaches**. But, over the years, they have become as **big as basketballs**.
 - They stick to the **cleaning machinery** and are **very difficult to wash off**. They give off a **foul fuel smell**.
- Deposition → All the oil spilt in the Arabian Sea gets **deposited on the western coast** in the form of tarballs in the monsoon season when wind speed and circulation pattern favour transportation of these tarballs.
- Tarballs are **removed from the beaches post-high tide**.

16. Hybodont Shark

Why in News?

Recently, teeth of new species of hybodontshark of Jurassic age (approximately, between 160 and 168 million-years-old) have been reported for the first time from Jaisalmer, Rajasthan.

About

- Hybodonts, an **extinct group of sharks**, was a **dominant group of fishes** in both marine and fluvial environments during the **Triassic and early Jurassic time**.
- It **started to decline** in marine environments from the Middle Jurassic onwards until they formed a relatively **minor component of open-marine shark assemblages**.
- Hybodonts finally **became extinct** at the end of the Cretaceous time 65 million years ago.

Recent discovery

- The newly discovered crushing teeth from Jaisalmer represent a new species named by the research team as **Strophodusjaisalmerensis**.
- The genus *Strophodus* has been identified for the **first time from the Indian subcontinent** and is **only the third** such record from Asia, the other two being from Japan and Thailand.
- Significance → This discovery marks an **important milestone in the study of Jurassic vertebrate fossils** in the Jaisalmer region of Rajasthan, and it opens a new window for further research in the domain of vertebrate fossils.

17. Black Tigers

Why in News?

Researchers from the National Centre for Biological Sciences (NCBS) have zeroed in on a rare mutation that results in large, merged stripes that cause the tiger to appear black in Similipal Tiger Reserve (STR).

About

- Black Tigers are a **rare colour variant of the tiger** and are not a distinct species or geographic subspecies.
- The **coat colouration** and **patterning** that make the wild cats appear **dark boil down to a single mutation** in the **Transmembrane Aminopeptidase Q (Taqppe) gene**.
- The abnormally dark or black coat in such tigers is **termed pseudo melanistic** or **false coloured**.
- If you pick any tiger from Similipal, the chance that it carries the mutant gene is **almost 60%**.
- Factors for Occuring Black Colour →
 - Due to Geographic Isolation, **genetically related individuals** have been **mating with each other** for many generations in Similipal, leading to inbreeding.
 - It should be noted that this has important implications for tiger conservation as such **isolated** and **inbred populations are prone to extinction** over even short periods of time.

📌 Similipal Tiger Reserve

- Location → Northern part of **Odisha's Mayurbhanj district**.
- It is one of the **largest biospheres** in India. It is a **national park** and a **tiger reserve** as well.
 - It derives its name from '**Simul**' (silk cotton) **tree**.
 - It was declared a **biosphere reserve** by the Government of India in June **1994**.
- Flora →
- It boasts of having **tropical semi-evergreen forests**, **tropical moist deciduous forests**, **dry deciduous hill forests**, **high-level sal forests** and **sprawling meadows**.
- Sal is a **dominant tree species**.
- Fauna →
 - It is home to a **wide range** of wild animals including mammals like **tigers** and **elephants**, besides species of birds, amphibians and reptiles, all of which collectively highlight the biodiversity richness of Similipal.
 - It also houses **melanistic tigers** which are **found only in Odisha**.
- Other Major Protected Areas in Odisha → **Bhitarkanika** National Park, **Badrama** WLS, **Chilika** (Nalaban island) WLS, **Hadgarh** WLS, **Baisipalli** WLS, **Kotagarh** WLS, **Nandankanan** WLS, **Lakhari Valley** WLS, **Gahirmatha** (Marine) WLS.

18. Earthshot Prize 2021

Why in News?

Recently, two Indians (Vinisha and Vidyut) among 15 finalists were selected for the first ever Earthshot Prize 2021, which will be held in London.

About

- Launched by → **Britain's Prince William** in October 2020.
- Objective → In order to **search for inspiring and innovative solutions** to problems facing the planet.
- The prize is inspired by **US President John F Kennedy's "Moonshot" programme**, which resulted in the US Apollo lunar launches and the first man setting foot on the Moon in 1969.
- Theme → It is centred around **five "Earthshots", simple but ambitious goals for the planet**, which if achieved by 2030 will improve life for all, for generations to come.
- Five Earthshots → **Protect and restore nature, Clean our air, Revive our oceans, Build a waste-free world, Fix our climate.**
- Awards Ceremony → It will take place in **different cities across the world each year** between 2021 and 2030, at which the **five winners for each** of the Earthshots will be selected **from 15 finalists**.
- Benefits to Winners →
 - After the awards, each winner will **receive a global platform and prestigious profile**, with their stories being showcased over the decade with the ambition that their solutions **lead to mass adoption, replication and scaling**.
 - The **1 million pound in prize money** will support environmental and conservation projects that are agreed with a winner.
- Eligibility → Prizes can be awarded to a **wide range of individuals, teams or collaborations** such as scientists, activists, economists, community projects etc, which make a substantial contribution to achieving the Earthshots.
- Prize Management → In addition to the **Prize Council**, the Earthshot Prize is **supported by its Global Alliance**, a network of organisations worldwide which share the ambition of the Prize to repair the planet.

19. Mura-Drava-Danube (MDD)

Why in News?

Recently, Mura-Drava-Danube (MDD) was declared as the world's first 'five-country biosphere reserve' by the United Nations Educational, Scientific and Cultural Organization (UNESCO).

About MDD

- The biosphere reserve covers **700 kilometres of the Mura, Drava and Danube rivers** and stretches across Austria, Slovenia, Croatia, Hungary and Serbia.
- The total area of the reserve is a **million hectares** – in the so-called '**Amazon of Europe**', which is now the **largest riverine protected area in Europe**.
- The biosphere "represented an **important contribution to the European Green Deal** (climate action plan) and contributed to the implementation of the **EU Biodiversity Strategy** in the Mura-Drava-Danube region."
- The strategy's aim is to **revitalise 25,000 km of rivers** and **protect 30%** of the European Union's land area by 2030.
- Importance of the MDD →
 - The area is **one of the richest in Europe** in terms of species diversity.
 - It is home to **floodplain forests, gravel and sand banks, river islands, oxbows and meadows**.
 - The area is home to the **highest density in Europe of breeding pairs of white-tailed eagle** and **endangered species** such as the little tern, black stork, otters, beavers and sturgeons.

20. Sea Cucumber

Why in News?

Indian Coast Guard (ICG) team at Mandapam, Tamilnadu seized two tonnes of sea cucumber, a banned marine species.

About

- Sea cucumbers are **marine invertebrates** that live on the seafloor found generally in tropical regions. They're named for **their unusual oblong shape** that resembles a fat cucumber.
- There are about **1,250 species** of sea cucumber, all of which belong to the **taxonomic class Holothuroidea**.
 - This class falls under the **Echinodermata phylum**, which also includes many other well-known marine invertebrates, such as sea stars, sea urchins and sand dollars.
- They are crucial to **maintain the balance of ocean habitats**.
- Protection →
 - IUCN Red List: **Brown Sea Cucumber (Endangered)**, **Blackspotted Sea Cucumber (Least Concern)**, **Blue Sea Cucumber (Data Deficient)**, etc.
 - Wildlife Protection Act, 1972: **Schedule I**.
- Significance →
 - They are an **integral part of the coral ecosystem** as one of the main by-products of the sea cucumbers digestion of sand is calcium carbonate and this is essential for the survival of the coral reefs.
 - They act **like garbage collectors of the ocean world**, and they recycle nutrients, thus playing an important role in keeping coral reefs in good condition.
- Threats → **Illegal Trading** and **smuggling** since the species is high in demand across south-east Asia, mainly China, for food and traditional medicine.
- World's first conservation area for sea cucumbers in India →
 - **Lakshadweep** has created the **world's first conservation area** for sea cucumbers.
 - Other than the sea around Lakshadweep islands and Andaman Nicobar islands, the **Gulf of Mannar** at the confluence of the Indian Ocean and Bay of Bengal in Tamil Nadu is **also home to sea cucumbers**.

21. Humboldt penguins

Why in News?

Last week, Mumbai's Byculla Zoo announced the addition of two new Humboldt penguin chicks this year.

About

- Humboldt penguins are a **medium-sized species** among at least 17 species.
- Humboldt penguin is **named after the cold ocean current**, known as Humboldt current.
 - Humboldt Current, also called the **Peru Current**, is a cold, low-salinity ocean current that **flows north along the western coast of South America**.
- Humboldt penguins have an **average height of just over 2 ft** (Among the Species, the Emperor penguin is the largest and stands at over 4 ft tall).
- The Humboldt penguin (*Spheniscus humboldti*) **belongs to a genus** that is commonly known as the **'banded' group** (Penguins are divided into six genera).]
- Habitat: Humboldt penguin is a **South American penguin** that **breeds in coastal Chile and Peru**.
- When not raising chicks, these penguins have been **known to travel long distances** at sea to find food.
- Humboldt penguins can **breed at any time of year**.
- IUCN status: **Vulnerable**.

22. General Sherman

Why in News?

Two wildfires in California are burning through the Sequoia National Park in the Sierra Nevada that is home to some of the largest trees in the world.

About

- What is it? → The General Sherman tree is the **world's largest in terms of volume** and exists in the Giant Forest sequoia grove of the national park.
- As per recent estimates, General Sherman is **about 2,200 years old**.
- Located in → the **U.S. state of California**.
- Key Characteristics →
 - It stands at a **height of 275 feet** (taller than the leaning tower of Pisa) and has a diameter of 36 feet at the base.
 - Even **60 feet above the base**, the tree has a **diameter of 17.5 feet**.
- **Giant sequoia trees** have existed in the national park for **thousands of years** and there are an **estimated 2,000** such trees in the park.

23. Blue Flag Certification

Why in News?

Kovalam in Tamil Nadu and Eden in Pondicherry beaches in India has been accorded the coveted 'Blue Flag' certification, taking the total number of such beaches in the country to 10.

About

- The Blue Flag certification programme was started in France in 1985 and in areas out of Europe in 2001.
- Blue Flag certification is a globally recognised eco-label accorded by "**Foundation for Environment Education in Denmark**" based on **33 stringent criteria**.
- The Blue Flag Programme for beaches and marinas is run by the international, non-governmental, non-profit organisation the '**Foundation for Environmental Education (FEE)**.
- **Neat and clean beaches** are an indicator that the coastal environment is in good health and the Blue Flag certification is a **global recognition of India's conservation** and **sustainable development efforts**.
- A waving "Blue Flag" is an indication of **100% compliance** to these **33 stringent criteria** and sound health of the beach.
- Blue Flag Beach →
 - The 'Blue Flag' beach is an '**eco-tourism model**'.
 - It marks out beaches as **providing tourists and beachgoers clean** and **hygienic bathing water**, facilities/amenities, a safe and healthy environment, and sustainable development of the area.
- India now has **10 Blue Flag beaches**.
- **8 nominated** beaches in India were **awarded** the Blue Flag certificate last year.
- These are → Shivrajpur-Gujarat, Ghoghla-Diu, Kasarkod -Karnataka, Padubidri-Karnataka, Kappad-Kerala, Rushikonda- Andhra Pradesh, Golden-Orissa, Radhanagar- Andaman and Nicobar.

Beach Environment & Aesthetics Management Services (BEAMS) Initiative

- Launched by → the **Ministry of Environment, Forest and Climate Change** under the ICZM (Integrated Coastal Zone Management) project.
- Objectives → The objectives of the BEAMS Initiative is to **abate pollution in coastal waters**, **promote sustainable development of beach facilities**, protect & conserve coastal ecosystems & natural resources.
- The other objectives include **strive and maintain high standards of cleanliness**, **Hygiene & safety** for beachgoers in accordance with coastal environment & regulations.

24. Greater One-Horned Rhinoceros

Why in News?

Assam will mark World Rhino Day — September 22 — with a special ceremony by burning a stockpile of nearly 2,500 horns of the one-horned rhinoceros.

About

- Greater One-Horned Rhino (or “Indian rhino”) are identified by a single black horn about a grey-brown hide with skin folds, which gives it an armour-plated appearance.
- The species is solitary, except when adult males or rhinos nearing adulthood gather to graze.
- They primarily graze, with a diet consisting almost entirely of grasses as well as leaves, branches of shrubs and trees, fruit, and aquatic plants.
- Habitat →
 - The species is restricted to small habitats in Indo-Nepal terai and northern West Bengal and Assam.
 - In India, rhinos are mainly found in Kaziranga NP, Pobitora WLS, Orang NP, Manas NP in Assam, Jaldapara NP and Gorumara NP in West Bengal and Dudhwa TR in Uttar Pradesh.
- Protection Status →
 - IUCN Red List: Vulnerable.
 - CITES: Appendix-I
 - Wildlife Protection Act, 1972: Schedule I.
- Threats → Poaching for the horns, Habitat loss, Population density, Decreasing Genetic diversity.

👉 Conservation Efforts by India:

- New Delhi Declaration on Asian Rhinos 201’ → India, Bhutan, Nepal, Indonesia and Malaysia have signed a declaration for the conservation and protection of the species.
- DNA profiles of all rhinos → The project will help in curbing poaching and gathering evidence in wildlife crimes involving rhinos.
- National Rhino Conservation Strategy → It was launched in 2019 to conserve the greater one-horned rhinoceros.
- Indian Rhino Vision 2020 → It was an ambitious effort to attain a wild population of at least 3,000 greater one-horned rhinos spread over seven protected areas in the Indian state of Assam by the year 2020.

👉 World Rhino Day

- Observed on 22th September.
- Objectives → Strengthening protection, Expanding the distribution range, Research and monitoring, Adequate and sustained funding.
- Theme 2021 → Keep the five Alive.

25. Substitute for single-use plastics

Why in News?

IISc researchers find a way to substitute for single-use plastics.

About

- Researchers have developed polymers using non-edible oil and cellulose extracted from agricultural stubble.
- These polymers can be moulded into sheets having properties suitable for making bags, cutlery or containers.
- The material so made is also biodegradable, leak-proof and non-toxic.
- Background → In 2019, the Union government in a bid to free India of single-use plastics by 2022, had laid out a multi-ministerial plan to discourage the use of single-use plastics across the country.
- Significance → This can make a substitute for single-use plastic that can, in principle, help mitigate the problem of accumulating plastic waste in the environment.

26. Global Air Quality Guidelines(AQGs)

Why in News?

The World Health Organization(WHO) has released the Global Air Quality Guidelines(AQGs).

About

- What is it? → Global Air Quality Guidelines(AQGs) is an **annual mean concentration guideline** for particulate matter and other pollutants.
- The guidelines were **last updated in 2005**. Since then, there has been a marked **increase of evidence** that shows how air pollution affects different aspects of health.
- These guidelines are **not legally binding**. They are an **evidence-informed tool** for policy-makers to guide legislation and policies.

👉 New guidelines

- The upper limit of annual PM_{2.5} as per the **2005 standards**, which is what countries now follow, is **10 microgram per cubic metre**. That has **now** been **revised to five microgram per cubic metre**.
- The 24-hour ceiling used to be **25 microgram** but has **now dropped to 15**.
- The **upper limit of PM₁₀**, or particulate matter of size exceeding 10 microgram, is 20 microgram and has now been **revised to 15**, whereas the 24-hour value has been **revised from 50 to 45 microgram**.

Table 1. Recommended 2021 AQG levels compared to 2005 air quality guidelines

Pollutant	Averaging time	2005 AQGs	2021 AQG level
PM _{2.5} , µg/m ³	Annual	10	5
	24-hour ^a	25	15
PM ₁₀ , µg/m ³	Annual	20	15
	24-hour ^a	50	45
O ₃ , µg/m ³	Peak season ^b	—	60
	8-hour ^a	100	100
NO ₂ , µg/m ³	Annual	40	10
	24-hour ^a	—	25
SO ₂ , µg/m ³	24-hour ^a	20	40
CO, mg/m ³	24-hour ^a	—	4

27. Vishnuonyx

Why in News?

Recently, the fossil of Vishnuonyx neptuni (Neptune's Vishnu) species was found in the Hammerschmiede area, a fossil site in Bavaria, Germany.

About

- Between **12.5 and 14 million years ago**, the members of the Vishnuonyx genus of otters lived in the major rivers of southern Asia.
- Fossils of these now extinct otters were **first** discovered in **sediments found in the foothills of the Himalayas**.
- This is the **first discovery** of any member of the **Vishnuonyx genus in Europe**; it is also its most northern and western record till date.
- Vishnuonyx were **mid-sized predators** that **weighed 10-15 kg**.
- They **depended on water** and could not travel long distances over land.
- Its travels over **6,000 km to Europe** were probably made possible by the geography of 12 million years ago, when the Alps were recently formed.

- These **Alps** and the **Iranian Elbrus Mountains** were separated by an ocean basin, which would have made it easier for the otters to cross it.

28. Rajaji Tiger Reserve

Why in News?

A Supreme Court-appointed committee has questioned relaxations given for the upgrade of a 4.7-km road (Laldhang-Chillarkhal road) in the buffer zone of Rajaji Tiger Reserve and sought replies from the Centre and Uttarakhand government.

About

- Named After → It was named after the famous freedom fighter **C. Rajgopalachari**; popularly known as “Rajaji”.
- Location → **Haridwar (Uttarakhand)**, along the foothills of the Shivalik range. It is part of Rajaji National Park.
- It was declared a Tiger Reserve in **2015**.
- Flora → **Broadleaved deciduous forests, riverine vegetation, scrubland, grasslands** and **pine forests** form the range of flora in this park.
- **Sal** (*Shorea robusta*) is the characteristic dominant tree species.
- Fauna → The reserve is home to more than 50 species of mammals including **tiger, elephant, leopard, Himalayan black bear, sloth bear, jackal, hyena, spotted deer, sambhar, barking deer, nilgai, monkeys** and over 300 species of birds.
- Rivers → The **Ganga** and **Song rivers** flow through this.

📌 Other Protected Areas in Uttarakhand

- Jim Corbett National Park (first National Park of India).
- Valley of Flowers National Park and Nanda Devi National Park which together are a UNESCO World Heritage Site.
- Govind Pashu Vihar National Park and Sanctuary.
- Gangotri National Park.
- Nandhaur Wildlife Sanctuary.

Science & Technology

1. West Nile Virus

Why in News?

Recently, Russia warned of a possible increase in West Nile Virus (WNV) Infections this autumn as mild temperatures and heavy precipitation create favourable conditions for the mosquitos that carry it.

About

- It is a **member of the flavivirus genus** and belongs to the Japanese encephalitis antigenic complex of the family Flaviviridae.
- Origin →
 - It was first **isolated in a woman in the West Nile district of Uganda** in **1937**. It was identified in birds in the Nile delta region in 1953.
 - Birds** are the **natural hosts** of the West Nile virus.
 - It is commonly found in **Africa, Europe, the Middle East, North America** and **West Asia**.
- Transmission →
 - Human infection** is most often the **result of bites from infected mosquitoes**. Mosquitoes become infected when they feed on infected birds, which circulate the virus in their blood for a few days.
 - No human-to-human transmission** of WNV through **casual contact** has been documented.
- Symptoms →
 - Infected persons usually have **no symptoms** or **mild symptoms**, it can cause a fatal neurological disease in certain cases.
 - Some of the symptoms include **fever, headache, body aches, skin rash, and swollen lymph glands**.
- Treatment → As of now, there is **no vaccine** against the virus in humans although one exists for horses.

2. Dementia

Why in News?

Recently, the WHO (World Health Organisation) released a report 'Global status report on the public health response to dementia'.

About

- What is it? → It is a **syndrome** – usually of a chronic or progressive nature – that **leads to deterioration in cognitive function** (i.e. the ability to process thought) beyond what might be expected from the usual consequences of biological ageing.
- It **affects memory, thinking, orientation, comprehension, calculation, learning capacity, language, and judgement**.
- However, the **consciousness** is **not affected**.
- Symptoms →
- Memory loss, Difficulties with thinking, Visual perception**, Self-management, Problem solving or language and the ability to focus and pay attention.
- Personality changes**, like depression, agitation, paranoia, and mood swings.
- Causes → When **brain cells are damaged** then dementia may occur. It can be caused by a **head injury, a stroke, a brain tumour** or due to HIV infection.
- Treatment → There is currently **no treatment available** to cure dementia, though numerous new treatments are being investigated in various stages of clinical trials.

3. Nipah Virus

Why in News?

A 12-year-old boy infected with the Nipah virus died in a private hospital in Kozhikode, Kerala.

About

- What is it? → It is a **zoonotic virus** (it is transmitted from animals to humans).
- The first outbreaks of the Nipah virus among humans was reported from **Malaysia (1998)** and **Singapore (1999)**.
- Host Reservoir of Nipah Virus → The animal host reservoir for this virus is known to be the **fruit bat**, commonly known as **flying fox**. Fruit bats are known to **transmit this virus to other animals** like **pigs**, and **also dogs, cats, goats, horses and sheep**.
- How does it spread? →
 - It is a zoonotic virus, meaning it has been **transmitted from animals to human beings**.
 - The transmission happens mainly through **direct contact** with these animals or through the **consumption of food contaminated** by the saliva or urine of these infected animals.
 - **Person-to-person transmission** is **not fully established yet**.
- Symptoms → Symptoms include **acute encephalitis** and **respiratory illnesses**.
- Prevention → Currently, there are **no vaccines** for both humans and animals. Intensive **supportive care** is given to humans infected by Nipah virus.

4. Inspiration4

Why in News?

SpaceX announced that 'Inspiration4', its first all-civilian, non-governmental spaceflight, is on track for launch on September 15.

