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Monthly Prelims Snippets

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Content

1. AGRICULTURE	6
1.1 SADABAHAR MANGO	6
1.2 ROBO PLANTS.....	6
1.3 LARGE AREA CERTIFICATION SCHEME	7
1.4 MACS 1407.....	7
2. ECONOMY.....	8
2.1 EMERGENCY CREDIT LINE GUARANTEE SCHEME (ECLGS) 3.0.....	8
2.2 GLOBAL GENDER GAP REPORT	8
2.3 CODE ON WAGES (CENTRAL ADVISORY BOARD) RULES, 2021.....	9
2.4 INSURANCE OMBUDSMAN	9
2.5 SANKALP SE SIDDHI SCHEME	10
2.6 HONEY CORNERS.....	10
2.7 COPYRIGHT (AMENDMENT) RULES, 2021.....	11
2.8 AICTE LILAVATI AWARDS 2020	11
2.9 E-SANTA	12
2.10 INDIA ENERGY DASHBOARDS (IED).....	12
2.11 TRANSPORT 4 ALL (T4ALL) CHALLENGE	13
2.12 EAT SMART CITIES CHALLENGE	13
2.13 DOGECOIN	13
2.14 ON TAP LICENSES FOR BANKS	14
2.15 BRITCOIN.....	14
2.16 TRAVEL BUBBLE.....	15
2.17 CODEX COMMITTEE ON SPICES AND CULINARY HERBS (CCSCH)	15
2.18 CHANDLER GOOD GOVERNMENT INDEX.....	16
3. ENVIRONMENT	16
3.1 BANDHAVGARH NATIONAL PARK.....	16
3.2 NEW PLANT SPECIES NAMED AFTER SHARAD PAWAR	16
3.3 NATIONAL POLICY FOR RARE DISEASES, 2021.....	17
3.4 DRAFT PLASTIC WASTE MANAGEMENT (AMENDMENT) RULES, 2021	17
3.5 AMENDMENT TO FOREST CONSERVATION ACT (FCA):.....	18
3.6 SATKOSIA TIGER RESERVE	18
3.7 HIMALAYAN BROWN BEAR	19
3.8 BEAST OF FIVE TEETH	19
3.9 MONKEYDACTYL.....	19
3.10 WHITEST PAINT	20
3.11 NATIONAL CLIMATE VULNERABILITY ASSESSMENT REPORT	20
3.12 GODZILLA SHARK.....	21
3.13 PANGOLIN.....	21
3.14 DISK FOOTED BAT	22
3.15 TIKI FORMATION	23

3.16 STATE OF THE GLOBAL CLIMATE FOR 2020	23
3.17 LEADERS SUMMIT ON CLIMATE	24
3.18 EARTH DAY, 2021	24
4. FOREIGN AFFAIRS	25
4.1 HEART OF ASIA SUMMIT	25
4.2 TAPI (TURKMENISTAN - AFGHANISTAN - PAKISTAN - INDIA) PIPELINE.....	25
4.3 SHANTIR OGROSHENA EXERCISE	26
4.4 WORLD CITIES CULTURAL FORUM	26
4.5 E9 INITIATIVE.....	26
4.6 8888 UPRISING	27
4.7 TIGRAYAN REFUGEES.....	27
4.8 WORLD HEALTH DAY 2021.....	28
4.9 BAFTA AWARDS 2021	28
4.10 FREEDOM OF NAVIGATION OPERATIONS (FONOP).....	29
4.11 NATANZ NUCLEAR FACILITY	29
4.12 UN FOOD SYSTEMS SUMMIT 2021	29
4.13 UNFPA'S POPULATION REPORT.....	30
4.14 WORLD PRESS FREEDOM INDEX, 2021	30
4.15 HAMBANTOTA PORT	31
4.16 BOAO FORUM FOR ASIA (BFA)	32
4.17 USCIRF REPORT, 2021.....	32
4.18 ARMENIAN GENOCIDE.....	32
4.19 SAUDI GREEN INITIATIVE	33
4.20 VACCINE MAITHRI	33
4.21 POST -BREXIT TRADE DEAL.....	34
5. GEOGRAPHY	35
5.1 WULAR LAKE	35
5.2 WOLF RAYET STARS	35
5.3 RED SEA.....	36
5.4 LA SOUFRIERE ERUPTION IN ST. VINCENT AND GRENADINES	37
5.5 METTUR-SARABANGA LIFT IRRIGATION PROJECT	37
5.6 HOT SPRINGS AND GOGRA POST	38
5.7 NATIONAL PANCHAYATI RAJ DAY.....	38
5.8 KOWLOON PENINSULA	39
5.9 SUPERMOON.....	39
5.10 ASSAM EARTHQUAKE	39
6. GOVERNANCE	40
6.1 PUNJAB TO HAVE ITS OWN ENFORCEMENT DIRECTORATE	40
7. HISTORY.....	41
7.1 DELHI'S PARTITION MUSEUM	41
7.2 NIZAMUDDIN MARKAZ MOSQUE.....	41