About

- What is it? → Inspiration4 is the **world's first all-civilian mission to orbit**.
- The flight will be **privately operated by SpaceX** (US Private Space Company) using a previously-flown Crew Dragon capsule launched to low Earth orbit.
- Inspiration4 will **blast off from NASA's Kennedy Space Center** in Florida on September 15..
- The mission involves **circling the Earth for three days**, and then splashing down into the Atlantic Ocean.
- Inspiration4 will **orbit the Earth at 575km, higher than the International Space Station (408km)** and the **Hubble space telescope (547km)**.
- This will be the **farthest distance** travelled by a crewed mission since 2009, when astronauts last went to repair the Hubble.
- The mission will **raise awareness** and **funds for St. Jude Children's Research Hospital** in US.

👉 Also Remember

- SpaceX company's **Ax-1 mission**, also planned for the **end of 2021**, **hosts a crew of four private astronauts** paying **\$55 million** each for an eight-day trip to the ISS.
- In 2018, Elon Musk also announced **Japanese billionaire Yusaku Maezawa** will take a ride around the moon on SpaceX's new rocket system **Starship**, which is under development.
- Falcon 9 is a **reusable, two-stage rocket designed** and manufactured by SpaceX for the reliable and safe transport of people and payloads into Earth orbit and beyond.

5. Hycean Worlds

Why in News?

A study published in The Astrophysical Journal identifies a new class of exoplanets – Hycean worlds – that could support life different from that on Earth.

About

- The word Hycean comes from the **words hydrogen and ocean**. Planet-wide oceans and hydrogen-rich atmospheres might cover these worlds.
- They are also **uniquely alien, up to 2.6 times the diameter of Earth**, with temperatures up to 200 degrees celsius and thick hydrogen atmospheres. This places them somewhere **between Earth and giant planets** like Neptune or Uranus.
 - With no analogs in the Solar System, these planets are **variedly classed as super-Earths or mini-Neptunes** depending on inferences about their bulk compositions based on their densities.
- These planets, unlike most mini-Neptunes, may have **solid surfaces**, like Earth. Many of the known Hycean candidates are **larger and hotter than Earth**, but still would be **able to host large oceans**.
- Some Hyceans orbit so **close to their stars** that they're **tidally locked**, with one hot dayside and one eternally dark nightside. And some orbit **very far away, receiving very little stellar radiation**. But life could exist even on such extreme Hyceans.
 - Tidal locking is the name given to the situation when an **object's orbital period matches its rotational period**.

Exoplanet

- An exoplanet is any **planet beyond our solar system**. More than 4,400 planets have been discovered outside our solar system.
- Most orbit other stars, but **free-floating exoplanets**, called **rogue planets**, orbit the **galactic centre** and are **untethered to any star**.

6. Fragile X Syndrome (FXS)

Why in News?

In 2017, a man affected by autism underwent his first DNA blood test at the age of 40. He tested positive for Fragile X Syndrome (FXS). This shows the lack of awareness and appropriate training in diagnosing FXS.

About FXS

- What is it? → It is a **genetic disorder** that **causes a range of developmental problems** including learning disabilities and cognitive impairment.
- It is the **leading inherited cause of autism** in 4% of the global population.
- Caused by → It is caused by **changes in FMR1 gene** which make an important protein (FMRP) that is required for brain development.
 - It is caused by the **mutation named FRAXA**.
- Mutation → A mother who is a carrier has a **50% chance of passing the mutated gene** to her children, who will either be carriers or have FXS.
 - Men who are carriers do **not pass the pre-mutation** to their sons, but only daughters, who become carriers.
- Effect → **Males are more severely affected** by this disorder than females.
 - Studies suggest a high effect of consanguineous parenting on FXS prevalence. (Consanguineous is a term relating to or denoting people descended from the same ancestor.)
- Detection → The simplest tool for timely detection is a **DNA test**. This testing could be **made mandatory** for every child diagnosed with autism.

- Symptoms → Learning difficulty, speech delay, aggressive behaviour, hyperactivity, attention deficit, fear of the unfamiliar, sensory processing disorders and problems in motor skills.
- Treatment → It cannot be cured, but early therapy can improve a person's quality of life.

7. INSPIRE Awards-MANAK

Why in News?

Recently, the 8th National Level Exhibition and Project Competition (NLEPC) for the INSPIRE Awards – MANAK (Million Minds Augmenting National Aspiration and Knowledge), has commenced.

About

- What is it? → It is one of the components of the Innovation in Science Pursuit for Inspired Research (**INSPIRE**) **Scheme**.
- Aim → To motivate students in the age group of 10-15 years and studying in classes 6 to 10 to become future innovators and critical thinkers.
- Nodal Agencies → The award is being executed by the Department of Science & Technology(DST) with the National Innovation Foundation – India (NIF), an autonomous body of DST.
- Coverage → Under this, students will be invited from all government or private schools throughout the country, irrespective of their educational boards (national and state) to send original and creative technological ideas/innovations.
- Prize → The winning students will be awarded Rs.10,000 which will be disbursed directly into bank accounts under the Direct Benefit Transfer scheme.

👉 INSPIRE Scheme

- The INSPIRE (Innovation in Science Pursuit for Inspired Research) scheme is one of the flagship programmes of the Ministry of Science and Technology & Earth Sciences.
- Objective → Its objective is to communicate to the youth population of the country the creative pursuit of science and attract talent to the study of science at an early stage and build the required critical human resource pool for strengthening and expanding the Science & Technology system and Research & Development base.
- Programs → The scheme covers students in the age group of 10-32 years and has three programs and five components. They are a) Scheme for Early Attraction of Talents for Science (**SEATS**), b) Scholarship for Higher Education (**SHE**) and c) Assured Opportunity for Research Careers(**AORC**).

8. ATL Space Challenge 2021

Why in News?

Recently, NITI Aayog's Atal Innovation Mission (AIM) in collaboration with ISRO (Indian Space Research Organisation) and CBSE (Central Board of Secondary Education) has launched 'ATL Space Challenge 2021'.

About

- It is a platform where students from Class 6-12 can innovate and solve digital age space technology problems. The event is scheduled to be held in sync with World Space Week 2021.
- Aim → To enable innovation among young school students to create something in the space sector.
- It will not only help them learn about space but also create something that space programme can itself use.
- Who can participate in this challenge? →
 - Challenge has been designed for all the school students, mentors and teachers across the country.
 - All the **ATL** and non-ATL schools can participate in it.
- How can a student participate? →

- **Individual member's entry is not allowed.** A team of up to **3 members** is allowed.
- Also, if the **team size exceeds 3 members limit**, the entry/ submission will be immediately disqualified.
- What can the students create? →
 - Students can participate under these themes: **Explore Space**, **Reach Space**, **Inhabit Space**, and **Leverage Space**.
 - Participants must submit **one unique solution** under any one theme.
 - If the team submits the **same solution** under **multiple themes**, then it will be **immediately disqualified**.

👉 Major Initiatives

- Atal Tinkering Labs → **Creating problem solving mindset** across schools in India.
- Atal Incubation Centers → **Fostering world class startups** and **adding a new dimension** to the incubator model.
- Atal New India Challenges → **Fostering product innovations** and **aligning them** to the needs of various sectors/ministries.
- Mentor India Campaign → A **national mentor network** in collaboration with the public sector, corporates and institutions, **to support all the initiatives of the mission**.
- Atal Community Innovation Center → To **stimulate community centric innovation and ideas** in the unserved /underserved regions of the country including Tier 2 and Tier 3 cities.
- Atal Research and Innovation for Small Enterprises (ARISE) → To **stimulate innovation and research in the MSME industry**.

9. Dengue

Why in News?

Delhi has reported the highest number of dengue cases since 2018.

About

- What is it? → Dengue is a **mosquito-borne tropical disease** caused by the dengue virus (Flavivirus) transmitted by several species of mosquitoes within the **genus Aedes**.
- Symptoms → Symptoms typically begin **three to fourteen days after** infection.
- These may include **high fever**, **headache**, **muscle**, and **joint pain**, and a **characteristic skin rash** that is similar to measles.
- There are **four types** of dengue strains, and **type II and IV** are considered to be **more severe** and **normally require hospitalisation**.
- In a small proportion of cases, the disease develops into,
 - Dengue hemorrhagic fever - A severe dengue resulting in **bleeding**, **low levels of blood platelets** and **blood plasma leakage**, or
 - Dengue shock syndrome - Dengue resulting in **very low BP**.
- Diagnosis → Diagnosis of dengue infection is done with a **blood test**.
- Treatment → **Paracetamol** is recommended instead of nonsteroidal anti-inflammatory drugs (NSAIDs) **for fever reduction** and pain relief in dengue due to an increased risk of bleeding from NSAID use.
- Dengue is classified as a **neglected tropical disease**.
- Control → **Insectivorous fishes** like Gambusia and Guppies **can check the spread of mosquito-borne diseases** like malaria and dengue.
- The **World Mosquito Program** has used mosquitoes infected with Wolbachia bacteria to successfully control dengue.

👉 Also Remember

- **Dengue** and **chikungunya** are caused **by the bite of Aedes aegypti mosquito**, which breeds in **clear water**.

- **Malaria** is caused **by The Anopheles mosquito**, which, can **breed in both fresh and muddy water**.

10. Precision-guided Sterile Insect Technique(pgSIT)

Why in News?

Researchers at the University of California, San Diego have created a new system named precision-guided Sterile Insect Technique(pgSIT) that restrains populations of mosquitoes.

About

- pgSIT is a **new scalable genetic control system** that uses a CRISPR-based approach to engineer deployable mosquitoes that can suppress populations.
- It **alters genes linked to male fertility** — **creating sterile offspring** — and female flight in *Aedes aegypti*, the mosquito species responsible for spreading wide-ranging diseases including dengue fever, chikungunya, and Zika.
- pgSIT **uses CRISPR** to **sterilize male mosquitoes** and render female mosquitoes, which spread disease, as flightless.
- Why is this significant? → pgSIT eggs can be shipped to a **location threatened by mosquito-borne disease** or **developed at an on-site facility** that could produce the eggs for nearby deployment. Once the pgSIT eggs are released in the wild, sterile pgSIT males will emerge and eventually mate with females, **driving down the wild population as needed**.

CRISPR

- It is a **gene editing technology**, which **replicates natural defence mechanisms** in bacteria to fight virus attacks, using a special protein called Cas9.
- CRISPR-Cas9 technology behaves like a **cut-and-paste mechanism on DNA strands** that contain genetic information. The specific location of the genetic codes that need to be changed, or edited, is **identified on the DNA strand**, and then, using the Cas9 protein, which acts like a pair of scissors, that location is cut off from the strand.
- A DNA strand, when broken, has a natural tendency to repair itself. Scientists **intervene during this auto-repair process**, supplying the desired sequence of genetic codes that binds itself with the broken DNA strand.
- CRISPR-Cas9 is a **simple, effective**, and **incredibly precise technology** with potential to revolutionise human existence in future.
- **Emmanuelle Charpentier of France** and **Jennifer A Doudna** of the USA were awarded the **2020 Nobel Prize in Chemistry** for developing CRISPR/Cas9 genetic scissors.

11. Visvesvaraya PhD Scheme

Why in News?

Union Minister of Electronics & Information Technology launched Phase II of the Visvesvaraya PhD Scheme.

About

- Launched by → **Ministry of Electronics and Information Technology** in 2014.
- Aim → To **enhance the number of PhDs** in Electronics System Design & Manufacturing (ESDM) and IT/IT Enabled Services (IT/ITES) sectors in the country.
- Salient features of the PhD Scheme are as follows →
 - It provides **25% more fellowship amount** than most of the other PhD Schemes.
 - **Part-time PhD candidates** get a **one-time incentive** on completion of the PhD.
 - The scheme also **supports 200 Young Faculty Research Fellowships** in the areas of ESDM and IT/ITES with the objective to retain and attract bright young faculty members in these sectors.
- Phase 1 → Under Phase 1, PhD seats were allocated to **97 institutions** (IITs, NITs, Central & State Universities etc.) in **25 states and 4 Union Territories**.

- Phase II → Under Phase II, the scheme aims to support 1000 Full-Time PhD Candidates, 150 Part-Time PhD Candidates, 50 Young Faculty Research Fellowships and 225 Post-Doctoral Fellowships.

12. Planetarium Innovation Challenge

Why in News?

Recently, MyGov India, under the Ministry of Electronics and Information Technology (MeitY), launched the Planetarium Innovation Challenge for Indian start-ups and tech entrepreneurs.

About

- The Indian Space Research Organization conducted the ISRO Quiz competition which was Inspired by the Chandrayaan mission in collaboration with MyGov, where several schools, parents and enthusiastic mentors made it memorable through their active participation.
- Planetarium Innovation Challenge was launched looking forward to a repeat of the ISRO Quiz.
- The challenge invites applications from start-ups and tech entrepreneurs to develop state-of-the-art technology for Planetariums.
- It perfectly aligns with the objective of the nation's progressive digital transformation under the larger umbrella of Atma Nirbhar Bharat.
- Evaluation Parameters → Approach towards problem-solving, Product Idea, Degree of Innovation, Novelty of Approach, Innovation, Replicability, Scalability, Usability, and Ease of deployment/roll-out and potential risks involved in the implementation of the solution.
- Aims → To bring together the tech firms and Startups (based out of India) with the potential to build an indigenous planetariums system software using the latest technologies including Augmented Reality (A.R.), Virtual Reality (V.R.) and Merged Reality (M.R.) especially for smaller cities and rural areas, all Made in India.
- Awards and Opportunities → The first winner, second winner and third winner under the contest will get the cash prizes of Rs.5 lakh, Rs.3 lakh and Rs.2 lakh respectively.
- The winners and participants will get the opportunity to meet peers in the field and get to know the latest advancement in the Ecosystem.

13. Havana Syndrome

Why in News?

A US intelligence officer travelling with CIA director William Burns has reported symptoms of Havana Syndrome while the two were in India earlier this month.

About

- Havana Syndrome refers to a set of mental health symptoms that are said to be experienced by US intelligence and embassy officials in various countries.
- It typically involves symptoms such as hearing certain sounds without any outside noise being present, nausea, vertigo and headaches, memory loss and issues with balance.
- What is the origin of Havana Syndrome?
 - Havana Syndrome traces its roots to Cuba.
 - In 2016, about a year after the US opened its embassy in Havana, some intelligence officials and members of the staff at the embassy began experiencing sudden bursts of pressure in their brain followed by persistent headaches, feeling of disorientation and insomnia.
- What is the cause of Havana Syndrome?
 - Experts have suggested that the victims may have been subjected to high-powered microwaves that either damaged or interfered with the nervous system.

- Greater exposure to high-powered microwaves is said not only to interfere with the body's sense of balance but also **impact memory** and **cause permanent brain damage**.
- The US experts believe that these microwaves are sent through a special gadget called a "**microwave weapon**".

Microwave weapons

- "Microwave weapons" are supposed to be a **type of direct energy weapons**, which aim for highly focused energy in the form of sonic, laser, or microwaves, at a target.
- **China** had first put on display its "microwave weapon", called **Poly WB-1**, at an air show in 2014.
- The **United States** has also developed a prototype microwave-style weapon, which it calls the "**Active Denial System**".

14. LiFi Network

Why in News?

Students' Educational and Cultural Movement of Ladakh (SECMOL), India's highest altitude educational organisation, has become the 1st institute in the Union Territory to have an internet connection using LiFi technology.

About

- What is it? → Light Fidelity (LiFi) is a **wireless communication technology** that transmits data with a light beam spectrum through open space in outdoor and indoor environments.
- It is a **Visible Light Communications (VLC) system** has,
 - Solid-state lighting (**SSL**) such as LED bulbs,
 - **Photo-detector** (photodiode) to receive light signals and
 - **Signal processing element** to convert the data (embedded in the light beam) into 'stream-able' content.
- Data is **fed into an LED light bulb** (with signal processing technology). Then the LED bulb **sends data at rapid speeds to the photo-detector**.
- Uses → LiFi systems provide **ultra-fast, safe** and **cheap data connections**.
 - They are **chiefly useful in urban areas** where radio spectra are congested.
 - They are also **very useful in rural areas** wherein Fiber Optic Cables or networks are not reachable.
- Specialty → LiFi can be up to **100 times faster than Wi-Fi**.

15. NASA's VIPER Mission

Why in News?

NASA has chosen a landing site for the Volatiles Investigating Polar Exploration Rover (VIPER). The site is on the western edge of Nobile crater, near the lunar south pole. The crater was named after Italian polar explorer Umberto Nobile.

About

- VIPER stands for **Volatiles Investigating Polar Exploration Rover**. It is a **mobile robot**.
- It is the first **resource mapping mission** on any other celestial body.
- NASA's Commercial Lunar Payload Services (**CLPS**) will be **providing the launch vehicle** and **lander** for what's going to be a 100-day mission.
- Objectives of the mission →
 - To **explore** the Moon's South Pole region.
 - Help create **lunar resource maps**.
 - **Evaluate the concentration of water** as well as other potential resources on its surface.

- Significance of the mission → VIPER's findings will inform "**future landing sites under the Artemis program** by helping to determine locations where water and other resources can be harvested" to **sustain humans over extended stays**.

Artemis Program

- During the Artemis program, NASA will **land the first woman** and **first person of color on the Moon**, using innovative technologies to explore more of the lunar surface than ever before.
- NASA will **collaborate with** other commercial and international partners and establish sustainable exploration for the first time.
- Then, the **learning from Moon exploration** will enable NASA to take the next giant leap – **sending astronauts to Mars**.

16. Smallest Man-Made Flying Structure

Why in News?

Northwestern University (US) has created an Electronic Microchip or Microflier with the capability of flight. It is the smallest-ever human-made flying structure.

About

- It has **no motor** or **engine** and is about the **size of a grain of sand**.
- It **catches flight on the wind** — much like a maple tree's propeller seed — and spins like a helicopter through the air toward the ground.
- What is the basis for the Design? →
 - The engineers **optimised their design** by **studying maple trees** and **other types of wind-dispersed seeds** and fashioned the micro flier such that when dropped from a height it would fall at a slow velocity in a controlled manner.
 - This behaviour stabilizes its flight, ensures **dispersal over a broad area** and **increases the amount of time** it interacts with the air.
 - They designed **many different types of micro fliers**, including one with three wings, resembling the wings on a tristellateia seed.
- Significance →
 - It can be packed with **ultra-miniaturised technology**, including sensors, power sources, antennas for wireless communication and embedded memory to store data.
 - **Miniaturization** is the trend to manufacture ever smaller mechanical, optical and electronic products and devices.
 - It is ideal for **monitoring Air Pollution and Airborne Disease**.

17. Chang'e-5 probe

Why in News?

China's Chang'e-5 lunar mission has delivered to Earth nearly 2 kg of rocky fragments and dust from the Moon.

About

- Chang'e 5 lunar mission is the **Chinese National Space Administration's (CNSA) mission**.
- Purpose → To send a **robotic spacecraft to the moon** to collect samples and return them to Earth for scientific study.
- The spacecraft **landed on an area of the Moon (the 'far side')** not sampled by the American or Soviet missions nearly 50 years ago, and thus retrieved fragments of the youngest lunar rocks ever brought back for analysis in laboratories on Earth. The **rocks are also different** to those returned decades ago.

- What are the findings →
 - Around **90% of the materials** collected by Chang'e-5 likely derive from the landing site and its immediate surroundings, which are of a type termed '**mare basalts**'. These volcanic rocks are visible to us as the **darker grey areas** that spilled over much of the nearside of the Moon as ancient eruptions of lava.
 - Yet **10% percent** of the fragments have **distinctly different, 'exotic' chemical compositions**.

18. Detection of Dark Energy

Why in News?

A team of researchers have made the first putative direct detection of dark energy using the XENON1T experiment (to detect dark matter).

About XENON1T experiment

- XENON1T experiment is the **world's most sensitive dark matter experiment** and operated deep underground at **INFN Laboratori Nazionali del Gran Sasso, Italy**.
- Other similar experiments include **LUX-Zeplin**, a next generation dark matter experiment at Sanford Underground Research Facility, and **PandaX-xT** at China Jinping Underground Laboratory.
- XENON1T have been designed to **directly detect dark matter**, by searching for signs of dark matter 'hitting' ordinary matter.
- A **physical model**, which used **chameleon screening**, can be **used to show that dark energy particles** produced in the Sun's strong magnetic fields could explain the signal seen in XENON1T.

👉 Dark Matter & Dark Energy

- Everything **we see** - the planets, moons, galaxies, organisms - **makes up less than 5%** of the universe.
- About **27% is dark matter** and **68% is dark energy**.
- Dark matter's existence was suggested as **early as the 1920s**, while **dark energy wasn't discovered until 1998**.
- Dark energy is an **unknown form of energy** that is hypothesized to **permeate all of space**, tending to **accelerate the expansion** of the universe.
- Dark matter is a hypothetical form of matter thought to account for approximately **85% of the matter** in the universe.
- Dark matter works like an **attractive force** that **holds our universe together**.
- This is because dark matter does **interact with gravity**, but it **doesn't reflect, absorb or emit light**.
- Meanwhile, dark energy is a **repulsive force** that causes the **expansion of our universe**.

19. Landsat 9

Why in News?

Earth Monitoring Satellite Landsat 9 - a joint mission of NASA and the US Geological Survey (USGS) - was launched recently.

About

- Landsat 9 **joins Landsat 8** that was launched in 2013 and the satellites together will **collect images of Earth's surface**.
- It takes **8 days to capture the whole Earth**. It will make contact with a ground station every few hours and offload its data.
- Landsat 9 carries **instruments similar to the other Landsat satellites**, but it is the most technologically advanced satellite of its generation.
- The instruments aboard Landsat 9 are the Operational Land Imager 2 (**OLI-2**) and the Thermal Infrared Sensor 2 (**TIRS-2**).