7.3	BUDDHIST MONASTERY FOUND IN JHARKHAND	42
7.4	WORLD HERITAGE DAY, 2021	43
8.	LAW & POLICY.....	44
8.1	ARTICLE 244(A) OF THE CONSTITUTION	44
8.2	ANAMAYA	44
8.3	ARTIFICIAL INTELLIGENCE PORTAL SUPACE	44
8.4	LAB ON WHEELS OF DELHI	45
8.5	TRIBUNAL REFORMS ORDINANCE, 2021.....	45
8.6	SARTHAQ	46
8.7	POSHAN-GYAN	46
8.8	AAHAAR KRANTI.....	46
8.9	E-FILING 3.0 MODULE.....	47
9.	SCIENCE & TECH.....	48
9.1	ENZYMES TO BLOCK HIV REPLICATION	48
9.2	BAIKAL GVD DETECTOR.....	48
9.3	INS VIRAAAT	49
9.4	INDIAN 'DOUBLE MUTANT' STRAIN NAMED B.1.617	49
9.5	INVAS MASS CAMPAIGN ON COVID.....	49
9.6	MUON G-2 EXPERIMENT.....	50
9.7	NANOSNIFFER	50
9.8	TIKA UTSAV	51
9.9	ADVANCED ANTIQUITIES MANAGEMENT SYSTEM OF GOA.....	51
9.10	FUKUSHIMA NUCLEAR ACCIDENT	51
9.11	GAMMA RAY EMITTING ACTIVE GALAXY	52
9.12	NEW ELECTRONIC NOSE WITH BIODEGRADABLE POLYMER.....	53
9.13	MRNA BASED COVID-19 VACCINE-HGC019	53
9.14	INDIA-FRANCE AGREEMENT ON GAGANYAN MISSION	54
9.15	WORLD HAEMOPHILIA DAY	54
9.16	DUROKEA SERIES	55
9.17	MEDICAL OXYGEN	55
9.18	NEW INITIATIVES BY NIXI	55
9.19	GLOBAL DIABETES COMPACT	56
9.20	MARS INGENUITY HELICOPTER	57
9.21	ALH MK-III HELICOPTER	57
9.22	VIRTUAL GLOBAL FORUM ON TB VACCINE	57
9.23	RESPOND PROGRAMME OF ISRO	58
9.24	HUMAN-MONKEY CHIMERAS	58
9.25	PERSEVERANCE MARS ROVER MADE OXYGEN	59
9.26	HARLEQUIN ICHTHYOSIS.....	60
9.27	SPACE X CREW-2 MISSION	60
9.28	E-2025 INITIATIVE.....	60

9.29 KRI NANGGALA-402 SUBMARINE	61
9.30 #FOSS4GOV INNOVATION CHALLENGE	61
9.31 OXYGEN FROM STERLITE COPPER	62
9.32 ZHURONG	62
9.33 ADITYA-L1 SUPPORT CELL	63
9.34 INDIA'S FIRST 3D PRINTED HOUSE.....	63
9.35 NAVIC- OPPORTUNITIES FOR THE TELECOM INDUSTRY	64
9.36 PYTHON-5 AIR TO AIR MISSILE	64
9.37 APOLLO 11 MISSION:	64
9.38 CT COUNT IN COVID TEST	65
10. SECURITY	65
10.1 EXERCISE VAJRA PRAHAR.....	65
10.2 OLED (ORGANIC LIGHT EMITTING DIODES)	66
10.3 MILITARY FARMS SERVICE	66
10.4 JOINT LOGISTICS NODE IN MUMBAI.....	67
10.5 NATIONAL MARITIME DAY	67
10.6 EXERCISE LA PEROUSE 2021.....	67
11. SOCIETY	68
11.1 MANAS MITRA:	68
11.2 ONLINE GRIEVANCE MANAGEMENT PORTAL BY NCSC:	68
12. PLACES IN NEWS	69
12.1 WHITSUN REEF.....	69
12.2 INDIA BRIDGE OF GUJARAT.....	69
12.3 GYANVAPI MOSQUE	70
13. PEOPLE IN NEWS.....	70
13.1 DADASAHEB PHALKE AWARD	70

1. AGRICULTURE

1.1 Sadabahar mango

In news- Shrikishan Suman, a farmer from Kota, Rajasthan, has developed an innovative mango variety called Sadabahar.