- OLI-2 → It **captures sunlight** reflected off Earth's surface and **studies the visible, near-infrared, and short wave infrared** portions of the spectrum.
- TIRS-2 → It has a **four-element refractive telescope** and **photosensitive detectors** that capture thermal radiation and help study the Earth's surface temperature.
- As the satellite orbits, these instruments will **take pictures across 185 kms** and each pixel will represent an area of about **30 meter X 30 meter**.
- These instruments will measure **different wavelengths of light** reflected off the Earth's surface.
- It can see **more colour shades** with greater depths.
- Uses →
 - **Previously**, Landsat images have been used to **study the health of forests, coral reefs, monitor water quality** and **melting glaciers**.
 - Landsat 9 will provide data that can help make **science-based decisions** on key issues of **climate change** such as impacts of wildfire, coral reef degradation, the retreat of glaciers, and deforestation.
 - It can help **identify water bodies** affected by potentially harmful algal blooms.

Earth Observation Satellites

- Sentinel Satellites →
 - It is a family of satellites developed by the **European Space Agency (ESA)** under the Copernicus Programme.
 - The Copernicus Programme is the **Earth Observation Programme** managed by the ESA, launched in **1998**.
- India →
 - EOS-01 satellite → It is an earth observation satellite and is intended for applications in **agriculture, forestry** and **disaster management support**.
 - Other earth observation satellites launched by ISRO include **RESOURCESAT- 2, 2A, CARTOSAT-1, 2, 2A, 2B, RISAT-1** and **2, OCEANSAT-2, Megha-Tropiques, SARAL** and **SCATSAT-1, INSAT-3DR, 3D**, etc.

20. National Action Plan for dog Mediated Rabies Elimination

Why in News?

The Union Health Minister of Health and Family Welfare and Union Minister of Animal Husbandry has launched the "National Action Plan for Dog Mediated Rabies Elimination from India by 2030".

About the Rabies

- Rabies is a **fatal** but **preventable viral disease**. It can spread to people and pets if they are **bitten** or **scratched by a rabid animal**.
- Forms of Rabies → The two clinical forms of Rabies are **Furious Rabies**, characterised by hyperactivity and hallucinations and **Paralytic Rabies** characterised by paralysis and coma.
- The rabies virus **infects** the **central nervous system**.
- If a person does not receive the appropriate medical care after a potential rabies exposure, the virus can cause **disease in the brain, ultimately resulting in death**.
- Treatment → Post-exposure Prophylaxis (**PEP**), which consists of a **dose of human rabies immunoglobulin (HRIG)** and a **rabies vaccine**, is administered on the day of rabies exposure. This prevents virus entry into the central nervous system, which results in imminent death.
- Rabies in India → India has around **20,000 rabies deaths a year**. **Worldwide, over 59,000 people die** every year from rabies, around 40% of them aged under 15.

National Action Plan for Dog Mediated Rabies Elimination

- Drafted by → The **National Centre for Disease Control** (NCDC) has drafted in consultation with the Ministry of Fisheries, Animal Husbandry and Dairying.
- As part of the plan, the ministers have urged all the States and UTs to make **Rabies a notifiable Disease**. They also launched the “**Joint Inter-Ministerial Declaration Support Statement**” for Elimination of Dog mediated Rabies from India by 2030 through One Health Approach.
- Moreover, villagers in India refer to Rabies as ‘**Hadakwa**’, unfamiliar with the English name. The mere mention of ‘**Hadakwa**’ induces terror in rural areas. Hence, the minister advised the officials to **use the more familiar term** ‘**Hadakwa**’ in popularizing the activities to be taken up under the Plan.

Geography

1. Pulicat Lake

Why in News?

Increase in numbers of migratory birds visiting the Pulicat Lake in India.

About

- It is the **second-largest brackish water lake** in the country, next only to Chilika lake.
- Also called **Pazhaverkadu**, it lies at the border of the states of Andhra Pradesh and Tamil Nadu on the Barricade Island of Sriharikota.
- The region in which Pulicat lake is situated **receives rainfall from both** South-West as well as North-East monsoon winds.
- Two rivers that feed the lagoon are the **Arani River** at the southern tip and **the Kalangi River** from the northwest, in addition to some smaller streams.
- Nelapattu Bird Sanctuary** is a famous bird sanctuary **located near this lake**.
- The lake is also home to **black-headed ibis**, **Asian openbill**, **black-crowned night heron**, and **little cormorant**. Other migratory birds that visit the sanctuary include northern pintail, common teal, little grebe, northern shoveler, Eurasian coot, Indian spot-billed duck, grey heron, Oriental darter, black-winged stilt, garganey and gadwall
- The project "**Mangrove Restoration in Asia**" is implemented at Pulicat Lake.
- Flamingo Festival** is held every year to promote tourism in Pulicat and Nelapattu.



📍 Nelapattu Bird Sanctuary

- It is considered one of the **biggest habitats** for **some hundreds of pelicans and other birds**.
- Located about **20 km north** of the Pulicat Lake on the Andhra Pradesh-Tamil Nadu border.

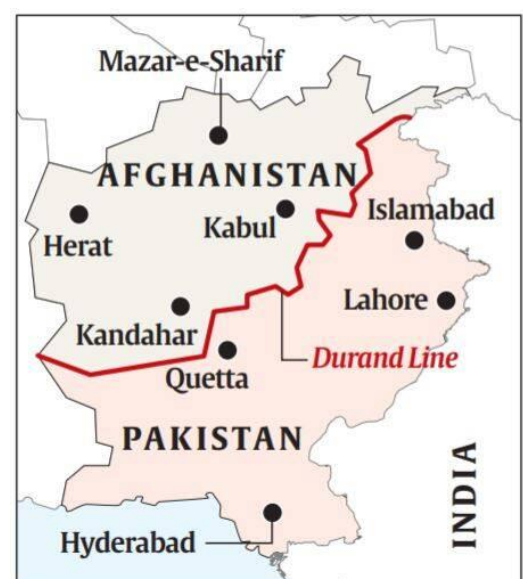
2. Durand Line

Why in News?

The fence erected by Pakistan along the 2,640-km Durand Line which is opposed by Taliban is a potential flashpoint in relations between the Taliban and Pakistan.

About Durand Line

- Established in the **Hindu Kush in 1893**, it runs through the **tribal lands between Afghanistan and British India**. In modern times it has marked the border **between Afghanistan and Pakistan**.
- In 19th century Afghanistan was **used as a buffer** by the British against the fear of Russian expansionism to its east.
- Hence the British civil servant **Sir Henry Mortimer Durand signed an agreement** with Afghan ruler Amir Abdur Rahman on November 12, 1893 demarcating the Durand line.
- The line stretches from the **border with China to Afghanistan's border with Iran**.
- This line demarcated the **limits of Afghanistan's** and **British India's "spheres of influence"** on the Afghan "**frontier**" with India.



- The line puts the **strategic Khyber Pass** on the British side.
- It cuts through **Pashtun tribal areas**, leaving villages, families, and land divided between the two spheres of influence.

Other Important Boundary Lines

- McMahon Line →
 - It was **proposed by Colonel McMahon** as the boundary between Tibet, China, and India at the **Shimla Convention of 1914**.
 - It runs from the **eastern border of Bhutan** along the crest of the Himalayas until it reaches the **great bend in the Brahmaputra River** where that river emerges from its Tibetan course into the Assam Valley.
- Radcliffe Line →
 - It divided British India **into India and Pakistan**.
 - It is named after the architect of this line, **Sir Cyril Radcliffe**, who was also the chairman of the Boundary Commissions.



3. Guinea

Why in News?

Guinea has long been beset by political instability. Recent unrest started after the dismissal of a senior commander in the special forces — provoking some of its highly trained members to rebel and occupy the presidential palace.

About

- Guinea is a country in **West Africa, bordered on the west by the Atlantic Ocean**.
- It's known for the **Mount Nimba Strict Nature Reserve**, in the southeast.
- The sovereign state of Guinea is a **republic with a president** who is directly elected by the people.
- Guinea is a **predominantly Islamic country**, with Muslims representing 85 per cent of the population.



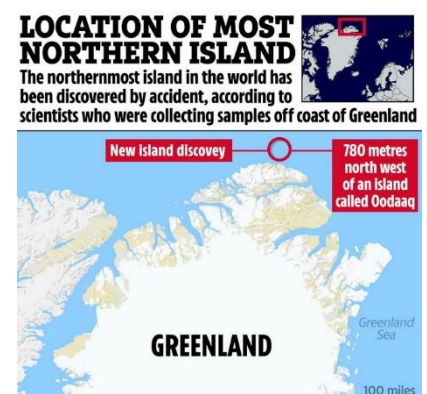
4. Qeqertaq Avannarleg

Why in News?

It is a tiny, uninhabited and previously unknown island discovered recently off the coast of Greenland.

About

- Measuring **60×30 metres** and with a peak of three metres above sea level, it has now become the new **northernmost piece of land** on Earth. Before this, **Oodaaq** was marked as the Earth's northernmost terrain.
- Properties → It is made up of **seabed mud** and **moraine**, i.e. soil, rock and other material left behind by moving glaciers, and has no vegetation.
- The researchers have suggested the discovery be named **'Qeqertaq Avannarleg'**, which is Greenlandic for **"the northernmost island"**.



- Significance →
 - The discovery comes as a battle is looming among Arctic nations, the US, Russia, Canada, Denmark and Norway for the control of the North Pole and of the surrounding seabed, fishing rights and shipping routes exposed by melting ice due to climate change.
 - Global warming might have had a severe effect on the ice sheet of Greenland, but the new island however is not a direct consequence of climate change.

5. El Salvador

Why in News?

El Salvador became the first country to adopt Bitcoin as legal tender. But the launch was marked by Chivo app (state-backed wallet app) glitches and crash in the Bitcoin price.

About

- El Salvador, the country of Central America.
- It is the smallest and most densely populated of the seven Central American countries.
- Despite having little level land, it traditionally was an agricultural country, heavily dependent upon coffee exports.
- El Salvador is bounded by Honduras to the north and east, by the Pacific Ocean to the south, and by Guatemala to the northwest.
- Its territory is situated wholly on the western side of the isthmus, and it is, therefore, the only Central American country that lacks a Caribbean coast.



Bitcoin

- Bitcoin was launched in 2009 by Satoshi Nakamoto.
- It is a type of digital currency in which a record of transactions is maintained and new units of currency are generated by the computational solution of mathematical problems, and which operates independently of a central bank.
- It is the first and biggest of decentralised cryptocurrencies, which are online payment systems.

6. Dinosaurs in India

Why in News?

Footprints of three species of dinosaurs have been found in the Thar desert in Rajasthan's Jaisalmer district, proving the presence of the giant reptiles in the western part of the State, which formed the seashore to the Tethys Ocean during the Mesozoic era.

About

- The footprints, made in the sediment or silt of the seashore, later became permanently stone-like. They belong to three species of dinosaurs —
 - Eubrontes cf. giganteus,
 - Eubrontes glenrosensis and
 - Gallator tenuis.
- While the giganteus and glenrosensis species have 35 cm footprints, the footprint of the third species was found to be 5.5 cm.
- The footprints were 200 million years old. They were found near Jaisalmer's Thaiat village.

- The dinosaur species are considered to be of the **theropod type**, with the distinguishing features of **hollow bones** and **feet with three digits**. All the three species, belonging to the **early Jurassic period**, **were carnivorous**.

📌 Thar Desert:

- The name 'Thar' is derived from **thul**, the general term for the **region's sand ridges**. It is also called the '**Great Indian Desert**'.
- Location → **Partly in Rajasthan state, northwestern India**, and partly in Punjab and Sindh provinces, eastern Pakistan.
- It is bordered by the **irrigated Indus River plain** to the west, the **Punjab Plain** to the north and northeast, the **Aravalli Range** to the southeast, and the **Rann of Kachchh** to the south.
- Features →
 - An arid region that covers over **2,00,000 sq km**.
 - The surface consists of **aeolian (wind-deposited) sand** that has accumulated over the past 1.8 million years.
 - Presents an **undulating surface, with high and low sand dunes** separated by sandy plains and **low barren hills**, or **bhakars**, which rise abruptly from the surrounding plains.
 - Several playas (saline lake beds), locally known as **dhands**, are scattered throughout the region.
 - The desert supports a relatively rich biodiversity with several large mammals, notably the **blue bull**, **blackbuck**, and **Indian gazelle** or **chinkara**.

7. Subansiri Hydroelectric Project

Why in News?

Work on the 2000 MW Subansiri Lower project resumed after being stopped in 2011 following protests amid fears of ecological damage and loss of livelihoods.

About

- It is located **on the Subansiri River** (largest tributary of Brahmaputra River), which is on the border of India's two northeastern states, Arunachal Pradesh and Assam.
- Subansiri River (**gold river**), **originates in the Tibet Plateau** and enters India through Miri hills in Arunachal Pradesh.
- It is the **largest tributary of Brahmaputra River**.
- The project is being developed by the **state-run National Hydro Power Corporation (NHPC)**.
- It will be the **single largest hydroelectric plant** in India when completed. The project is expected to be **completed in 2023**.



8. New Study on Ninth Planet

Why in News?

In the continued search for the hypothetical ninth planet in our Solar System, Michael Brown, the CalTech astronomer who led the demotion of Pluto to a dwarf planet in 2006, has co-written a new study that claims to have narrowed the region the potential new planet could be located.

About

- The study proposes "**Planet Nine**" **exists beyond Neptune** and is **six times the mass of Earth**.
- The new study also includes a "**treasure map**" of the **planet's likely orbit** that the scientists said lasts around 7,400 Earth years and is closer to the Sun than the 2016 study found.

- A closer orbit to the Sun would **make the planet brighter** and **easier to see**.
- Planet Nine would probably be a **cold gas giant like Neptune**, **the farthest** known planet in a Solar System from the Sun.
- **Neptune** has a **nonsolid surface** made up mostly of hydrogen, helium, and methane, according to NASA.

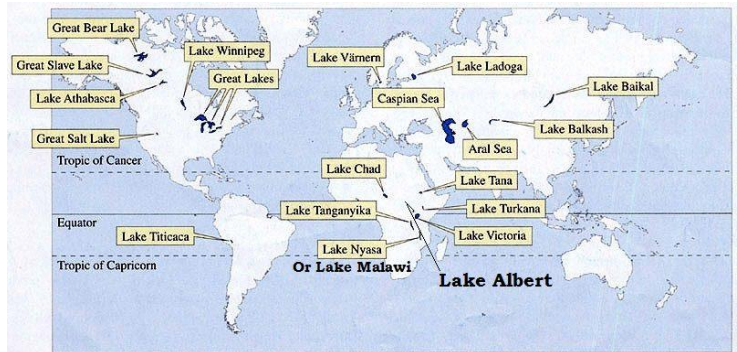
9. Lake Tanganyika

Why in News?

Most internal displacement in East Africa's Burundi due to rise of Lake Tanganyika.

About

- It is the **second largest lake** in **eastern Africa**.
- It is the **longest freshwater lake** in the world and the **second deepest** after Lake Baikal in Russia.
- The lake is shared among four countries namely **Burundi**, **Democratic Republic of the Congo** (DRC), **Tanzania** and **Zambia**.
- It is situated on the **line dividing the floral regions of eastern and western Africa**, and **oil palms**, which are characteristic of the flora of western Africa, grow along the lake's shores.
- The largest rivers discharging into the lake are **the Malagarasi**, **the Ruzizi**, and **the Kalambo**. Its outlet is the **Lukuga River**, which flows into the Lualaba River.
- **Rice and subsistence crops** are **grown** along the shores, and **fishing** is of some significance. **Hippopotamuses** and **crocodiles** abound, and the bird life is varied.



10. La Palma volcano

Why in News?

Recently, the Cumbre Vieja volcano in La Palma, one of Spain's Canary Islands, erupted.

About

- La Palma is the **most north-westerly island** of the **Canary Islands, Spain**.
- La Palma has an area of **708 square kilometres** making it the fifth largest of the eight main Canary Islands.
- Its **highest mountain** is the **Roque de los Muchachos**, at 2,423 metres being second among the peaks of the Canaries only to the peaks of the Teide massif on Tenerife.
- The Cumbre Vieja volcano erupted for the **first time in 50 years**. The last time hot molten lava erupted and spread was in **1971**.

👉 Other Recently Erupted Volcanoes:

- **Kilauea Volcano** → Hawaii.
- **Fukutoku-Okanoba Volcano** → Japan
- **Sangay Volcano** → Ecuador
- **Taal Volcano** → Philippines
- **Mt. Sinabung, Merapi volcano, Semeru volcano** (Indonesia).



11. Gogra

Why in News?

Villagers have lost access to a vast grazing area near Gogra in eastern Ladakh owing to growing Chinese presence in the area.

About

- Gogra is one of the **several friction points in eastern Ladakh** where Indian and Chinese troops have been engaged in a **stand-off** since April-May 2020.
- The troops have disengaged from the north and south banks of the Pangong Tso and Gogra sector, creating “**no zones**” in areas along the LAC.
- Since April 2020, Chinese troops have **blocked Indian troops** from **reaching at least 10 patrolling points** (PPs) in **eastern Ladakh** — running from Depsang plains in the north to the Pangong Tso lake in the south.

12. Cyclone Gulab

Why in News?

Cyclone ‘Gulab’ is likely to hit east coast of India. It is formed in the Bay of Bengal Region.

About

- It is a **tropical cyclone**.
- The name was given by? → Gulab was suggested **by Pakistan**.
- It comes under the category of the **cyclonic storm** according to IMD.

📌 Tropical Cyclones

- Cyclones that develop in the regions **between the Tropic of Capricorn and Tropic of Cancer** are called tropical cyclones. Tropical cyclones are **intense circular storms** that originate over warm tropical oceans. They rotate in a **counterclockwise direction in the Northern Hemisphere** and in a **clockwise direction in the Southern Hemisphere**.
- They are characterized by **low atmospheric pressure**, **high winds**, and **heavy rain**. Drawing energy from the sea surface a tropical cyclone maintains its strength as long as it remains over warm water.
- Conditions for development of Tropical Cyclones → There are six main requirements for tropical cyclogenesis:
 - sufficiently **warm sea surface temperatures** (higher than 26°C),
 - atmospheric instability**,
 - high humidity** in the lower to middle levels of the troposphere,
 - enough Coriolis force** to sustain a low pressure center,
 - a pre-existing **low level focus or disturbance**, and
 - low vertical wind shear**
 - Note: While these conditions are necessary for tropical cyclone formation, they do not guarantee that a tropical cyclone will form.

Name	Location	Region affected
Cyclone Gulab	Bay of Bengal	North Andhra Pradesh and adjoining Odisha coasts
Cyclone Tauktae	Arabian Sea	Southern Gujarat
Cyclone Yaas	Bay of Bengal	West Bengal and adjoining Odisha coasts
Cyclone Nisarga	Arabian Sea	Alibag in Mumbai, Maharashtra
Cyclone Amphan	Bay of Bengal	Odisha and West Bengal
Cyclone Kyarr	Arabian Sea	Moved towards the Gulf of Aden from the Indian coast
Cyclone Maha	Arabian Sea	Gujarat
Cyclone Vayu	Arabian Sea	Gujarat
Cyclone Hikka	Arabian Sea	Oman
Cyclone Fani	Bay of Bengal	Odisha, West Bengal, Andhra Pradesh and East India

- Recent Cyclones in the Indian ocean**

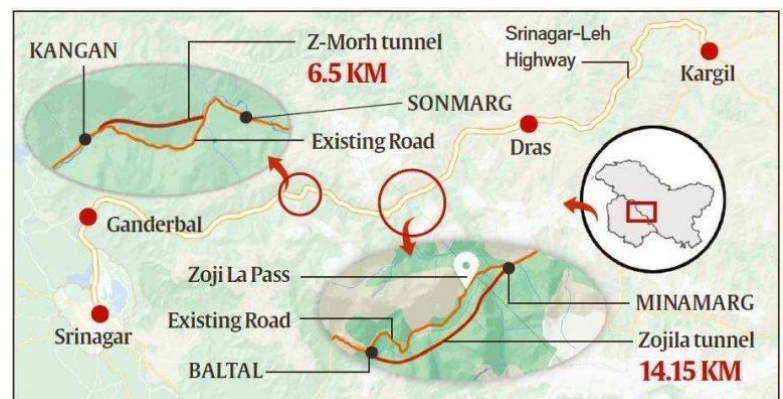
13. Zojila Tunnel

Why in News?

Government is pushing to complete the massive Zojila tunnel, its showpiece infra project in Kashmir and Ladakh, before Republic Day, 2024.

About

- The Zojila tunnel will be **India's longest road tunnel** and **Asia's longest bi-directional tunnel**.
- Zojila tunnel will provide **all-year connectivity** between **Srinagar valley and Leh**.
- It will connect **Srinagar, Dras, Kargil** and **Leh** via a tunnel through the famous Zojila Pass.
- Located at **more than 11,500 feet above sea level**, the all-weather Zojila tunnel will be **15 km long**.
- It will make the travel on the **434-km Srinagar-Kargil-Leh Section of NH-1 free from avalanches**, enhance safety and reduce the travel time from more than 3 hours to just 15 minutes.



Polity

1. Deputy Speaker

Why in News?

Delhi High Court has asked the central government to explain its stand on a petition that claims vacancy of Deputy Speaker's post is a violation of the constitution.

About

- **Article 93 of the constitution** provides for the election of both the Speaker and the Deputy Speaker.
- Deputy Speaker is **elected by the Lok Sabha** from amongst its members.
- The **date of election** of the Deputy Speaker is **fixed by the Speaker**.
 - For Speaker's election, the **date of election** is **fixed by the President**.
- He/She **remains in the office** during the **life of Lok Sabha**.
- He/She **assumes the power of speaker** when the office is vacant or speaker is absent.
- When he/she appointed as a member of the parliamentary committee, he/she **automatically becomes its chairman**.
- He/She can **vote at the first instance**. But when acts as the Speaker, he/she have the privilege of the Casting vote in case of tie.
- Deputy Speaker gives the **resignation letter to the Speaker** and can be removed in the same manner as Speaker.
- Upon the vacancy of the office, **election** should be **held as soon as possible**.
- The tradition for the **post of the Deputy Speaker** going to the **Opposition party** started during the term of Prime Minister Morarji Desai's government (**1977-79**).

2. Collegium System for the Appointment of Judges

Why in News?

9 judges of the Supreme Court including one third women have taken the oath, the biggest ever number at one go. It takes the total SC strength to 33, of whom 4 are women.

About

- **Articles 124(2) and 217** of the Constitution govern the appointment of judges to the Supreme Court (SC) and High Courts (HC) respectively.
- Under this, the **President has the power to make the appointment** after "consultation" with such judges of SC and HC as the president may deem necessary.
- Evolution of the System →
 - First Judges Case (1981) → It declared that the **"primacy" of the Chief Justice of India (CJI)s recommendation** on judicial appointments and transfers can be refused for **"cogent reasons."**
 - The ruling gave the Executive primacy over the Judiciary in judicial appointments for the next 12 years.
 - Second Judges Case (1993) → SC introduced the **Collegium system**, holding that **"consultation" really meant "concurrence"**.
 - It added that it was **not the CJI's individual opinion**, but an institutional opinion formed in consultation with the two senior-most judges in the SC.
 - Third Judges Case (1998) → SC on President's reference **expanded the Collegium** to a **five-member body**, comprising the CJI and four of his senior-most colleagues.
- The **SC collegium** is **headed by the CJI** and **comprises four** other senior most judges of the court.
- A **HC collegium** is led by its **Chief Justice** and **four other** senior most judges of that court.

- Names recommended for appointment by a HC collegium reaches the government only after approval by the CJI and the SC collegium.
- Judges of the higher judiciary are appointed only through the collegium system and the government has a role only after names have been decided by the collegium.
- Procedure for Various Judicial Appointments →
- For CJI →
 - The **President** of India appoints the **CJI** and **the other SC judges**.
 - As far as the CJI is concerned, the outgoing CJI recommends his successor.
 - In practice, it has been strictly by seniority ever since the supersession controversy of the 1970s.
- For SC Judges →
 - For other judges of the SC, the proposal is initiated by the CJI.
 - The CJI consults the rest of the Collegium members, as well as the senior-most judge of the court hailing from the High Court to which the recommended person belongs.
 - The consultees must record their opinions in writing and it should form part of the file.
 - The Collegium sends the recommendation to the Law Minister, who forwards it to the Prime Minister to advise the President.
- For Chief Justice of High Courts →
 - The Chief Justice of High Court is appointed as per the policy of having Chief Justices from outside the respective States.
 - The Collegium takes the call on the elevation.
 - High Court judges are recommended by a Collegium comprising the CJI and two senior-most judges.
 - The proposal, however, is initiated by the outgoing Chief Justice of the High Court concerned in consultation with two senior-most colleagues.
 - The recommendation is sent to the Chief Minister, who advises the Governor to send the proposal to the Union Law Minister.
- How many judges does the Supreme Court have? How is the number decided? →
 - Currently, the Supreme Court has 34 judges, including the CJI.
 - **Parliament**, which has the power to increase the number of judges, has gradually done so by amending the Supreme Court (Number of Judges) Act. The number of judges were increased from 8 in 1950 to 11 in 1956, 14 in 1960, 18 in 1978, 26 in 1986, 31 in 2009, and 34 in 2019.

3. Karbi Anglong Agreement

Why in News?

The Karbi Anglong Agreement ensuring Assam's territorial integrity was signed to end the decades old crisis.

About Karbi Anglong

- Karbi Anglong is the largest district in Assam. The district is administered by Karbi Anglong Autonomous Council according to the Sixth Schedule of the Constitution of India.
- The district comprises various tribal and ethnic groups including the Kukis, Dimasas, Garos, Rengma Nagas, Tiwas and Karbhis.
- This diversity also led to different outfits and fuelled an insurgency that did not allow the region to develop. This agreement hopes to set aside the insurgency.

Key Features of the Karbi Anglong Agreement:

- Under the agreement, 5 militant organizations laid down arms and more than 1000 of their armed cadres have given up violence and joined the mainstream society in February 2021.

- Development Package → A **special development package** of **₹1000 crore** will be allocated over five years by the Central Government and the Assam Government **to take up special projects** for the development of Karbi areas.
- Greater Autonomy → This agreement will **transfer as much autonomy as possible** in exercising their rights to the Karbi Anglong Autonomous Council, without affecting the territorial and administrative integrity of Assam.
- Protection of Culture → This agreement will ensure the **protection of the culture, identity, language**, etc. of the Karbi people and all-round development of the region.
- Karbi Welfare Council → The Government of Assam will **set up a Karbi Welfare Council** to focus on the development of the Karbi people living outside the Karbi Anglong Autonomous Council area.
- Finance → The **Consolidated Fund of the State** will be **amended to meet the resources** of the Karbi Anglong Autonomous Council.

4. V.G. Somani Committee

Why in News?

The Union government has constituted a committee for framing legislation regarding new drugs, cosmetics and medical devices.

About

- Headed by → The committee is headed by Drugs Controller General of India **V.G. Somani**.
- Mandate → To undertake **pre-legislative consultations and examine the present Drugs and Cosmetics Act, 1940**, examine previously framed Drugs and Cosmetics Bills and submit a draft document for new Drugs, Cosmetics and Medical Devices Bill.

5. National Commission for Minorities

Why in News?

Former IPS officer Iqbal Singh Lalpura, has been chosen as chairman of National Commission for Minorities.

About

- Background →
 - In **1978**, setting up of the **Minorities Commission** (MC) was envisaged in the Ministry of Home Affairs Resolution.
 - In **1984**, the MC was **detached from the Ministry of Home Affairs** and placed under the newly **created Ministry of Welfare**, which excluded linguistic minorities from the Commission's jurisdiction in 1988.
 - In **1992**, with the enactment of **the NCM Act, 1992**, the MC became a **statutory body** and was **renamed as the NCM**.
 - In **1993**, the **first Statutory National Commission** was set up and five religious communities viz the **Muslims, Christians, Sikhs, Buddhists** and **Zoroastrians** (Parsis) were notified as minority communities.
 - In **2014**, **Jains** were **also notified** as a minority community.
- Composition →
 - NCM consists of a **Chairperson, a Vice-Chairperson** and **five members** and all of them shall be from amongst the minority communities.
 - **Total of 7 persons** to be nominated by the Central Government should be from amongst persons of eminence, ability and integrity.
 - Each Member holds office for a **period of three years** from the date of assumption of office.
- Functions →
 - **Evaluation** of the **progress of the development** of minorities under the Union and States.

- Monitoring of the working of the **safeguards for minorities** provided in the Constitution and in laws enacted by Parliament and the state legislatures.

6. Ek Pahal Campaign

Why in News?

The Ministry of Law and Justice in association with the National Legal Service Authority (NALSA) has launched the “Ek Pahal” Campaign.

About

- Aim → Ek Pahal Campaign aims **to mainstream legal aid** and to actualize the aspiration of access to justice for every citizen.
- Under the campaign, people will be **encouraged to register** under the **Tele-Law Initiative**.

📌 Tele Law Initiative

- Launched in **2017** by the **Ministry of Law and Justice**.
- It is a service that uses **video conferencing facilities** and **telephone services** to connect lawyers to litigants who need legal advice.
- Aim → This service aims to **reach out to the needy, especially the marginalized and disadvantaged**. The service is provided through Common Service Centers or CSCs located at the gram panchayat level.
- Eligibility → The service is free for those who are eligible for free legal Aid as **mentioned under Section 12 of the Legal Services Authority Act, 1987**. For all others, a **nominal fee of INR 30 Rs** is **charged**.

7. Parliamentary Privileges

Why in News?

Recently, Vice-President and Rajya Sabha Chairman M Venkaiah Naidu has said that disrupting parliamentary proceedings amounts to contempt of the House and it cannot be claimed as a privilege.

About

- Parliamentary privileges are **certain rights and immunities** enjoyed by members of Parliament, **individually and collectively**, so that they can “effectively discharge their functions”.
- The Constitution (**Article 105** for Parliament and **Article 194** for State Assemblies) mentions two privileges, i.e. **freedom of speech in Parliament** and **right of publication of its proceedings**.
- Apart from the privileges as specified in the Constitution, **the Code of Civil Procedure, 1908**, provides for **freedom from arrest and detention** of members under civil process during the continuance of the meeting of the House or of a committee thereof and forty days before its commencement and forty days after its conclusion.
- Motion against breaches →
 - When any of these rights and immunities are disregarded, the offence is called a **breach of privilege** and is **punishable under law of Parliament**.
 - A **notice is moved in the form of a motion** by any member of either House against those being held guilty of breach of privilege.
- Role of the Speaker/Rajya Sabha (RS) Chairperson →
 - The Speaker/RS chairperson is the **first level of scrutiny of a privilege motion**.
 - The Speaker/Chair can **decide** on the **privilege motion himself** or **herself** or **refer it** to the privileges committee of Parliament.
 - If the Speaker/Chair gives **consent under relevant rules**, the member concerned is given an opportunity to make a short statement.

- Applicability →
 - The **Constitution also extends** the parliamentary privileges to those persons who are **entitled to speak and take part in the proceedings** of a House of Parliament or any of its committees. These include the **Attorney General of India**.
 - The parliamentary privileges do **not extend to the President** who is also an **integral part** of the Parliament. Article 361 of the Constitution provides for privileges for the President.

8. FASTER System

Why in News?

Following an order in July by a Special Bench led by CJI, the Supreme court has introduced the “Fast and Secured Transmission of Electronic Records” (FASTER) system.

About

- This system will **help in communicating crucial decisions** including orders on bail and stay of arrest electronically to prison authorities and investigating agencies **through a secure channel**.
- The system is meant to ensure that **undertrials aren't made to wait for days on end behind bars to be released** because the certified hard copies of their bail orders took time to reach the prison.
- It would also **prevent unnecessary arrests** and **custody of people** even after the court had already granted them its protection.
- It may even communicate a **stay on an execution ordered** by the final court on time.
- The FASTER system will be a **big fillip** to the **fundamental rights of life, dignity and personal liberty**.

📌 SUPACE Portal

- A pet project of Chief Justice of India S A Bobde, SUPACE is a **tool** that **collects relevant facts** and **laws** and **makes them available to a judge**.
- The portal is not designed to take decisions, but only to **process facts** and to make them available to judges looking for an input for a decision.
- It is designed to **make research easier for judges**, thereby easing their workload.

9. Right To Get Aid From Govt

Why in News?

The Supreme Court said that the right to receive Government Aid of an institution (whether a majority or minority institution) is not a fundamental right, but only a matter of policy.

About

- The right of an institution, whether **run by a majority** or **minority community**, **to get government aid** is **not a fundamental right**.
- Both have to **equally follow the rules** and **conditions of the aid**.
- Reason →
 - Government aid is a **policy decision**. It **depends on various factors** including the interests of the institution itself and the ability of the government to understand the exercise.
 - **Financial constraints and deficiencies** are the **factors** which are considered relevant in taking any decision while giving aid, including both the decision to grant aid and the manner of disbursement of an aid.
- Withdrawal of Aid →
 - If the government made a **policy call to withdraw aid**, an **institution cannot question** the decision as a matter of right.

- If an institution does **not want to accept** and **comply with the conditions** accompanying such aid, it is well open to it **to decline the grant** and **move in its own way**. On the contrary, an institution can never be allowed to say that the grant of aid should be on its own terms.

Constitutional Provisions

- Article 30 (1) → All minorities, whether based on religion or language, shall have the **right to establish and administer educational institutions** of their choice.
- Article 30(1A) → deals with the **fixation of the amount for acquisition of property** of any educational institution established by minority groups.
- Article 30(2) → states that the government should **not discriminate against any educational institution** on the ground that it is under the management of a minority, whether based on religion or language, while giving aid.

10. Anti-defection law

Why in News?

An independent MLA from Gujarat has said he has joined the Congress “in spirit”. This is because, under the anti-defection law, an independent lawmaker becomes disqualified if the person joins a political party after the election.

About

- The **Tenth Schedule** — popularly known as the Anti-Defection Law— was included in the Constitution via the **52nd Amendment Act, 1985**.
- The Act specifies the circumstances under which **changing of political parties** by legislators invites action under the law.
- The law covers **three scenarios** with respect to shifting of political parties by an MP or an MLA. These include →
 1. When a member elected on the ticket of a political party “**voluntarily gives up**” **membership** of such a party or votes in the House against the wishes of the party.
 2. When a legislator who has won his or her seat as an **independent candidate joins a political party** after the election.
 - In the above two cases, the legislator loses the seat in the legislature on changing (or joining) a party.
 3. Relates to **nominated MPs**. In their case, the law gives them **six months to join a political party**, after being nominated. If they **join a party after such time**, they stand to lose their seat in the House.
- Exceptions →
 - The law allows a **party to merge with** or **into another party** provided that **at least two-thirds** of its legislators are in favour of the merger.
 - On being **elected as the presiding officer** of the House, if a member, voluntarily gives up the membership of his party or rejoins it after he ceases to hold that office, he won't be disqualified.
- Who decides Disqualification? →
 - Under the anti-defection law, the power to decide the disqualification of an MP or MLA **rests with the presiding officer** of the legislature.
 - The law does **not specify a time frame** in which such a decision has to be made.
 - Last year, the Supreme Court observed that anti-defection cases should be decided by Speakers **in three months' time**.

International Relations

1. International Atomic Energy Agency (IAEA)

Why in News?

The UN atomic agency has observed that North Korea might have resumed its plutonium-producing reprocessing reactor.

About

- Establishment → Set up as the world's "**Atoms for Peace**" organization in **1957** within the United Nations family.
- It **reports to** both the United Nations General Assembly and Security Council.
- Headquartered → **Vienna, Austria**.
- Functions →
 - Works with its Member States and multiple partners worldwide to **promote the safe, secure and peaceful use of nuclear technologies**.
 - Seeks to **promote the peaceful use of nuclear energy**, and to inhibit its use for any military purpose, including nuclear weapons.
- Board of Governors →
 - **22 member states** (must represent a stipulated geographic diversity) — elected by the General Conference (11 members every year) – **2 year term**
 - At least **10 member-states** — **nominated** by the outgoing Board.
 - Board members each receive **one vote**.
- Programs →
 - Program of Action for Cancer Therapy (PACT).
 - Human Health Program.
 - Water Availability Enhancement Project.
 - International Project on Innovative Nuclear Reactors and Fuel Cycles, 2000.

2. Universal Postal Union

Why in News?

India has won elections for membership of the Council of Administration (CA) and the Postal Operations Council (POC) of the Universal Postal Union (UPU) at the 27th UPU Congress.

About

- Established by → the **Treaty of Bern** in **1874**.
- It is a United Nations specialized agency. It is also the **second-oldest** international organization worldwide.
- Purpose → It is the **primary forum for cooperation** between postal sector players. It helps to ensure a **truly universal network of up-to-date products and services**.
- Headquarters → **Bern, Switzerland**.
- Members →
 - **Any member country of the United Nations** may become a member of the UPU.
 - Any **non-member** country of the United Nations **may become a UPU member** provided that its **request is approved** by at **least two-thirds of the member countries** of the UPU. The UPU now has 192 member countries.
- Bodies → The UPU consists of 4 bodies:
 - The Congress → It is the **supreme authority** of the Universal Postal Union (UPU) and meets every four years.
 - The International Bureau → It provides **logistical and technical support** to the UPU's bodies.

- The Council of Administration → It ensures the continuity of the UPU's work between Congresses, supervises its activities and studies regulatory, administrative, legislative and legal issues.
- The Postal Operations Council → It is the technical and operational mind of the UPU and consists of 40 member countries elected during Congress.

3. World Heritage Institute of Training and Research – Asia Pacific

Why in News?

The field trial of PISA (Program for International Student Assessment) is scheduled to be held from September, 2021.

About

- What is it? → It is a non-profit organization specialized in the area of heritage conservation.
- It is an institute under the auspices of UNESCO, it is the first one established in the developing countries.
- It is an autonomous institution at the service of member states and associate members of UNESCO.
- Mission → To strengthen implementation of the World Heritage Convention 1972 in the Asia and the Pacific region.

World Heritage Convention

- It is one of the most important global conservation instruments which was created in 1972.
 - Its mission is to identify and protect the world's natural and cultural heritage considered to be of Outstanding Universal Value.
- It sets out the duties of States Parties in identifying potential sites and their role in protecting and preserving them.
 - By signing the Convention, each country pledges to conserve not only the World Heritage sites situated on its territory, but also to protect its national heritage.
- The Convention is governed by the World Heritage Committee supported by the UNESCO World Heritage Centre, the secretariat for the Convention, and three technical advisory bodies to the Committee →
 - International Union for Conservation of Nature (IUCN)
 - International Council on Monuments and Sites (ICOMOS)
 - International Centre for the Study of the Preservation and Restoration Cultural Property (ICCROM).
- India is a signatory to the convention and has 40 world heritage sites, which includes 32 cultural, 7 natural and one mixed property.
 - Ramappa Temple in Telangana was the 39th and Dholavira in Gujarat was India's 40th world heritage site.

4. International Fund for Agricultural Development

Why in News?

Recently, the International Fund for Agricultural Development (IFAD) has made the commitment to focus 30 per cent of its climate finance to support nature-based solutions in rural small-scale agriculture by 2030.

About

- What is it? → It is a specialized international financial institution of the United Nations working in the field of poverty eradication in the rural areas of developing countries.
- Formation → It was created in 1977, which is the outcome of the World Food Conference of 1974.
- It works with marginalized and vulnerable groups such as farmers with small holdings, foresters, Pastoralists, Fishermen and small scale entrepreneurs by giving them disaster preparedness, access to weather information, technology transfer and social learning.
- Headquarters → Rome, Italy.
- Members → It has 177 member countries.
- India is also a member country.

- Objectives →
 - To **increase the productive capacity** of poor people.
 - To **increase benefits** for them from market participation.
 - To **strengthen the environmental sustainability** & climate resilience of their economic activities.
- Flagship publications →
 - Rural Development Report
 - IFAD at a glance
 - Investing in rural people in India
 - Addressing Hunger and Poverty: 30 years of IFAD's Development Partnership in India
 - Images of Tribal Development in India.

5. Eastern Economic Forum

Why in News?

The Minister of Petroleum and Natural Gas will lead a delegation to Russia to participate in the 6th Eastern Economic Forum (EEF) Summit in Vladivostok.

About

- EEF was established by the decree of the President of the **Russian Federation in the year 2015**.
- Its aim is to **support the economic development** of Russia's Far East and to expand international cooperation in the Asia-Pacific region.
- It takes place **each year in Vladivostok, a city in Russia**.
- It serves as a **platform for the discussion of key issues** in the world economy, regional integration, and the development of new industrial and technological sectors, as well as of the global challenges facing Russia and other nations.
- The Forum's business programme includes a **number of business dialogues with leading partner countries** in the Asia-Pacific region, and with ASEAN, a key integration organization of dynamically developing nations in Southeast Asia.
- This forum is sponsored by the **organizing committee appointed by Roscongress**.

6. Sherpa

Why in News?

The government has appointed Union Minister for Commerce & Industry Piyush Goyal as Sherpa for the G20 meet, replacing former Union Minister Suresh Prabhu.

About

- A Sherpa is a **personal representative of the leader of a member country** at an international Summit meeting such as the G8, G20, the Nuclear Security Summit etc.
- The Sherpa **engages in planning, negotiation and implementation tasks** through the Summit.
- They **coordinate the agenda, seek consensus** at the highest political levels, and participate in a series of pre-Summit consultations to help negotiate their leaders' positions.
- Sherpas are career diplomats or senior government officials **appointed by the leaders of their countries**.
- The term is derived from the **Nepalese Sherpa people**, who **serve as guides for mountaineers** in the Himalayas.
- There is **only one Sherpa per Summit** for each member country; he/she is assisted by several sous Sherpas.

7. Asian Development Bank

Why in News?

The Indian government and Asian Development Bank (ADB) signed a \$112 million loan in order to develop water supply infrastructure in the state of Jharkhand.

About ADB

- What is it? → It is a **regional development bank**.
- Established on → **19 December 1966**.
- headquartered → **Manila, Philippines**.
- Official United Nations **Observer**.
- Members → **68 members**, 49 from within Asia.
 - The bank admits the members of the United Nations Economic and Social Commission for Asia and the Pacific (**UNESCAP**, formerly the Economic Commission for Asia and the Far East or ECAFE) and **non-regional developed countries**.
- Voting rights →
 - It is **modeled closely on the World Bank**, and has a similar weighted voting system where votes are distributed in **proportion with members' capital subscriptions**.
 - 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%**).
- Roles and functions →
 - Dedicated to **reducing poverty in Asia and the Pacific** through **inclusive economic growth**, environmentally sustainable growth, and regional integration.
 - This is **carried out through investments** – in the form of loans, grants and information sharing – in infrastructure, health care services, financial and public administration systems, helping nations prepare for the impact of climate change or better manage their natural resources, as well as other areas.

8. BRICS

Why in News?

Indian PM chaired the 13th BRICS Summit, which was held virtually.