About Sadabahar mango-

- Sadabahar mango variety as the name suggests a regular and continuous fruit bearing variety which means it blooms throughout the year.
- It is **resistant to most major diseases and common mango disorders**.
- The fruits are sweeter in taste and it is **developed as a dwarf variety** which is suitable for kitchen gardening and can be grown in pots for some years.
- Besides, the flesh of the fruits, which is bourn round the year, is **deep orange with sweet taste, and the pulp has very less fiber content which differentiates it from other varieties**.
- **Other Salient features of the variety include** higher yield (5-6 t/ha), fruiting throughout the year and High-density plantation.
- The innovative attributes of the variety have been verified by the **National Innovation Foundation (NIF)**, India, an autonomous institution of the Department of Science & Technology.
- NIF also facilitated an on-site evaluation of the variety through **ICAR - Indian Institute of Horticultural Research (IIHR)**, Bangalore, and a field testing at **SKN Agriculture University**, Jobner (Jaipur), Rajasthan.
- It is in the process of being registered under the Protection of Plant Variety and Farmers Right Act and **ICAR-National Bureau of Plant Genetic Resources (NBPGR)**, New Delhi.
- NIF has also facilitated the plantation of Sadabahar mango variety in the Mughal Garden at Rashtrapati Bhawan in New Delhi.
- For this evergreen variety developed, Shrikishan Suman was conferred the NIF's **9th National Grassroots Innovation and Traditional Knowledge Award** and subsequently recognised at various other fora.

Types/varieties of Mangoes in India-

Alphonso(Hapus) – Ratnagiri, Badami – Karnataka (Known as Alphonso of Karnataka), Chaunsa – Bihar and Uttar Pradesh, Langra – Bihar and Uttar Pradesh, Dasherri – Malihabad, Uttar Pradesh, Kesar – Saurashtra, Gujarat, Mulgoba – Tamil Nadu, Himsagar – West Bengal, Benishan Mango – Banganapalli, Andhra Pradesh, Imam Pasand – South India

Mango and its significance-

- Mangifera indica is the National Fruit of India
- Its juicy fruit is a rich source of Vitamins A, C and D.
- The poet Kalidasa sang its praises.
- Alexander savoured its taste, as did the Chinese pilgrim Hieun Tsang.
- Mughal emperor Akbar planted 100,000 mango trees in Darbhanga, Bihar at a place now known as Lakhi Bagh.

1.2 Robo Plants

In news- The scientists from Singapore have developed a technology to interact with Plant named “Robo Plant”.

About Robo Plant Technology-

- **Remote-controlled Venus flytrap "robo-plants" and crops** that tell farmers when they are hit by disease could become reality after scientists developed a high-tech system for communicating with vegetation.
- Researchers in Singapore **linked up plants to electrodes capable of monitoring the weak electrical pulses** naturally emitted by the greenery.
- The scientists used the technology to trigger a Venus flytrap to snap its jaws shut at the push of a button on a smartphone app.
- They then attached one of its jaws to a robotic arm and got the contraption to pick up a piece of wire half a millimetre thick, and catch a small falling object.

- The technology is in its early stages, but researchers believe it could eventually be used to build advanced "plant-based robots" that can pick up a host of fragile objects which are too delicate for rigid, robotic arms.
- Scientists can stimulate the fly trap's jaws to slam shut but can't yet reopen them a process that takes 10 or more hours to happen naturally.

Significance-

- By monitoring the plants' electrical signals, we may be able to detect possible distress signals and abnormalities.
- Farmers may find out when a disease is in progress, even before full-blown symptoms appear on the crops.
- Technology could be particularly useful as crops face increasing threats from climate change.

Latest research to conduct communicating with plants-

In 2016, a Massachusetts Institute of Technology team turned spinach leaves into sensors that can send an email alert to scientists when they detect explosive materials in groundwater.

The team embedded carbon nanotubes that emit a signal when plant roots detect nitro aromatics compounds often found in explosives. The signal is then read by an infrared camera that sends out a message to the scientists.

1.3 Large Area Certification Scheme

In news- The Ministry of Agriculture and Farmer Welfare recently announced that around **14,491 hectares of land in Andaman and Nicobar Islands** have been certified as organic. This is the **first large contiguous territory to be certified** under the government scheme.