About

- What is it? → BRICS is an acronym for the grouping of the **world's leading emerging economies**, namely **Brazil, Russia, India, China**, and **South Africa**.
 - In **2001**, the British Economist **Jim O'Neill** coined the term BRIC to describe the four emerging economies of Brazil, Russia, India, and China.
 - The grouping was formalised during the **first meeting** of BRIC Foreign Ministers' in **2006**.
 - **South Africa** was invited to **join BRIC in December 2010**, after which the group adopted the acronym BRICS.
- The BRICS brings together five of the largest developing countries of the world, representing **41% of the global population**, **24% of the global GDP** and **16% of the global trade**.
- The chairmanship of the forum is **rotated annually** among the members, in accordance with the acronym **B-R-I-C-S**.
 - India is the chair for 2021.
- During the Sixth BRICS Summit in Fortaleza (Brazil) in 2014, the leaders signed the Agreement establishing the **New Development Bank** (NDB - Shanghai, China).
- They also signed the **BRICS Contingent Reserve Arrangement** to provide short-term liquidity support to the members.
- 13th BRICS Summit theme → **'BRICS@15: Intra-BRICS cooperation for continuity, consolidation and consensus'**.

Key Takeaways				
Reforming Multilateral System Leaders endorsed the joint statement on strengthening and reforming the multilateral system adopted by five foreign ministers, and agreed on the principles of strengthening and reforming the multilateral system	UNSC Reforms Summit called for reforms of the principal organs of the United Nations, including instilling new life in the discussions on reforming the UN Security Council	Space & Climate Cooperation Agreement on space agencies and remote sensing will help enhance research capabilities in global climate change, disaster management, environment protection, prevention of food and water scarcity. Leaders expressed commitment to fully implement UNFCCC, its Kyoto Protocol and Paris Agreement	Agriculture Cooperation Agricultural Research Platform launched; Action Plan 2021-2024 for Agricultural Cooperation adopted	Green Tourism Green tourism to promote measures which can shape a more resilient, sustainable and inclusive tourism sector
Focus Areas Intra-Brics trade to boost cooperation among customs departments New Development Bank's progress in Expanding membership: Bangladesh, UAE and Uruguay				

9. U.S.-India Strategic Clean Energy Partnership (SCEP)

Why in News?

Minister of Petroleum and Natural Gas and Minister of Housing and Urban Affairs launched the revamped U.S.-India Strategic Clean Energy Partnership (SCEP).

About

- Background → It was launched at the **Leaders Summit on Climate** held in **April 2021**.
- The partnership is in **accordance with** the U.S.-India Climate and Clean Energy Agenda 2030 Partnership.
- Pillars → It organizes **inter-governmental engagement** across **five pillars** of cooperation:
 - Power and Energy Efficiency;
 - Responsible Oil and Gas;
 - Renewable Energy;
 - Sustainable Growth and
 - Emerging Fuels.

Also Remember

- Partnership to Advance Clean Energy(PACE) → It was launched in **2009 by India and the United States** to **accelerate inclusive, low carbon growth** by supporting research and deployment of clean energy technologies.
- Hydrogen Task Force → It is a **public-private initiative** launched by India and the US to **help scale up technologies** to produce hydrogen from renewable energy and fossil fuel sources and to bring down the cost of deployment for enhanced energy security and resilience.

10. Leadership Group for Industry Transition (LeadIT)

Why in News?

The Minister for Environment, Forest and Climate Change has urged Indian companies to join the Leadership Group for Industry Transition (LeadIT) Initiative.

About

- Launched by → **Government of Sweden and India** at the UN Climate Action Summit in 2019 with the **support from World Economic Forum**.
- Aim → The group gathers countries and companies that are **committed to achieve the targets of the Paris Agreement** by reaching net-zero carbon emissions from industry by 2050.
- Functions →

- The group provides an arena for **public-private collaboration for sectoral** and **cross-sectoral learning** when it comes to innovation opportunities and new technologies.
- It also **enables collaboration** between political and industry decision-makers by convening high-level dialogues to catalyze leadership.
- Moreover, it also **supports governments and industries** to **co-produce stakeholder-led pathways** to low carbon industry transformation.
- Members → Currently, the Group has a membership of **16 countries** and **19 companies**, including Dalmia Cement, Mahindra Group and SpiceJet from India.
- Secretariat → The LeadIT Secretariat is responsible for managing the work of the Leadership Group and is **hosted by Stockholm Environment Institute** (SEI).

11. G-33

Why in News?

Recently, while addressing the G-33 Virtual Informal Ministerial Meeting, India's Commerce and Industry Minister pointed out the imbalances in the Agreement on Agriculture at the World Trade Organization (WTO).

About G-33

- The G33 (or the Friends of Special Products in agriculture) is a **coalition of developing countries**.
- It was established **prior to the 2003 Cancun ministerial conference**.
- The group has **coordinated** during the Doha Round of WTO negotiations, specifically in regard to agriculture.
- **Dominated by India**, the group seeks to limit the degree of market opening required of developing countries, especially with regard to agriculture.
- There are currently **47 member nations**.

📖 Agreement on Agriculture

- It is an **international treaty** of the World Trade Organization.
- It was negotiated during the **Uruguay Round** of the General Agreement on Tariffs and Trade, and entered into force with the establishment of the WTO on **January 1, 1995**.
- It is aimed to **remove trade barriers** and to **promote transparent market access** and integration of global markets.
- **Three pillars** of Agreement on Agriculture.

1. **Domestic Support** → It calls for **reduction in domestic subsidies** that distorts free trade and fair price.

- Under this provision, the **Aggregate Measurement of Support (AMS)** is to be **reduced by 20% over a period of 6 years** by developed countries and **13% over a period of 10 years** by developing countries.
- Under this, Subsidies are categorized into:

Green Box	Amber Box	Blue Box
<ul style="list-style-type: none"> ▪ Subsidies that do not distort trade, or at most cause minimal distortion. ▪ They are government-funded and must not involve price support. ▪ They also include environmental protection and regional development programmes. ▪ "Green box" subsidies are therefore allowed without limits, provided they comply with the policy-specific criteria. 	<ul style="list-style-type: none"> ▪ All domestic support measures considered to distort production and trade (with some exceptions) fall into the amber box as all domestic supports except those in the blue and green boxes. ▪ These include measures to support prices, or subsidies directly related to production quantities. 	<ul style="list-style-type: none"> ▪ This is the "amber box with conditions". Such conditions are designed to reduce distortion. ▪ Any support that would normally be in the amber box is placed in the blue box if the support also requires farmers to limit production. ▪ At present, there are no limits on spending on blue box subsidies.

2. **Market Access** → Market access for goods in the WTO means the **conditions**, **tariff** and **non-tariff measures**, agreed by members for the **entry of specific goods into their markets**.
3. **Export Subsidy** → Subsidy on inputs of agriculture, **making export cheaper** or **other incentives for exports** such as import duty remission etc are included under export subsidies.

12. United Nations General Assembly

Why in News?

Recently, the Prime Minister of India (PM) addressed the 76th United Nations General Assembly (UNGA).

About

- What is it? → The General Assembly is the **main deliberative, policymaking** and **representative organ of the UN**.
- Membership → **All 193 Member States** of the UN are represented in the General Assembly, making it the only UN body with universal representation.
- Meetings → **Each year, in September**, the full UN membership **meets in the General Assembly Hall** in **New York** for the annual General Assembly session, and general debate, which many heads of state attend and address.
- Roles →
 - **Decisions on important questions**, such as those on peace and security, admission of new members and budgetary matters, require a two-thirds majority of the General Assembly.
 - **Decisions** on other questions are **by simple majority**.
- President → The President of the General Assembly is **elected each year** by assembly to **serve a one-year term** of office.
 - Recently, the Maldives' Foreign Minister **Abdulla Shahid** was elected the President of the 76th session of the UNGA for 2021-22

📌 76th United Nations General Assembly (UNGA)

- Theme for this year → "Building Resilience through hope to recover from Covid-19, rebuild sustainably, respond to the needs of the planet, respect the rights of people, and revitalise the United Nations".
- Range of topics → The PM spoke about a **range of topics from the Covid-19 pandemic, threat of terrorism**, India's actions to combat climate change and the need to protect the freedom of navigation in the oceans.

Society

1. PISA (Program for International Student Assessment)

Why in News?

The field trial of PISA (Program for International Student Assessment) is scheduled to be held from September, 2021.

About PISA

- PISA was **first administered** in **2000**.
- It is an international Survey conducted **every three years** (triennial).
- It is coordinated by the **Organization for Economic Cooperation and Development (OECD)**.
- It **assesses the quality of education systems** across the world by evaluating students in science, mathematics and reading.
- It is a **2-hour computer-based test** that focuses on **15-year-old students**.
- This particular age group is selected as they have **either completed** or **are near the end** of their compulsory education in most countries.
- PISA requires the examinees to have **finished at least six years of formal schooling**.
- How does the program evaluate students? →
 - PISA is a competency-based test designed to **assess** the ability of the candidates to **apply their knowledge to real-life situations**.
 - It does not test a student's memory and curriculum-based knowledge.
 - PISA's science test, , measures **three competencies** —
 - Ability to explain scientific phenomena
 - Scientific interpretation of data and evidence
 - Ability to design and evaluate scientific query.
 - Similarly, PISA defines reading as an individual's capacity to understand, use and reflect on written information in a range of situations.
- India's Participation →
 - India has participated in the PISA test **only once before, in 2009**. In this round of PISA, where students from Himachal Pradesh and Tamil Nadu sat for the test, India **ranked 72nd out of 73 countries, outranking only Kyrgyzstan**.
 - Since then, India has **strayed away** from the test until now, for students from Chandigarh will be sitting for the test in 2022.
 - Originally the main PISA survey was **scheduled for 2021**, but was **postponed by one year** owing to the pandemic.

Organization for Economic Cooperation and Development

- Formed in → **1961**.
- Members → It has **38 member countries**. India is not a member but one of the key partners of the organisation.
- Purpose → It is an **international organisation**, having a **goal to shape policies** that foster prosperity, equality, opportunity and well-being for all.
- Headquartered → **Paris, France**.
 - The Financial Action Task Force (FATF) Secretariat is located at OECD headquarters.

2. Buzurgon ki Baat – Desh Ke Saath

Why in News?

Union Minister of Culture launches program 'Bujurgon ki Baat–Desh Ke Saath'. He also launched an exhibition on Gita Govinda and a book "Gita Govinda :Jayadeva's Divine Odyssey" by Dr Utpal K. Banerjee.

About

- The programme 'Bujurgon ki Baat–Desh Ke Saath' aims at **enhancing the interaction between the youth and the elder persons** who are 95 years and above and thus have spent around 18 years in India before independence.

Gita Govinda

- The Gita Govinda is a work composed by the **12th-century poet, Jayadeva** (contemporary of several other poets in the court of Lakshmana Sena of Bengal).
- It is a lyrical poem dramatizing the **love sports of Krishna and Radha**.
- The Gita Govinda **consists of twelve chapters**, further divided into twenty-four songs. Each song consists of eight couplets, it is called Ashtapadi.

3. National Institute Ranking Framework

Why in News?

The Education Ministry recently launched the sixth edition of the NIRF.

About

- What is it? → It is the first-ever effort by the government to **rank higher education institutions** (HEIs) in the country.
- Launched in → **2015**.
- Participation → Participation in the NIRF was **voluntary in the initial years**; it was **made compulsory** for all government-run educational institutions in 2018.
- This year, **roughly 6,000 institutions** have participated in NIRF — about **twice** the number in 2016.
- How are they ranked? →
 - In order to be ranked, all education institutions are assessed on five parameters → **teaching, learning and resources, research and professional practices, graduation outcomes, outreach and inclusivity, and perception**.
 - NIRF lists out best institutions across 11 categories → **overall national ranking, universities, engineering, college, medical, management, pharmacy, law, architecture, dental and research**.

Key Highlights

- IIT-Madras, IISc-Bangalore**, and **IIT-Bombay** have emerged as the **country's top three** higher education institutions.
- Under the best college category, **Miranda House** has again topped the list this year.
- In the university category, **IISc Bengaluru** was the **best-ranked varsity**.

4. Pradhan Mantri Gramin Digital Saksharta Abhiyan

Why in News?

PMGDISHA drive has been launched by the Ministry of Electronics & Information Technology (MietY) under the PMGDISHA scheme.

About PMGDISHA Scheme

- Launched in **2017**, the PMGDISHA scheme is the Government's **flagship Digital Literacy scheme for rural areas**.
- It envisages to make **6 crore persons in rural areas**, across States/UTs, **digitally literate**.
- This will reach to around **40% of rural households** by covering one member from every household where there is no digitally literate person.

- Entry criteria → Beneficiary should be **Digitally Illiterate**, who is **only from rural areas** of the country.
 - All such households where **none of the family member** is **digitally literate** will be considered as eligible household under the Scheme.
 - Only **one person per eligible household** would be considered for training
 - Age Group - **14 to 60 years**
- Priority would be given to →
 - **Non-smartphone users**, **Antyodaya households**, **college drop-outs**, Participants of the adult literacy mission.
 - **Digitally illiterate school students** from **class 9th to 12th**, provided facility of Computer/ICT Training is not available in their schools.
 - Preference would be given to **SC, ST, BPL, women, differently-abled persons** and minorities.
- Identification → Identification of beneficiaries would be **carried out by CSC-SPV** in **collaboration with Gram Panchayats**, District e-Governance Society (DeGS), and **Block Development Officers**.
- Implementation → Implementation of the Scheme would be carried out **under the supervision of MietY** in active collaboration with States/UTs through their designated State Implementing Agencies, DeGS, etc.
- Training will be given in the **nearest Training Centre** or **CSCs for 20 hours** which has to be completed in a minimum of 10 days and maximum of 30 days.

5. Committee on National Curriculum Framework

Why in News?

The Union Education Ministry has set up a committee headed by space scientist K. Kasturirangan to devise the National Curriculum Frameworks(NCFs).

About

- The National Curriculum Framework serves as a **guiding document** for the **development of textbooks, syllabus** and **teaching practices** in schools across the country.
- The committee will develop **four frameworks**, one each to guide the curriculum of school education, teacher education, early childhood education and adult education.
- The **subsequent revision** of textbooks by the National Council of Educational Research and Training will be **based on this new NCF**.
- Duration → The committee will have a **tenure of three years** to complete its task.
- Note → India is currently following its **fourth national curriculum framework** that was published by the NCERT **in 2005**.

6. Ayushman Bharat PM-JAY

Why in News?

The world's largest healthcare scheme Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (AB-PMJAY) has completed three years. It was launched on September 23rd, 2018.

About

- What is it? → This scheme is a **Centrally sponsored scheme** with some Central sector components.
- Features → It provides **cover of 5 lakhs per family per year**, for secondary and tertiary care hospitalization across public and private empaneled hospitals in India.
- Coverage → Over **10.74 crore poor** and **vulnerable entitled families** (approximately 50 crore beneficiaries) are eligible for these benefits.
- Provides **cashless access** to health care services for the beneficiary at the point of service.

- Nodal agency → The **National Health Authority** (NHA) is the nodal agency responsible for the nationwide roll-out and implementation of the AB-PMJAY scheme.
- Eligibility →
 - **No restrictions** on family size, age or gender.
 - All **pre-existing conditions** are covered from day one.
 - Covers up to **3 days of pre-hospitalization** and **15 days post-hospitalization expenses** such as diagnostics and medicines.
 - Benefits of the scheme are **portable across** the country.
 - **Services** include approximately **1,393 procedures covering all the costs related to treatment**, including but not limited to drugs, supplies, diagnostic services, physician's fees, room charges, surgeon charges, OT and ICU charges etc.
 - Public hospitals are **reimbursed for the healthcare services** at par with the private hospitals.

7. Elder Line

Why in News?

The government of India has launched the first pan-India toll-free helpline–14567–for senior citizens called the 'Elder Line'.

About

- Launched by → **the Ministry of Social Justice & Empowerment**. Tata Trusts and National Stock Exchange (NSE) Foundation, as technical partners, are supporting the ministry in operationalising the Elder Line.
- Elder Line is the **first pan-India toll-free helpline–14567**–for senior citizens.
- It aims to provide **free information** and **guidance on pension** and **legal issues**, extend emotional support and intervene in cases of abuse.
- The intent is basically to provide senior citizens or their well-wishers with **one platform to connect** and **share their concerns, get information and guidance on problems** that they face on a day-to-day basis without having to struggle for it.

Security

1. Indian Navy's Maiden Exercise with Algerian Navy

Why in News?

INS Tabar took part in a Maritime Partnership Exercise with Algerian Navy ship 'Ezzadger'.

About

- Indian Naval Ship(INS) **Tabar** took part in a maritime partnership exercise **with an Algerian Navy ship**.
- As part of the exercise, **diverse activities** including coordinated manoeuvring, communication procedures were undertaken between the Indian and Algerian warships.
- Hence, the exercise **enabled the two navies to understand the concept of operations followed by each other**, enhanced interoperability and opened the possibility of increasing interaction and collaboration between the countries in the future.



📌 Algeria

- Algeria is a country in the **Maghreb region** of North Africa.
- It is the **largest country** by total area in Africa.

2. Exercise ZAPAD

Why in News?

The Indian Army contingent will participate in a two-week multinational military exercise named 'ZAPAD 2021' at Nizhny in Russia.

About

- Exercise ZAPAD 2021 is **one of the theatre level exercises** of the Russian Armed Forces.
- The exercise focuses primarily on **operations against terrorists** with the aim to enhance military and strategic ties amongst the participating nations.
- More than a dozen countries from the Eurasian and South Asian Regions will participate in the exercise. **From India, the NAGA Battalion group is participating** in the exercise.
- India also participated in the **exercise TSENTR 2019**, which is part of the annual series of large scale exercises that form part of the Russian Armed Forces' annual training cycle.
- Military Exercise between India and Russia →
 - Indra 2021**: Joint Tri-Services (Army, Navy, Air Force) Exercise.

📌 Naga Regiment

- Naga Regiment is **one of the fiercest infantry regiments** of the Indian Army.
- It is amongst the **youngest regiments** of the Indian Army – the first battalion raised in **Ranikhet 1970**.
- The regiment recruits **mainly from Nagaland, in northeast India**.

3. Resolution 2593

Why in News?

Recently, the India-led United Nations Security Council (UNSC) adopted a Resolution 2593 on Taliban.

About

- The resolution called on the Taliban to keep their commitments on preventing terror groups in Afghanistan.
- It urged them to assist the safe evacuations of all Afghan nationals wishing to lead the country.
- It mentions individuals designated by Resolution 1267 also, which includes the Lashkar E Taiba and Jaish-e-Muhammad.

UNSC

- The UNSC is one of the six principal organs of the United Nations
- Purpose → It is charged with the maintenance of international peace and security.
- Powers → Establishment of peacekeeping operations, establishment of international sanctions, and the authorization of military action through Security Council resolutions.
- It is the only UN body with the authority to issue binding resolutions to member states.
- Members →
 - The Security Council consists of fifteen members.
 - Permanent members (P5): Russia, UK, France, China, and USA
 - These permanent members can veto any substantive Security Council resolution, including those on the admission of new member states or candidates for Secretary-General.
 - 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.

Resolution 1267

- Resolution 1267 was adopted unanimously on 15 October 1999.
- The UNSC designated Osama bin Laden and associates as terrorists and established a sanctions regime to cover individuals and entities associated with Al-Qaida, Osama bin Laden and/or the Taliban wherever located.

4. SIMBEX Exercise

Why in News?

The 28th edition of the Singapore-India Maritime Bilateral Exercise (SIMBEX) was conducted.

About

- What is it? → SIMBEX (Singapore-India Maritime Bilateral Exercises) is a joint maritime bilateral exercise between Indian and Singapore navies. The first edition of the exercise was conducted in 1994.
- Objective → To enhance interoperability amongst the navies and underscore the shared responsibility of the countries to work together to keep sea lines of communications open.
- Significance → SIMBEX is the Indian Navy's longest uninterrupted bilateral maritime exercise with any foreign navy.

Other Exercises

- Bold Kurukshetra (Army)
- Joint Military Training (Air Force)
- Trilateral Maritime Exercise SIMTEX (with Thailand).

5. AUSINDEX

Why in News?

Indian Navy Task Group comprising IN Ships Shivalik and Kadmatt will participate in the 4th edition of AUSINDEX from 06 to 10 Sep 21.

About

- What is it? → It is a **bilateral naval exercise between the Indian Navy and the Australian Navy**.
- The first-ever Bilateral Maritime Exercise, AUSINDEX 15, was conducted in Visakhapatnam (the Bay of Bengal) in **September 2015**.
- This is the **fourth edition** of the exercise.
- Aim → To provide an opportunity for both Navies to **further bolster interoperability, gain from best practices** and develop a common understanding of procedures for Maritime Security Operations.
- From India, Indian Naval Ships **Shivalik** and **Kadmatt** are participating in the exercise.

📌 Indian Naval Ships Shivalik and Kadmatt

- Indian Naval Ships Shivalik and Kadmatt are the **latest indigenously designed** and **built Guided Missile Stealth Frigate** and **Anti-Submarine Corvette** respectively.
- They form **part of the Indian Navy's Eastern Fleet** based at Visakhapatnam under the Eastern Naval Command.

6. C-295 aircraft

Why in News?

Cabinet Committee on Security (CCS) cleared procurement of 56 transport aircraft from Airbus to provide a major fillip to the transport fleet of the Indian Air Force.

About

- It will **replace** the Indian Air Force's ageing fleet of **Avro-748 planes**. The Avro-748 planes are a British-origin twin-engine turboprop, military transport and freighter with a 6-tonne freight capacity.
- Capacity → The C-295 MW is a transport aircraft of **5-10 tonne capacity** with contemporary technology.
- Features →
 - It has a **rear ramp door** for quick reaction and para-dropping of troops and cargo.
 - It will be installed with the **indigenous Electronic Warfare Suite**.
- Project Execution →
 - **Airbus Defence and Space** and **Tata Advanced Systems Limited (TASL)** will **jointly execute** the project to equip the air force with the new transport aircraft under the Make-in-India initiative in the aerospace sector.
 - Airbus will supply the **first 16 aircraft in fly away condition** while the remaining **40** will be **assembled in India by TASL**.

7. LCA-Mk2

Why in News?

The configuration for the Light Combat Aircraft (LCA)-Mk2 and Advanced Medium Combat Aircraft (AMCA) has been frozen. The first flight is expected to be ready by 2023.

About

- What is it? → It is a **single-engine multirole fighter aircraft** designed by Aeronautical Development Agency (**ADA**) in collaboration with Hindustan Aeronautics Limited (**HAL**).
- Payload Capacity → It is a **1,350 mm longer aircraft**. It can carry a payload of **6,500 kg** compared to the 3,500 kg the LCA can carry.

- Features → The aircraft features **enhanced range and endurance**, including an onboard oxygen generation system, which is being integrated for the first time.

✚ Advanced Medium Combat Aircraft(AMCA)

- The initial design of the AMCA was started way back in **2009**.
- The Advanced Medium Combat Aircraft(AMCA) is a **fifth-generation indigenous fighter aircraft** designed by Aeronautical Development Agency (ADA).
- Payload Capacity → It will be a **25-tonne aircraft** with a payload capacity of **1,500 kg internally** and a **5,500-kg external payload**.
- Features → The aircraft will have **stealth** and **non-stealth configurations**. It will be developed in two phases, AMCA Mk1 with an existing GE414 engine and an AMCA Mk2 with an advanced **more powerful engine** to be developed later along with a foreign partner.

8. REX MKII

Why in News?

Recently, an Israeli defense contractor unveiled a remote-controlled armed robot called 'REX MKII' that can patrol battle zones, track infiltrators and open fire.

About

- What is it? → REX MKII is a **remote-controlled armed robot** that can patrol battle zones, track infiltrators and open fire.
- It is operated by **an electronic tablet** and can be equipped with two machine guns, cameras and sensors.
- It can also **run autonomously**.
- Benefits → The robot can **gather intelligence** for ground troops, **carry injured soldiers** and supplies in and out of battle and strike nearby targets.
- Concerns → Critics have raised concerns that robotic weapons could **decide on their own, perhaps erroneously to shoot targets**.

9. Exercise Peaceful Mission

Why in News?

The 6th edition of Exercise PEACEFUL MISSION is being hosted by Russia in the Orenburg Region of South West Russia from 13 to 25 September 2021.

About

- What is it? → It is a **Multilateral** and **Joint Counter Terrorism Exercise**, which is conducted biennially as part of military diplomacy **between Shanghai Cooperation Organisation (SCO) member states**.
- Aim → The aim is to **foster close relations** between SCO member states and to **enhance abilities** of the military leaders to command multi-national military contingents.
- The scope of the exercise includes **professional interaction, mutual understanding of drills & procedures**, establishment of joint command & control structures and elimination of terrorist threats.
- The Indian military contingent comprising an all arms combined force of **200 personnel** including 38 personnel from the Indian Air Force is participating in the Exercise 2021.
- India participated for the **first time in the 5th edition of the Exercise (2018)**.

✚ Shanghai Cooperation Organisation (SCO)

- It is a **permanent intergovernmental international organisation**.

- Formation → Its creation was announced on **15th June 2001** in Shanghai (China) by Kazakhstan, China, Kyrgyzstan, Russia, Tajikistan and Uzbekistan and was preceded by the Shanghai Five mechanism.
 - **India and Pakistan** became **members in 2017**. Afghanistan, Belarus, Iran and Mongolia are observer states.
 - The **SCO Charter** was **signed in June 2002** and entered into force on 19th September 2003.
- Aims →
 - **Strengthen mutual trust** and **neighbourliness**.
 - Promote **effective cooperation in politics, economy, technology**, culture, education, tourism, environmental protection, etc.
- Its **chairmanship rotates** on a **yearly basis** and Tajikistan is the chair for 2021.
- Official Languages → **Russian** and **Chinese**.
- Two Permanent Bodies → **SCO Secretariat, Beijing** and Executive Committee of the Regional Anti-Terrorist Structure (RATS), **Tashkent**.

10. Baijayant Panda Committee

Why in News?

The Indian Ministry of Defence constituted a High Level Expert Committee for a comprehensive review of National Cadet Corps (NCC).

About

- Headed by → **Baijayant Panda**.
- Objectives of the Committee →
 - Committee is to **suggest measures to empower NCC cadets** to contribute more effectively towards nation building.
 - To **propose ways** for gainful engagement of NCC Alumni for betterment of the organization.
 - To **recommend best practices** of similar international youth organisations for inclusion in NCC curriculum.

NCC

- The NCC is the **largest uniformed organization**, which aims at developing character, discipline, a secular outlook and ideals of selfless service amongst young citizens.
- It also aims to **create a pool of organised, trained and motivated youth** with leadership qualities in all walks of life.

11. Exercise Surya Kiran

Why in News?

15th Edition of Indo – Nepal Joint Military Training, Exercise Surya Kiran between Indian Army and Nepali Army is commencing at Pithoragarh (UK).

About

- During this exercise, both countries' armies would be **sharing their experiences** gained during the conduct of **various counter-insurgency operations** over a prolonged period in their respective countries.
- The last edition of Exercise Surya Kiran was conducted **in Nepal in 2019**.
- There would be a **series of Expert Academic Discussions** on various subjects such as Humanitarian Assistance and Disaster Relief, High Altitude Warfare, Jungle Warfare etc.
- The exercise is part of an initiative to **develop interoperability** and **sharing expertise** between the two nations.

12. Exercise Samudra Shakti

Why in News?

The Indian Navy and the Indonesian Navy are taking part in a bilateral maritime exercise, known as 'Samudra Shakti'.

About

- What is it? → It is a **bilateral maritime exercise** between India and Indonesia.
- Held near to **Sunda Strait**.
- Aim → To **strengthen the bilateral relationship**, enhance mutual understanding and interoperability in maritime operations between the two navies.
- Participation → From India's side, Indian Naval ships **Shivalik** and **Kadmatt** are participating in the exercise.

👉 Other Exercises between India and Indonesia

- Exercise Garuda Shakti → It is an **annual military exercise** between the Indian and Indonesian Army. It is conducted on a **reciprocal basis** and its first edition was conducted in the year 2012 in India.
- IND-INDO CORPAT → It is a **bi-annual coordinated naval patrol exercise** conducted along the International Maritime Boundary Line (IMBL) by the Indian and Indonesian Navy.



👉 Sunda Strait

- It **links the Java Sea** (Pacific Ocean) **with the Indian Ocean** (south).
- Sunda Strait, Indonesian Selat Sunda, is a channel, **26–110 km wide**, between the islands of Java and Sumatra.
- The Sunda Strait is an **important passage** connecting the Indian Ocean with eastern Asia.

13. Arjun Mk-1A Battle Tanks

Why in News?

The Defence Ministry placed an order with the Heavy Vehicles Factory (HVF), Avadi, for the supply of 118 indigenous Arjun Mk-1A main battle tanks (MBT) for the Army at a cost of ₹7,523 crore.

About

- What is it? → The **state-of-the-art** MBT Mk-1A is a new variant of Arjun Tank designed to **enhance fire power, mobility and survivability**.
- Developed By → **Combat Vehicles Research and Development Establishment (CVRDE)**, along with other laboratories of Defence Research & Development Organisation (DRDO).
- Infused with **72 new features** and **more indigenous content** from the Mk-1 variant, the tank would ensure effortless mobility in all terrains, besides precise target engagement during day and night.
- This indigenous MBT proves to be at **par with any contemporary in its class across the globe**.
- Significance → The order, worth **Rs 7,523 crore**, will provide **further boost to the 'Make in India' initiative** in the defence sector and is a big step towards achieving 'Aatmanirbhar Bharat'.

👉 Mk1A and MkII

- The development of Arjun Mk1 was followed by **improved variants - Mk1A and MkII**.
- Arjun Mk1A, which features **improved firepower** and **transmission systems**, completed the final integration tests in 2019 and was cleared for production.

- The Arjun MkII variant is a **light-weight Futuristic Main Battle Tank** (FMBT) with **electro-optical sensors** and **high-power lasers**.

14. Akash Prime missile

Why in News?

It is a newer version of Akash missile tested recently by DRDO.

About

- What is it? → It is a **medium-range mobile surface-to-air missile** (SAM) system developed by the DRDO and produced by Bharat Dynamics Limited (BDL).
- It was developed to **replace the Russian 2K12 Kub** (SA-6 Gainful) missile system, currently in service.
- Features → The missile is equipped with a **homegrown Radio Frequency seeker** which imparts an improved accuracy while intercepting targets in various conditions.
- It can be fired **from a tank** or a **wheeled truck** to attack an aerial target.
- Other improvements also ensure **more reliable performance under low temperature environments**, at higher altitudes.
- Significance → The missile will **further boost the confidence** of the Indian Army and Indian Air Force.
- Note → DRDO has recently also tested the **Akash-NG missile**. Both Akash Prime and Akash NG are **variants of the Akash Missile**. Akash Missile is India's first **indigenously** produced **medium-range Surface to Air missile**.

History and Culture

1. Dara Shikoh

Why in News?

The Ministry of Culture recently set up a seven-member panel of the Archaeological Survey of India (ASI) to locate the grave of the Dara Shikoh.

About

- Dara Shikoh (1615-59) was the eldest son and a chosen successor of the Mughal emperor Shah Jahan.
- He was designated with the title Padshahzada-i-Buzurg Martaba (Prince of High Rank)
- However, he was killed after losing the war of succession against his brother Aurangzeb.
- He is described as a "liberal Muslim" who tried to find commonalities between Hindu and Islamic traditions.
- Connection between Hinduism and Islam → His most important works, Majma-ul-Bahrain (Mingling of Two Oceans) and Sirr-i-Akbar (Great Mystery), are devoted to the cause of establishing connections between Hinduism and Islam.
- Promotion of Indian Culture → He acquired proficiency in Sanskrit and Persian, which enabled him to play a key role in popularising Indian culture and Hindu religious thought.
 - He translated the Upanishads and other important sources of Hindu religion and spirituality from Sanskrit to Persian. Through these translations, he was responsible for taking the Hindu culture and spiritual traditions to Europe and the West.
 - This is his outstanding contribution to India's intellectual and religious heritage.
- The architecture of Dara Shikoh → Dara Shikoh is credited with the commissioning examples of Mughal architecture such as:
 - The tomb of his wife Nadira Begum and Shrine of Mian Mir in Lahore,
 - Dara Shikoh Library in Delhi
 - Akhun Mullah Shah Mosque and the Pari Mahal garden palace in Srinagar, Kashmir.

2. Pashmina Shawls

Why in News?

A Centre For Excellence (CFE) has been set up in J&K to restore the lost hand-driven processes involved in the intricate shawl weaving industry.

About

- It is a fine wool made from the undercoat of the Changthangi or Pashmina goat.
- Kashmir Pashmina has been assigned a Geographical indication (GI) tag under the Geographical Indications of Goods (Registration and Protection) Act, 1999.

👉 Changthangi or Pashmina goat:

- Changthangi or Pashmina goat is a special breed of goat mainly found in the Ladakh region and Lahaul and Spiti in Himachal Pradesh
- The goats are raised for ultra-fine cashmere wool, known as Pashmina wool.
- These goats are generally domesticated and reared by nomadic communities called the Changpa in the Changthang region of Ladakh.

👉 Initiatives to revive Pashmina Shawls:

- A **Centre For Excellence (CFE)** has been set up by the '**Me&K**' brand and **Aditya Birla Group** in Kashmir to **restore the lost glory** of handwoven Pashmina Shawls.
- Directorate of Handicrafts and Handloom, Kashmir has announced a **Minimum Support Price (MSP)** for geographical indication (GI) - **certified hand-made Pashmina shawls** to sustain the old techniques.

3. Udham Singh

Why in News?

Amid criticism of the renovated Jallianwala Bagh memorial, some people raise questions over the statue of Shaheed Udham Singh installed at the Bagh.

About

- Born in **Sunam** in Punjab's Sangrur district **in 1899**.
- He was a **political activist** who got associated with the Ghadar Party while in the US.
- In **1934**, Singh made his **way to London** with the purpose of **assassinating O'Dwyer**, who in 1919 had been the Lieutenant Governor of Punjab and unsurprisingly, Singh considered O'Dwyer to be responsible for the massacre.
- Instead of Dyer, who instructed his men to open fire at the crowd gathered in Jallianwala Bagh, **O'Dwyer is considered** to be the **actual perpetrator**, since Dyer could not have executed it without his permission.
- On March 13, 1940 Singh **shot O'Dwyer at a meeting** of the **East India Association** and the Royal Central Asian Society at Caxton Hill.
- He was **sentenced to death** and was hanged on July 31, 1940 at Pentonville Prison.

👉 What is Ghadar Party

- The **multi-ethnic party** was believed to have communist tendencies and was founded by **Sohan Singh Bhakna in 1913**.
- Headquartered in **California**.
- It was committed to the **ouster of the British from India**.

4. V. O. Chidambaram Pillai

Why in News?

The Prime Minister, Shri Narendra Modi has remembered freedom fighter V. O. Chidambaram Pillai on his 150th birth anniversary.

About

- Born on September 5, 1872, Pillai is popularly known as '**Kappalottiya Tamizhan**' or "**The Tamil Helmsman**".
- He is best remembered for the venture he ran against tremendous odds, **the Swadeshi Steam Navigation Company**, to challenge the monopoly of the British in sea trade.
- He launched the **first indigenous Indian shipping service between Tuticorin and Colombo** with the Swadeshi Steam Navigation Company (**SSNC**), competing **against British ships**. Pillai's ambitions were high—though services were restricted to Tuticorin and Colombo, Swadeshi aimed to "**popularize the art of Navigation**" among "**Nations of the East**", to employ "**Asiatics**", to open dockyards, and do whatever it could to revitalize India's maritime traditions.
- **Tuticorin Port Trust**, one of India's thirteen major ports, is named after him.
- Play on V. O. Chidambaram Pillai → **Desabhaktar Chidambaranar**
- Film on his life → **Kappalottiya Tamizhan**.
- Writings → **Meyyaram** (1914), **Meyyarivu** (1915), **Anthology** (1915), **Thirukural** with literary notes of Manakudavar (1917), **Tholkappiam** with literary notes of **Ilampooranar** (1928), **Autobiography** (1946).

5. Thamirabarani civilization

Why in News?

The Thamirabarani civilisation in Tamil Nadu is at least 3,200 years old, reveals carbon dating done on organic material retrieved from archeological excavations in Sivakalai, Thoothukudi district.

About

- The study was carried out by the **US-based Beta Analytic Testing Laboratory**.
- The laboratory has conducted the **carbon dating analysis of rice with soil** found in a burial urn in Sivakalai in southern Tamil Nadu during an archaeological excavation.
- The analysis has revealed that the **Porunai river** [Thamirabarani] **civilization belongs to 1155 BCE which is 3,200 years ago**.
- Encouraged by this finding, the Tamil Nadu Chief Minister has announced the establishment of the **Porunai Museum in Tirunelveli** at a cost of ₹15 crores.

👉 Thamirabarani River

- Thamirabarani River is the **only major perennial river** in **Tamil Nadu**.
- It is the **state's shortest river** that originates from the **Agastiyarkoodam peak of Pothigai hills** of the Western Ghats, Tamil Nadu.
- It **empties into the sea at the Gulf of Mannar** after passing through Tirunelveli and Thoothukudi districts.
- Naming - Thamirabarani River was historically called **Porunai**, **Than Porunai**, **Porunai** and **Poruntham in Tamil literature** - from the Sangam era to Nayakar era (6th century BCE to 17th century CE).

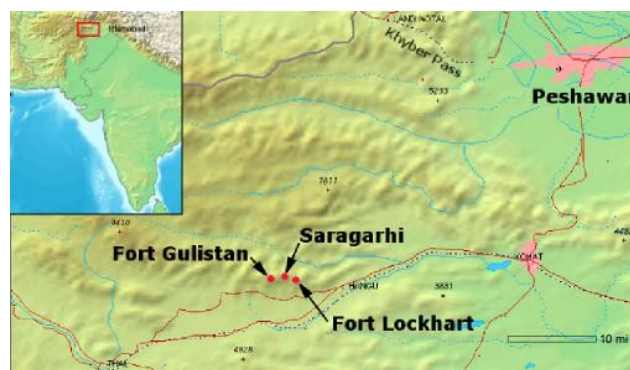
6. Battle of Saragarhi

Why in News?

September 12, 2021 marks the 124th anniversary of the Battle of Saragarhi that has inspired a host of armies, books and films, both at home and abroad.

About

- It is considered as **one of the finest last stands** in the military history of the world.
- The battle happened in **1897 between the British Indian contingent** comprising 21 Sikh soldiers of the 36th Sikhs (now known as Indian Army's 4th Battalion) who were stationed at Saragarhi and **10,000 to 12,000 Afghans Tribesmen**.
- Importance of Saragarhi →
 - Saragarhi was the **communication tower between Fort Lockhart and Fort Gulistan**. The two forts were in the North-West Frontier Province (NWFP), now in Pakistan. The forts were **built by Maharaja Ranjit Singh** but **renamed by the British**.
 - Saragarhi helped to **link up the two important forts** which housed a large number of British troops in the NWFP.
- Why is the Battle of Saragarhi achievement celebrated? →
 - Though heavily outnumbered, the **21 Sikh soldiers led by Havildar Ishar Singh managed to hold** the Saragarhi tower for seven hours till their last breath, killing 200 tribals and injuring 600.



- This **bought time** for the two other forts to be reinforced and were **able to defend themselves** upon coming under attack.
- Significance → Battle of Saragarhi is the only instance in the history of warfare where **21 soldiers** were **posthumously awarded with Indian Order Merit**, the highest award given to Indian soldiers at the time (equivalent to today's Param Vir Chakra).

7. Subramaniya Bharathi

Why in News?

Recently, the Vice-President paid tributes to Mahakavi Subramania Bharati on his 100th death centenary.

About

- Born on **11th December 1882**, in Ettayapuram village of Tirunelveli District in Tamil Nadu.
- He was a **poet, freedom fighter** and **social reformer** from Tamil Nadu.
- He was known as **Mahakavi Bharathiyar**.
- His **songs on nationalism** and **freedom of India** helped to rally the masses to support the Indian Independence Movement in Tamil Nadu.
- Literary works → **"Kannan Pattu" "Nilavum Vanminum Katrum" "Panchali Sabatam" "Kuyil Pattu"**.
- He published the sensational **"Sudesa Geethangal"** in **1908**.
- Sometime in mid-1908, Bharati began to **serialise Gnanaratham in his political weekly, India**.
- In 1949, he became the **first poet** whose works were nationalised by the state government.
- Bharthi as a social reformer →
 - He was **against caste system**. He declared that there were **only two castes-men and women** and nothing more than that. Above all, he himself had removed his sacred thread.
 - He **condemned certain Shastras** that denigrated women. He believed in the **equality of humankind** and **criticised many preachers** for mixing their personal prejudices while teaching the Gita and the Vedas.
 - He also **opposed child marriage, dowry** and **supported widow remarriage**.
- International Bharati Festival →
 - The International Bharati Festival 2020 was **organised by the Vanavil Cultural Centre** (Tamil Nadu) which marked his **138th birth anniversary**.
 - Scholar **Shri Seeni Viswanathan** received the **Bharathi Award** for the year 2020.

8. Samvatsari

Why in News?

Recently, the Prime Minister has greeted the people on the occasion of Samvatsari.

About

- It is the **annual festival** marked **by people of the Jain community**.
- This festival is celebrated on the **last day of 'Parva Paryushana'** which is the holiest festival for the Shwetambara sect of Jainism.
- It falls on **Shukla Panchami** each year in the Jain calendar month of Bhadrapada (somewhere between the middle of August and September in the Gregorian calendar).
- Samvatsari is also known as the **Day of Forgiveness**.
- On this day, **Jains beg forgiveness** from all living beings for faults they have made, whether deliberately or unknowingly.

9. Raja Mahendra Pratap Singh

Why in News?

Prime Minister Narendra Modi recently laid the foundation stone for Raja Mahendra Pratap Singh State University in Aligarh.

About

- Brief Profile → Born in a royal family on **December 1, 1886** in Hathras, Raja Mahendra Pratap Singh was a **freedom fighter, social reformer** and a figure representing the **Jat community**, predominant in **Western Uttar Pradesh**.
- He was well **versed in eight different languages** and practised different religions.
- Contributions →
 - He gave up his own residence in Mathura, UP to be converted into a technical school named **Prem Mahavidyalaya** in 1909. It is said to have been the **country's first polytechnic college**.
 - He established a "**Provisional Government of India**" at Bagh-e-Babur in Kabul in the middle of World War I in 1915. He **declared himself president** and his fiery fellow revolutionary **Maulana Barkatullah** of Bhopal, prime minister, of the Provisional Government.
 - However, as the British government targeted him for his activities, later he **based himself in Japan**.
 - In 1929, he launched the **World Federation in Berlin**. Moreover, he was also **nominated for the 1932 Nobel Peace Prize**.
 - He **returned to India** a year before Independence and immediately began work with Mahatma Gandhi. In free India, he diligently **pursued his ideal of Panchayati Raj**.
 - He also won Lok Sabha elections as an **Independent candidate** from Mathura in **1957**.
- Connection with Aligarh Muslim University →
 - Raja Mahendra Pratap went to the **Muhammadan Anglo-Oriental College in Aligarh**, which later came to be called **Aligarh Muslim University**.
 - Although he was **unable to complete his graduation** from the institution, Raja Mahendra Pratap's name is counted among the prominent alumni of the university.
 - Moreover, his family was **close to the educationist** and **reformer Sir Syed Ahmad Khan**, the founder of Aligarh Muslim University. Hence, the family is said to have given land to set up the university.

10. Gupta Era Temple uncovered in UP

Why in News?

Last week, the Archaeological Survey of India (ASI) discovered remains of an ancient temple dating back to the Gupta period (5th century) in a village in Uttar Pradesh's Etah district.

About

- The Bilsarh site was declared '**protected**' in **1928 by the ASI**.
- Two pillars were excavated on which there is an **inscription about Kumaragupta I**, the powerful ruler of Gupta dynasty, in '**sankh lipi**' (conch script or shell script) typical of the 5th century AD.
 - The Guptas were the **first to build structural temples**, distinctly different from the ancient rock-cut temples.
- The inscription was **deciphered as Mahendraditya** which was the **title of king Kumargupta I** who had even conducted ashwamedh yagya during his rule.
 - The **statue of a horse** having similar inscription is at the state museum in Lucknow.
 - **Ashvamedha Yagya** is a **horse sacrifice ritual** followed by the Srauta tradition of Vedic religion.
- The discovery becomes significant since only **two other structural temples** from the Gupta age have been found so far — **Dashavatara Temple** (Deogarh) and **Bhitargaon Temple** (Kanpur Dehat).

👉 Shankhalipi Script

- Also called “**shell-script**” is found in inscriptions across **north-central India** and dates to **between the 4th and 8th centuries**.
 - Both **Shankhalipi and Brahmi** are **stylised scripts** used primarily for names and signatures.
 - The inscriptions consist of a **small number of characters**, suggesting that the shell inscriptions are names or **auspicious symbols** or **a combination of the two**.
- It was discovered in **1836** on a **brass trident in Uttarakhand’s Barahat** by English scholar James Prinsep.
- Prominent sites with shell inscriptions: **Mundeshwari Temple** (Bihar), the **Udayagiri Caves** (Madhya Pradesh), **Mansar** (Maharashtra) and some of the cave sites of Gujarat and Maharashtra.
 - These inscriptions are also reported in **Indonesia’s Java and Borneo**.

Who was Kumaragupta I?

- Kumaragupta I was an **emperor of the Gupta Empire** of Ancient India.
- A son of the Gupta emperor Chandragupta II and queen Dhruvadevi, he seems to have **maintained control of his inherited territory**, which extended from Gujarat in the west to Bengal region in the east.
- In the **5th century**, Kumaragupta I **ruled for 40 years** over north-central India.
- Skandagupta**, son and successor of Kumaragupta I is generally considered to be the **last of the great Gupta rulers**.
- He assumed the **titles of Vikramaditya and Kramaditya**.

11. King Shankar Shah

Why in News?

Union Minister of Home Affairs has paid tributes to the great patriot King Shankar Shah and his son Kunwar Raghunath Shah in Jabalpur, Madhya Pradesh.

About

- King Shankar Shah was a **Gond king of Garha Kingdom** in the Gondwana region of Madhya Pradesh.
- Despite his state being **under British rule** during the first war of independence in 1857, the king and his son, Raghunath were **saddened by the British era atrocities** and **kept igniting the rebellion through their poetry**.
- As the British officers learnt about their acts, the duo was **arrested** and **sentenced to death** and on September 18, 1858. They were tied to the mouth of the cannon and blown up.
- The locals in Jabalpur mark their **martyrdom day** on **September 18 every year**.

12. Qutub Minar

Why in News?

Recently, steep stairways and wooden ramps among other changes have been brought at the World Heritage Site of Qutub Minar that will make the place accessible for disabled and the elderly.

About

- It is a **five-storeyed red sandstone tower** (72.5 m high).
- Built by → **Muslim conquerors** in the thirteenth century.
- Purpose → To **commemorate their final triumph over the Rajput rulers** of Delhi (Qutub means victory), while also serving as a tower from where **muezzins** (criers) **call for prayer** at the Quwwatu’l-Islam mosque nearby.
 - A 7 m-high iron pillar stands in the courtyard of the mosque.
- Its surrounding contains **Alai-Darwaza Gate**, the masterpiece of Indo-Muslim art (built in 1311).
- The building process of Qutub Minar took **about 75 years**. Its construction was started by **Qutub-ud-din Aibak** (1206-1210) in 1193 and **finished by Iltutmish** (1211-1236).

- In 1368, it was **repaired by** the rulers of the day, **Muhammad-bin-Tughluq** (1325-51) and **Firuz Shah Tughluq** (1351-88).
- The minar (tower) is engraved with **fine arabesque decorations** on its surface, mainly verses from the Quran.
- Significance → Qutub Minar and its monuments were declared a **UNESCO World Heritage Site** in **1993**.

13. Sree Padmanabhaswamy Temple

Why in News?

Recently, the Supreme Court (SC) has declined a plea filed by Sree Padmanabhaswamy Temple Trust seeking to exempt it from the audit of 25 years as ordered by the court last year (2020).

About

- Located in **Thiruvananthapuram, the state capital of Kerala**, India
- History → The temple dates back to the **8th century** but the present structure was built in the **18th century** by the then **Travancore Maharaja Marthanda Varma**.
- The temple was **initially made of wood** but later it was **constructed with granite**.
- The temple is built in the **unique Chera style of architecture**, and its main deity is **Lord Vishnu** who is found in the Anantha Shayana posture (reclined posture of eternal yoga) on Adishesha or king of all serpents.
- Significance → It is known to be **one of the 108 holy temples associated with Vaishnavism in India**.

14. National Mission on Cultural Mapping

Why in News?

Recently, the National Mission on Cultural Mapping has now been handed over to the Indira Gandhi National Centre for the Arts (IGNCA), which is gearing up for a trial run in 75 villages in October 2021.

About

- It is a **mission mode project** of the **Ministry of Culture**. It was enacted in **2015**.
- Aim → To address the **necessity of preserving the threads of rich Indian Art and Cultural Heritage**, convert vast and widespread cultural canvas of India into an objective Cultural Mapping while creating a strong **"Cultural Vibrancy"** throughout the nation.
- It encompasses **data mapping, demography building, formalising the processes** and **bringing all cultural activities under one umbrella** for better results.
- The work on creating a **database for folk arts** and **mapping of the heritage of villages** would be carried out over five years.
- **Teams of volunteers** from the Nehru Yuva Kendra Sangathan, the National Service Scheme and students of sociology and social work would be deputed to **visit villages** and **collect data** on the art forms and heritage of the areas.

📍 Indira Gandhi National Centre for the Arts(IGNCA)

- IGNCA is an **autonomous institution** under the **Ministry of Culture**.
- It is a centre for **research, academic pursuit** and **dissemination in the field of the arts**.

15. Cham Dance

Why in News?

The filmmaker and art historian recently gave a talk on the dance form Cham at an online event organised by the India Habitat Centre.

About

- History → The Yogachara School of Buddhism was founded in Kashmir in the 4th century by Asanga and Vasubandhu. This developed into the sophisticated Vajrayana form of Buddhism, which incorporated the Cham dance.
- From Ladakh to Mongolia, the Cham is the deepest form of meditation of the Lamas.
- It was started in the eighth century by Padmasambhava (who introduced Tantric Buddhism to Tibet), to subjugate the local demons that were obstructing the building of the first monastery in Tibet, Samye.
- It is an elaborate masked and Costumed dance. It is considered an act of cleansing evil forces.
- It is unique to Tibetan Buddhism and an important cultural tradition.

16. Shaheed Bhagat Singh

Why in News?

PM pays tributes to Shaheed Bhagat Singh on his Jayanti (28th September).

About

- Birth → Bhagat Singh was born in 1907 in Lyallpur district (now in Pakistan), and grew up in a Sikh family deeply involved in political activities.
- In 1923, Bhagat Singh joined the National College, Lahore which was founded and managed by Lala Lajpat Rai and Bhai Parmanand.
- In 1924 in Kanpur, he became a member of the Hindustan Republican Association (HRA), started by Sachindranath Sanyal a year earlier.
- In 1928, HRA was renamed from Hindustan Republican Association to Hindustan Socialist Republican Association (HSRA).
- In 1925-26 Bhagat Singh and his colleagues started a militant youth organization called the Naujawan Bharat Sabha.
- In 1927, he was first arrested on charges of association with the Kakori Case accused for an article written under the pseudonym Vidrohi (Rebel).
- In 1928, Lala Lajpat Rai had led a procession to protest against the arrival of the Simon Commission. The police resorted to a brutal lathi charge, in which Lala Lajpat Rai was severely injured and later succumbed to his injuries.
- To take revenge for the death of Lala Lajpat Rai, Bhagat Singh and his associates plotted the assassination of James A. Scott, the Superintendent of Police.
- However, the revolutionaries mistakenly killed J.P. Saunders. The incident is famously known as Lahore Conspiracy case (1929).
- Bhagat Singh and B.K. Dutt threw a bomb on 8 April, 1929 in the Central Legislative Assembly, in protest against the passing of two repressive bills, the Public Safety Bill and the Trade Dispute Bill.
- The aim was not to kill but to make the deaf hear, and to remind the foreign government of its callous exploitation.
- Trial →
 - Both Bhagat Singh and B.K. Dutt surrendered thereafter and faced trial so they could further promote their cause. They were awarded life imprisonment for this incident.
 - However, Bhagat Singh was re-arrested for the murder of J.P. Saunders and bomb manufacturing in the Lahore Conspiracy case.
 - He was found guilty in this case and was hanged on 23rd March, 1931 in Lahore along with Sukhdev and Rajguru.
 - Every year, March 23 is observed as Martyrs' Day as a tribute to freedom fighters Bhagat Singh, Sukhdev, and Rajguru.

Miscellaneous

1. Vande Bharat Express

Why in News?

Indian Railways has planned to operate 102 Vande Bharat trains by March 2024.

About

- It is India's **first indigenously built engineless semi-high speed train**.
- Earlier, it was known by the name **Train 18**.
- Built by → the **Integral Coach Factory, Chennai**, in a record time of 20 months.
- The train is a **100% 'Make in India' project** and is claimed to be built at half the cost of a similar train set that is imported.
- The train has some **unique features** such as **modern air-conditioned coaches**, **touch-free automatic doors**, **GPS-enabled passenger information system**, onboard uninterrupted Wi-Fi and Bio Toilets.
- The maiden run of the Vande Bharat train was **inaugurated on the New Delhi-Varanasi route in 2019**.

2. Hansa New Generation (NG) aircraft

Why in News?

Hansa New Generation (NG) aircraft completed its maiden flight.

About

- What is it? → It is an **upgraded version** of the two-seater Hansa trainer aircraft.
- Designed by → **National Aerospace Laboratories (NAL), Bangalore**
- Features → The unique features of Hansa-NG are
 - Glass cockpit** with cabin comfort
 - Highly efficient** digitally controlled engine
 - Electrically operated flaps**
 - Long endurance**
 - Low acquisition** and low operating cost.

National Aerospace Laboratories (NAL)

- Established in → **1959**.
- It is a **constituent of** the Council of Scientific and Industrial Research(CSIR).
- It is India's **only government-owned aerospace research** and **development laboratory** in the civilian sector.

3. Hospital Management Information System

Why in News?

Indian Railways has rolled out the Hospital Management Information System (HMIS) over 156 Health facilities across Indian Railways.

About

- Objective → HMIS is an **initiative of Indian Railways** to bring the entire Railway Health System on a **single architecture** to provide faster, seamless and hassle free healthcare.
- Implemented by → **RailTel**- a miniratna PSU of Ministry of Railways and **C-DAC** under Ministry of Electronics & Information Technology.

- Key Features of HMIS →
 - HMIS will **cover clinical care** such as labs, Pharmacies as well as Hospital Administration.
 - A mobile app has also been developed which **enables the patients to access their Electronic Medical Record (EMR) from anywhere**.
 - Moreover, features like **teleconsultation**, **lab report access**, **medicines disbursed** to patients have also been provided through this app.
 - This system is also **fully integrable with the National Digital Health Mission program** of the Ministry of Health and Family Welfare.

4. AYUSH AAPKE DWAR campaign

Why in News?

Ayush Ministry launched the campaign “AYUSH AAPKE DWAR” from more than 45 locations across the country.

About

- Aim → To **distribute medicinal plant saplings** to 75 lakh households across the country in one year.
- The **medicinal plants include** Tejpatta, Stevia, Ashoka, Jatamansi, Giloy/Guduchi, Ashwagandha, Kumari, Shatavari, Lemongrass, Guggulu, Tulsi, Sarpagandha, Kalmegh, Brahmi and Amla.

👉 e-CHARAK Platform

- The platform was launched **by the National Medicinal Plants Board** (NMPB), Ministry of Ayush.
- The Full Form of the platform is an **e-Channel for Herbs, Aromatic, Raw material And Knowledge**.
- It is an **online market portal** for the trade of medicinal plants.

5. World University Rankings 2022

Why in News?

The Times Higher Education (THE) recently released its World University Rankings 2022 edition.

About

- Released by → **The Times Higher Education** (THE).
- The rankings cover the four main areas of university activity → **teaching**, **research**, **knowledge transfer** and **international outlook** and THE has been releasing data since 2004.

👉 Key Finding

- India's Ranking →
 - Overall, India is home to **35 of the world's top 1,000 universities**, its second-highest total ever in the rankings. Last year, it was 36.
 - Top Performer was **Indian Institute of Science (IISc)** followed by **IIT Ropar** and JSS Academy of Higher Education and Research.
- Global Ranking →
 - Globally, the **University of Oxford tops** the ranking for the sixth consecutive year, while mainland China's **Tsinghua University** becomes the first Asian university to break into the top 20 under the current methodology (launched in 2011).

👉 Also Remember

- The Times Higher Education (THE) → THE, formerly known as The Times Higher Education Supplement (THES), is a **magazine reporting specifically on news and issues related to higher education**.
- Earlier, **Quacquarelli Symonds (QS)** released the **QS World University Rankings 2022**.

6. Manda Buffalo

Why in News?

The National Bureau of Animal Genetic Resources (NBAGR) has recognised the Manda buffalo as the 19th unique breed of buffaloes found in India.

About

- Manda buffaloes are **native to Odisha** and have ash **grey and grey coat colour with copper colour hairs**.
- Habitat →
 - They are found in the **Eastern Ghats** and plateau of **Koraput region of Odisha**.
 - The small, sturdy buffaloes are **used for ploughing** in their native habitat.
- Speciality of the Breed → The Manda are **resistant to parasitic infections**, **less prone to diseases** and can live, produce and reproduce at low or nil input systems.
- Significance of Recognition →
 - The state and the Centre will make efforts to **conserve this unique buffalo genetic resource of Odisha** and enhance their productivity through breeding strategy.
- Four breeds of cattle — **Binjharipuri**, **Motu**, **Ghumusari** and **Khariar** — and two breeds of buffalo — **Chilika** and **Kalahandi** — and one breed of sheep, **Kendrapada**, have already received NBAGR recognition.

NBAGR

- Indian Council of Agricultural Research (ICAR) -National Bureau of Animal Genetic Resources, Karnal (ICAR-NBAGR) is the **nodal agency** for the **registration of newly identified germplasm** of livestock and poultry of the country.
- Its mandate includes **Identification**, **Evaluation**, **Characterization**, **Conservation** and **sustainable Utilization** of Livestock and Poultry Genetic Resources.

7. Animal Spirits

Why in News?

The government has given an urgent call to action for reviving the animal spirits in the economy.

About

- ‘Animal spirits’ is a term coined by the British economist, **J. M. Keynes**.
- This term refers to the ways that **human emotions and instincts can drive financial decision-making of investors** and consumers in times of economic stress or uncertain environments and volatile times.
- Animal spirits are used to **help explain why people behave irrationally**, and are the forerunner to modern behavioral economics.
- If spirits are low, confidence levels will be low. This will **drive down a promising market** - even if the economy fundamentals are strong.
- If spirits are high, confidence among participants in the economy will be **high**, and **market prices will soar**.

8. National Farmers Database

Why in News?

The Centre has created a National Farmers' Database with records of 5.5 crore farmers, which it hopes to increase to 8 crore farmers by December by linking it to State land record databases.

About

- The database has been created by taking data from existing national schemes such as PM-KISAN, soil health cards and the insurance scheme PM Fasal Bima Yojna.
- Earlier, the Central government had proposed an Agristack initiative to create a digital database that focuses on farmers and the agricultural sector.

9. Saline Gargle RT-PCR technology

Why in News?

Nagpur-based National Environmental Engineering Research Institute (NEERI) has transferred the know-how of indigenously developed Saline Gargle RT-PCR technique to the Ministry of Micro, Small and Medium Enterprises (MSME) for commercialising it.

About

- It is simple, fast, cost-effective, patient-friendly and comfortable.
- It also provides instant test results and is well-suited for rural and tribal areas, given minimal infrastructure requirements.
- Working →
 - Saline Gargle RT-PCR method uses a simple collection tube filled with saline solution. The patient has to gargle the solution and rinse it in the tube.
 - The sample is taken to the laboratory where it is kept at room temperature for about 30 minutes in a special buffer solution prepared by NEERI.
 - An RNA template is produced when this solution is heated and then processed for RT-PCR.

10. Toxic 3 Os

Why in News?

A coalition of environmental groups, community leaders, academics and businesses in the USA have filed a petition seeking the removal of sunscreen products containing what they call "the Toxic 3 Os.

About

- What is it? → Toxic 3 Os are three chemicals namely Oxybenzone, Octinoxate and Octocrylene.
- These chemicals are active ingredients present in more than two-thirds of all sunscreens.
- They are considered harmful as they pose a threat to public health, marine life and coral reefs.
- Concerns →
 - Octocrylene in sun protection products degrades into benzophenone, a carcinogen that can also interfere with key hormones and reproductive organs.
 - They cause human cell damage that has been linked to cancer, disrupt hormones, have been found in breast milk, blood and urine and are known allergens.
 - These chemicals are also devastating to coral reefs and marine life. They wash off people's bodies when they swim and contaminate through wastewater runoff and cause 'zombie' coral, coral bleaching as well as other issues.
 - Note: Zombie Corals are corals that looks healthy but is unable to reproduce.

11. Report on Reforms in Urban Planning Capacity in India

Why in News?

Recently, NITI Aayog will launch a report on 'Reforms in Urban Planning Capacity in India'.

About

- Prepared by → The Report has been prepared by an **advisory committee headed by NITI Aayog Vice-Chairman**.
- Purpose → The report will **review the urban planning education system** in India and examined the availability, demand and supply of qualified urban planners in the country.

📌 Recommendations

- It has given a set of recommendations on **various aspects of urban planning**. These include interventions for **planning healthy cities, optimum utilization of urban land, ramping up human-resource capacities**.
- It also includes recommendations for **strengthening urban governance, building local leadership, enhancing the role of the private sector** and advancing the urban planning education system.

12. National Engineer's day

Why in News?

Every year India celebrates Engineer's Day on September 15, the birth anniversary of M. Visvesvaraya.

About

- The day is observed to **commemorate the great work of engineers and to encourage them** for improvement and innovation.
- This year marks the **160th birth anniversary** of **M Visvesvaraya** who was born on September 15, 1861, in the Muddenahalli village of Karnataka.

📌 Sir Visvesvaraya's contributions

- Patented and installed an **irrigation system with water floodgates** at the **Khadakvasla reservoir near Pune** to raise the food supply level and storage to the highest levels known as **'block system' in 1903**.
- The same system was also installed at **Gwalior's Tigra Dam** and **Mysuru's Krishnaraja Sagara (KRS) dam**, the latter of which created one of the largest reservoirs in Asia at the time.
- He played an **important role** in the foundation of Government **Engineering College at Bangalore in 1917**. The college was later renamed after him as **University Visvesvaraya College of Engineering (UVCE)**.
- He is the one who **designed a plan for road** construction between Tirumala & Tirupati.
- He played a key role in developing a system to **protect Visakhapatnam port from sea erosion**.
- He also commissioned several **new Railway lines** in Mysore state.
- He had designed and carried out the **waterworks** for the **Municipality of Sukkur in 1895**.
- Legacy →
 - For his contribution to the building of India, the government awarded him with **India's highest honor 'Bharat Ratna' in 1955**.
 - He was awarded an **Honorary Membership of London Institution of Civil Engineers** for an unbroken 50 years.
- Books Written by him → **'Reconstructing India' and 'Planned Economy of India'**.

13. Customs Notified Airport

Why in News?

The Central Board of Indirect Taxes and Customs (CBIC) has declared Kushinagar Airport as a Customs notified airport.

About

- What is it? → A customs airport is an airport **notified by the appropriate customs authority** of the country as an airport which shall be airports for the **unloading of imported goods** and **the loading of export goods or any class of such goods**.
- This would also **facilitate international passenger movements** including that of Buddhist pilgrims.

Kushinagar

- It is an **important Buddhist pilgrimage site**, where Gautam Buddha attained Mahaparinirvan.
- Kushinagar is dotted with several other Buddhist sites in the nearby surroundings like **Sravasti** (238 km), **Kapilvastu** (190 km) and **Lumbini** (195 km).

14. Prof. S.K. Joshi Laboratory Excellence Award

Why in News?

Quality Council of India (QCI) launches Prof. S.K. Joshi Laboratory Excellence Award.

About

- This is **country's first-of-its-kind Laboratory Excellence Award**.
- This award will be **open to all currently operational Laboratories** pertaining to Testing, Calibration & Medical including their Proficiency Testing Providers & Reference Material Producers located in India.
- The award has been named after Padma Bhushan awardee, **late Prof. S.K. Joshi**, a luminary in the field of science and academia.

Quality Council of India

- Set up in **1997** is an **autonomous body** attached to the Department of Industrial Policy & Promotion, **Ministry of Commerce and Industry**.
- The **Chairman** of QCI is **appointed by the Prime Minister** on recommendation of the industry to the government.
- Mandate → Its mandate is to **establish and operate** the National Accreditation Structure (**NAS**) **for conformity assessment bodies** and providing accreditation in the field of health, education and quality promotion.

15. Delhi-Mumbai Expressway: World's longest

Why in News?

The Minister for Road Transport and Highways Union Minister Nitin Gadkari concluded the review of the work progress on the Delhi-Mumbai Expressway.

About

- What is it? → It is a **1380-km eight-lane expressway** that can be expanded to a 12-lane expressway depending on the volume of traffic.
- It will be **open in 2023**.
- It will start **from Haryana's Sohna** and will end **around Mira Bhayander** near Mumbai.
- Special Features →
 - It will have **wayside amenities** – resorts, restaurants, food courts, fuel stations, facilities for truckers, logistics parks.
 - A **helicopter ambulance service** for accident victims and a heliport, which will use drone services for business as well.
 - The expressway is the **first in Asia** and only the **second in the world** to feature animal overpasses to facilitate unrestricted movement of wildlife.

- It will also include **two iconic 8-lane tunnels**, one tunneling through Mukundra sanctuary, Rajasthan and the second will pass through the Matheran eco-sensitive zone, Maharashtra.
- Significance →
 - It will **improve connectivity to economic hubs** like Jaipur, Kishangarh, Ajmer, Kota, Chittorgarh, Udaipur, Bhopal, Ujjain, Indore, Ahmedabad, Vadodara and Surat.
 - It will result in **annual fuel savings of more than 320 million litres** and **reduce CO2 emissions**. The project has also created employment for thousands.

16. State Food Safety Index

Why in News?

Recently, the Food Safety and Standards Authority of India (FSSAI)'s 3rd State Food Safety Index (SFSI) was released.

About

- Developed by → **FSSAI** (Food Safety and Standards Authority of India).
- This Index measures the performance of States across **5 parameters** of food safety, which include →
 - Human Resources and Institutional Arrangements,
 - Compliance,
 - Food Testing - Infrastructure and Surveillance,
 - Training and Capacity Building and
 - Consumer Empowerment.
- It is a **dynamic quantitative** and **qualitative benchmarking model** that provides an objective framework for evaluating food safety across all States/UTs.

👉 Ranking of States

- Among the larger states, this year, **Gujarat**, **Kerala** and **Tamil Nadu** secured top ranks.
- Among the smaller states, **Goa**, **Meghalaya** and **Manipur** secured top ranks.
- Among UTs, **Jammu & Kashmir**, **Andaman & Nicobar Islands** and **New Delhi** secured top ranks.

👉 Food Safety and Standards Authority of India (FSSAI)

- It is an **autonomous body** under the **Ministry of Health & Family Welfare**.
- It is a **statutory body** established under the Food Safety and Standards Act, 2006.
- FSSAI **monitors and governs** the food business in India.
- FSSAI License is **responsible for protecting and promoting public health** through the regulation and supervision of food safety.

17. CIM-Pitamber and Keshari variety

Why in News?

CIMAP's high-yielding curcuminoid-rich variety of turmeric named 'CIM-Pitamber', and the NBRI's 'Keshari' variety of turmeric have been introduced in Nabarangpur of Odisha.

About CIM-Pitamber

- What is it? → It is a **high-yielding curcuminoid-rich variety of turmeric**.
- Developed by → Central Institute of Medicinal and Aromatic Plants (**CIMAP**).
- Properties → In this variety, **curcuminoid content is 12.5% more** than the existing variety.
 - Curcuminoid is a substance **derived from turmeric** which has **anti-cancer properties**, **anti-inflammatory**, **anti-aging**, **anti-diabetic** and has several medicinal properties.

- Benefits →
 - It can **yield 50% more than** the existing varieties of turmeric and help farmers. It is also **tolerant to the leaf blotch disease** of turmeric.
 - Turmeric with high content of curcuminoid is **preferred by European nations** and **North America**. Export and sale value will be more if curcumin content is more.

📌 Keshari variety:

- It is **tolerant to low temperature** and **frost during winter**. It has a **longer growth period** as compared to other varieties, which directly reflects higher fresh rhizome yield of high quality.
- In comparison to other existing varieties, there is **less problem of yellowing** and **falling of leaves** in this variety during winter, which leads to extending the life period of this variety.
- The **total curcuminoid content** is around **1.16 %**, which is also more than other existing cultivated varieties of north India.

📌 Central Institute of Medicinal and Aromatic Plants

- It is a **frontier plant research laboratory** of Council of Scientific and Industrial Research (CSIR).
- Established in → **1959**.
- Working → It is steering **multidisciplinary high quality research in biological and chemical sciences** and extending technologies and services to the farmers and entrepreneurs of medicinal and aromatic plants (MAPs).
- Headquartered → **Lucknow**.

📌 National Botanical Research Institute

- It is one of the constituent research institutes of the CSIR set up in **1953**.
- Headquartered → **Lucknow**.
- Working → It undertakes **basic and applied research on various aspects of plant science**, including documentation, systematics, conservation, prospection, and genetic improvement.

18. Evergrande Crisis

Why in News?

The world's stock and bond markets are closely watching China Evergrande Group , a Chinese property developer that is on the brink of missing payments on some of its debt.

About

- If not resolved, it threatens to become the **largest debt default** by a **company in Asia**, which could **jolt investor confidence** across markets globally.
- Beijing seems **reluctant to bail out** the company but is taking steps to limit the damage.
- Evergrande is an **enormous**—and **heavily indebted**—private-sector Chinese property developer and home builder that is close to defaulting on some of its billions of dollars in debt.
- The most urgent immediate **deadline is Sept. 23**, when the company has an **\$83.5 million interest payment** due on some of its dollar-denominated bonds.
- Evergrande Crisis could be **China's Lehman moment**.

📌 Lehman Crisis

- **Lehman Brothers** filed for **bankruptcy in 2008** due to the collapse of the subprime mortgage market.

- The **US subprime mortgage crisis (2007-2010)** was a multinational financial crisis that contributed to the 2008 global financial crisis. This occurred when the real estate market collapsed and homeowners defaulted on their loans.
- Lehman Crisis signalled a **limit** to the **government's ability to manage the crisis** and prompted a general financial panic.
- Mutual funds saw **mass withdrawal demands to avoid losses**, and the interbank lending market tightened, threatening banks with imminent failure.

19. Solar DC Cooking System

Why in News?

Central Mechanical Engineering Research Institute (also known as CSIR-CMER) has developed a Solar DC Cooking System.

About

- What is it? → It is a **Solar Energy based Cooking System** which consists of a solar PV panel, charge controller, battery bank and cooking oven.
- Benefits →
 - Solar DC Cooking System has **20-25% better efficiency** and is **more Economical** in comparison with Conventional Solar based Cooking Systems which loses efficiency owing to AC-DC conversion.
 - The system can also **substantially curb carbon dioxide emissions**, as even LPG usage emits CO₂. It may help **save 290 million tons** of **carbon dioxide emissions**.
 - Moreover, its simple design **ensures ease of manufacturing** and thus provides a **substantial economic opportunity** to micro-industries.

👉 About AC and DC

- Alternating Current (**AC**) is a **type of electrical current**, in which the direction of the **flow of electrons switches back and forth at regular intervals or cycles**. Current flowing in power lines and normal household electricity that comes from a wall outlet is alternating current.
- On the other hand, Direct current (**DC**) is an **electrical current** that **flows consistently in one direction**. The current that flows in a flashlight or another appliance running on batteries is a direct current.

20. Goan Cashew Feni

Why in News?

The Goa government's Feni Policy 2021 has paved the way to take the GI (Geographical Indication) Certified Goan Cashew Feni forward at par with other international Liquors such as Mexico's tequila, Japanese Sake and Russia's Vodka.

About

- It is the **first liquor product** in the country to obtain '**Heritage Drink' status** and got its GI certification in 2000. Only the cashew feni has been **GI-tagged**.
- Properties → Feni is a brew **made from coconut** or **cashew fruits** and is synonymous with the Goan ethos and identity.
- Feni was **first manufactured in Goa** in the **1600s**, after the Portuguese imported the cashew plant from Brazil to India. There are currently **26 varieties** of feni manufactured in Goa.
- Significance → It is used in various **cultural traditions**, **cuisines** and is well known for its **medicinal value also**.

👉 Other GI-Tags from Goa

- Khola red chillies/Canacona Chillies, spicy Harmal Chillies, Myndoli Banana or Moira Banana, and traditional sweet dish Goan Khaje.

📌 Geographical Indication (GI) Certification:

- What is it? → GI is an indication used to identify goods having special characteristics originating from a definite geographical territory.
 - It is used for agricultural, natural and manufactured goods.
- Purpose → The Geographical Indications of Goods (Registration and Protection) Act, 1999 seeks to provide for the registration and better protection of geographical indications relating to goods in India.
- It is also a part of the World Trade Organisation's Trade-Related Aspects of Intellectual Property Rights (TRIPS).
- Administered By → The Controller General of Patents, Designs and TradeMarks- who is the Registrar of Geographical Indications.
- The Geographical Indications Registry is located at Chennai.
- Validity of Registration →
 - The registration of a geographical indication is valid for a period of 10 years.
 - It can be renewed from time to time for a further period of 10 years each.

21. Assam's Rice Wine Judima

Why in News?

Judima has become the first beverage from the north-eastern region to earn the geographical indication (GI) tag.

About

- Judima is a rice wine made from sticky rice, which is steamed and mixed with traditional herbs.
- The wine is brewed by the Dimasa tribal community in Assam.
- It is traditionally made by women.
- The wine has a distinct sweet taste and takes around one week to prepare and it can be stored for years.

📌 Other Recent GI Tagged Products from Assam:

- Kaji Nemu (a type of lemon) (2020).
- Chokuwa Rice of Assam (2019).

22. Social Bonds in Vampire Bats

Why in News?

Scientists have shown how the Vampire bats that have forged "friendships" with others will rendezvous with these friends while foraging for a meal.

About

- Each of these blood-feasting vampire bats in the colony has its own network of close cooperative social bonds.
- Vampire bats that roost in trees can form long-term social bonds with each other through grooming, sharing regurgitated blood meals and generally hanging out together at the roost.
- The study has found that the social bonds formed in roosts extended into the hunt. It also showed that the female bats have stronger social relationships than males.

📌 Vampire Bats

- Vampire bats are the only mammals with a blood-only diet. They reside in colonies of thousands.

- Habitat → **Tropical** and **subtropical regions**.
- Locations → **Warmer regions** of **Latin America** (Central America and South America).
- Specialty → Vampire Bats are **amazing runners**. They have **heat sensors** in their snouts that help them find a spot to make a bite.
- IUCN Status → **Least Concern**.
- Threat → **Habitat loss**.

23. MeghEA- Meghalaya Enterprise Architecture

Why in News?

Meghalaya chief minister and Union Information and Technology (MeitY) Minister has jointly launched 'MeghEA- Meghalaya Enterprise Architecture'.

About

- Aim → To **improve service delivery and governance** for the people of Meghalaya using the power of digital technologies.
- Pillars → MeghEA initiative is spread across 6 pillars namely: **Governance, Human Resources, Entrepreneurship, Primary Sector, Infrastructure** and **Environment**.
- Implemented by → the **MeitY, National Informatics Centre (NIC)**, and **Information Technology Department of state**.
- Significance of the Project → With this, Meghalaya becomes the **first state to implement** India Enterprise Architecture (**IndEA**) as MeghEA and promote Enterprise Architecture to digitize Governance Process.

👉 India Enterprise Architecture

- The UN e-Governance survey emphasized on a **whole-of-government approach, policy integration** and **use of Big Data Analytics** to provide better governance to citizens.
- So, a **working group** was constituted by Standardisation Testing and Quality Certification (STQC), MeitY **under the J. Satyanarayana**, to develop the India Enterprise Architecture (IndEA) framework.
- In 2018, IndEA was notified under the **Digital India Programme** to design and **implement integrated, nationally portable** and scalable digital platforms.
- IndEA provides a **generic framework** comprising of a **set of architecture reference models** that can be converted into a Whole-of-Government Architecture for India, Ministries, States, Govt. Agencies etc.
- IndEA framework is based on **federated architecture approach**.
- It recognizes the need to accommodate **both greenfield (new)** and **brownfield** (existing / legacy) e-Governance initiatives.

24. Amrit Grand Challenge Program

Why in News?

Union Minister launched the "Amrit Grand Challenge Program" titled "जनCARE" to identify 75 innovations in Telemedicine, AI, Digital Health & BIG Data by Start-ups and Entrepreneurs. He also addressed the 10th Biotech Innovators Meet.

About

- "जनCARE 2.0" - a **Grand Innovation Challenge by DBT/BIRAC, MEITY, NASSCOM** in collaboration with GCI, IKP, and a network of several partners from industry, investors, hospitals, incubator network, is a nationwide program.

- The program shall **identify and support up to 75 Health-tech Innovations** for Telemedicine, Digital health, mHealth with Big Data, AI, ML, Blockchain, and other technologies from Startups and individuals **for strengthening healthcare delivery in India**.

10th Biotech Innovators Meet

- Organized by → **Biotechnology Industry Research Assistance Council**(BIRAC).
- Theme → **“Vigyan se Vikash”**.

Quick revision (True/False)



1	Dara Shikoh -> described as a liberal Muslim who tried to find commonalities between Hindu and Islamic traditions.	
2	Latham's Snipe -> IUCN Red List: Least Concern.	
3	International Atomic Energy Agency -> reports to both the United Nations General Assembly and Security Council.	
4	United Nations Environment Programme -> HQ: Geneva, Switzerland.	
5	Universal Postal Union -> It is not a United Nations specialized agency.	
6	Exercise ZAPAD -> is one of the theatre level exercises of the Russian Armed Forces.	
7	Snow leopard -> In India, it inhabits the Sikkim and Arunachal Pradesh Only.	
8	PISA (Program for International Student Assessment) -> coordinated by the Organization for Economic Cooperation and Development (OECD).	
9	Gharial (Gavialis gangeticus) -> IUCN Status: Vulnerable.	
10	National Dairy Development Board's (NDDB) -> is a non-statutory body.	
11	Deputy Speaker -> the date of election is fixed by the President.	
12	Turtle Survival Alliance -> formed in 2001 as an International Union for Conservation of Nature(IUCN) partnership for sustainable captive management of freshwater turtles and tortoises.	
13	Radcliffe Line -> Between India and China.	
14	Pulicat Lake -> Odisha.	
15	Udham Singh -> March 13, 1940 Singh shot O'Dwyer.	
16	Financial Stability and Development Council -> It is a statutory apex council under the Ministry of Finance.	
17	International Fund for Agricultural Development -> created in 1977. specialized international financial institution of the United Nations.	

18	Dementia -> is a Fungal diseases.	
19	Nipah Virus -> It was first identified in Malaysia and first reported in West Bengal in India.	
20	SIMBEX Exercise -> is a joint maritime bilateral exercise between Indian and Sri Lanka navies.	
21	Inspiration4 -> is the world's first all-civilian mission to orbit.	
22	Bhitarkanika National Park -> Rajasthan.	
23	Manda Buffalo -> is a native breed of ancient Mandu region of Madhya Pradesh.	
24	Animal Spirits in Economics -> It refers to an act of sustainable use of scarce economic resources for a long time.	
25	India's Tallest Air Purifier -> Delhi.	
26	Kappalottiya Tamizhan -> Film on his life - V. O. Chidambaram Pillai.	
27	Fragile X Syndrome (FXS) -> is a genetic disorder that causes a range of developmental problems including learning disabilities and cognitive impairment.	
28	Asian Development Bank -> HQ: Shanghai, China.	
29	V.G. Somani Committee -> To promote digital payment.	
30	INSPIRE Awards-MANAK -> executed by the Department of Science & Technology(DST) with the National Innovation Foundation – India.	
31	Contingent Reserve Arrangement -> By ASEAN to provide short-term liquidity support to the members.	
32	National Institute Ranking Framework -> IIT-Madras, IISc-Bangalore, and IIT-Bombay have emerged as the country's top three.	
33	Qeqertaq Avannarleq -> new northernmost piece of land on Earth.	
34	Partnership to Advance Clean Energy(PACE) -> launched in 2009 by India and France.	
35	El Salvador -> the country of Europe.	
36	Thamirabarani River -> only major perennial river in Tamil Nadu.	

37	Transport and Marketing Assistance” (TMA) scheme for Specified Agriculture Products -> Launched by Ministry of Agriculture & Farmers' Welfare.	
38	UDAN scheme -> scheme will be fully funded by the central government.	
39	Recently, Footprints of three species of dinosaurs have been found in -> Wayanad, Kerala.	
40	Battle of Saragarhi -> battle happened in 1897 between the British Indian contingent comprising 21 Sikh soldiers of the 36th Sikhs and 10,000 to 12,000 Afghans Tribesmen.	
41	Dengue -> caused by The Anopheles mosquito.	
42	PRANA Portal -> For eradicating child labour to achieve the target of child labour free society.	
43	Subramaniya Bharathi -> He published the sensational “Sudesa Geethangal” in 1908.	
44	Subansiri River -> largest tributary of Mahanadi River.	
45	Climate Action and Finance Mobilization Dialogue -> between India and the United States of America (USA).	
46	Pilibhit Tiger Reserve -> Andhra Pradesh.	
47	National Financial Reporting Authority -> It can only probe listed companies.	
48	National Commission for Minorities -> Constitutional Body.	
49	CRISPR -> Gene editing technology.	
50	Raja Mahendra Pratap Singh -> In 1929, he launched the World Federation in Berlin.	
51	Index of Industrial Production -> published monthly by Labour Bureau in the Ministry of Labour.	
52	Leadership Group for Industry Transition (LeadIT) -> Launched by Government of France and India at the UN Climate Action Summit in 2019.	
53	Hydrogen fuel -> Water is the only by-product that results from the usage of hydrogen fuel.	

54	REX MKII -> Ballistic missile.	
55	Hybodont Shark -> reported for the first time from Jaisalmer, Rajasthan.	
56	Exercise Peaceful Mission -> Conducted biennially as part of military diplomacy between NATO member states.	
57	Shoonya Initiative -> Ministry of Education.	
58	Similipal Tiger Reserve -> Madhya Pradesh.	
59	Earthshot Prize 2021 -> Launched by World Wide Fund for Nature (WWF) in October 2020.	
60	Baijayant Panda Committee -> To Revise and Strengthen the Monetary Policy Framework.	
61	Quality Council of India -> Chairman of QCI is appointed by the Prime Minister on the recommendations of the industry to the Government.	
62	Customs Notified Airport -> Indira Gandhi International Airport.	
66	Exercise Surya Kiran -> between Indian Army and Nepali Army.	
67	Humboldt Current -> also called the Peru Current, is a Warm, low-salinity ocean current.	
68	Sea Cucumber -> Gujrat has created the world's first conservation area for sea cucumbers.	
69	Delhi-Mumbai Expressway: World's longest -> start from Haryana's Sohna and will end around Mira Bhayander near Mumbai.	
70	General Sherman -> Located in Indonesia.	
71	Tether -> first stablecoin, created in 2014.	
72	Global Innovation Index 2021 -> Published by World Economic forum.	
73	State Food Safety Index -> Developed by FSSAI (Food Safety and Standards Authority of India).	
74	Exercise Samudra Shakti -> is a bilateral maritime exercise between India and France.	

75	Lake Tanganyika -> is the second largest lake in eastern Africa.	
76	Khavda Renewable Energy Park -> Tamil Nadu.	
77	Havana Syndrome -> refers to a set of mental health symptoms.	
78	Poly WB-1 -> prototype microwave-style weapon developed by The United States.	
79	Jaldapara NP and Gorumara NP -> Assam.	
80	Parliamentary Privileges -> Speaker/RS chairperson is the first level of scrutiny of a privilege motion.	
81	New Global Air Quality Guidelines(AQGs) -> legally binding.	
82	CIM-Pitamber -> is a high-yielding curcuminoid-rich variety of turmeric.	
83	Invest India -> set up in 2009 as a non-profit venture under Ministry of Finance.	
84	Vishnuonyx -> the fossil of species was found in the Hammerschmiede area, a fossil site in Bavaria, Germany.	
85	FASTER System -> will help in communicating crucial decisions including orders on bail and stay of arrest electronically to prison authorities and investigating agencies through a secure channel.	
86	Gogra -> Arunachal Pradesh.	
87	VIPER Mission -> ISRO Mission. first resource mapping mission on any other celestial body.	
88	CIPS Excellence in Procurement Awards 2021 -> Given by Department of Commerce, Ministry of Commerce and Industry.	
89	Goan Cashew Feni -> first liquor product in the country to obtain 'Heritage Drink' status.	
90	Chang'e-5 probe -> To send a robotic spacecraft to the Mars to collect samples and return.	
91	SAUBHAGYA Scheme -> To achieve Universal Household Electrification in the country through last-mile connectivity.	
92	XENON1T experiment -> Designed to detect cosmic gravitational wave.	

93	Kaji Nemu -> Odisha.	
94	National Mission on Cultural Mapping -> enacted in 2015. mission mode project of the Ministry of Culture.	
95	Right To Get Aid From Govt -> is a fundamental right. Mention in Article 30 of the constitution.	
96	Akash Prime missile -> is a medium-range mobile Air-to-air missile system.	
97	Landsat 9 -> communications satellite. By ISRO.	
98	Anti-defection law -> power to decide the disqualification of an MP or MLA rests with the Election Commission.	
99	Sambhar Lake -> Rajasthan.	
100	Rabies -> infects the central nervous system.	