About Large Area Certification Scheme-

- The Department of Agriculture and Farmers Welfare has launched a unique fast certification programme called "Large Area Certification" (LAC) under its flagship scheme, Paramparagat Krishi Vikas Yojna (PKVY).
- Farmers do not have to wait 2-3 years for organic certified products because **LAC is a fast and cost-effective certification process.**
- Each village in the region is considered a **cluster/group** under LAC.
- The documentation is straightforward and is updated on a village-by-village basis.
- All farmers with farmland and livestock must conform to the standard specifications and are licenced en masse after being tested, eliminating the need for a conversion time.
- To qualify as organic, areas with a history of using chemical inputs must go through a transition phase of at least 2-3 years, according to organic production standards.
- The certification process also necessitates extensive documentation and periodic certification authority verification.
- In contrast, the criteria for LAC are straightforward, and the **region can be certified almost immediately.**

1.4 MACS 1407

In news- Indian scientists have developed a high-yielding and pest-resistant soybean variety called MACS 1407.

About MACS 1407-

- Scientists from MACS- Agharkar Research Institute, Pune, in collaboration with Indian Council of Agricultural Research (ICAR), New Delhi have developed this higher yielding varieties and improved practices for the cultivation of soybean.
- New seeds will be made available to farmers for **sowing during the 2022 Kharif season.**
- The new variety gives **39 quintals per hectare** and it is also resistant to major insects - pests like girdle beetle, leaf miner, white fly and defoliators.
- A MAC 1407 requires an **average of 43 days for 50 per cent flowering and takes 104 days to mature** from the date of sowing.
- It has **white coloured flowers, yellow seeds and black hilum.**
- Its seeds have 19.81 percent oil content, 41 percent protein content and show good germinability.
- The variety is **suitable for mechanical harvesting.**

- It is suitable for rain-fed conditions of North-east India and West Bengal, Jharkhand, Chhattisgarh states.

2. ECONOMY

2.1 Emergency Credit Line Guarantee Scheme (ECLGS) 3.0

In news- Recently, the Union Government extended the scope of Emergency Credit Line Guarantee Scheme (ECLGS) through the introduction of ECLGS 3.0.

Emergency Credit Line Guarantee Scheme (ECLGS) 3.0-

- It **covers** business enterprises in hospitality, travel and tourism, leisure and sporting sectors.
- It would **involve extension of credit of upto 40% of total credit** outstanding across all lending institutions as on 29 February 2020.
- The **tenor of loans** granted shall be **6 years including a moratorium period of 2 years**.
- **Validity** of ECLGS that is ECLGS 1.0, ECLGS 2.0 & ECLGS 3.0 has been **extended upto 30 June or till guarantees for an amount of Rs. 3 lakh crore are issued**.
- Last date of disbursement under the scheme has been extended to 30 September.
- The revised operational guidelines in this regard shall be issued by **National Credit Guarantee Trustee Company Ltd (NCGTC)**.

National Credit Guarantee Trustee Company Ltd (NCGTC)-

- Private limited company incorporated under the Companies Act 1956 on March 28, 2014, established by the Department of Financial Services, Ministry of Finance.
- **Wholly owned company of the Government of India**, to act as a common trustee company for multiple credits guarantee funds.
- Credit guarantee programmes are designed to share the lending risk of the lenders and in turn, facilitate access to finance for the prospective borrowers.
- Presently, there are **five dedicated credit guarantee Trusts** under the Management of NCGTC ---

Credit Guarantee Fund Scheme for Educational Loans (CGFEL), Credit Guarantee Fund Scheme for Skill Development (CGFSD), Credit Guarantee Fund Scheme for Factoring (CGFF), Credit Guarantee Fund for Micro Units (CGFMU), Credit Guarantee Fund for Stand Up India (CGFSI).

2.2 Global gender Gap Report

In news- India has fallen 28 spots to **rank 140th** among 156 countries on the World Economic Forum's Global Gender Gap index.

About Global Gender Gap Report-

- It was first published in 2006 by the World Economic Forum (WEF).
- The Global gender gap index is a part of this which measures gender equality across **four pillars** - economic opportunity, political empowerment, educational attainment and health and survival.
- The highest possible score is 1 (equality) and the lowest possible score is 0 (inequality).
- In 2020, India had ranked 112th among 153 countries on the index.

Highlights of the 2021 report-

- India's gender gap in **economic participation** widened by 3% this year, leading to a 32.6% gap and the share of women in professional and technical roles declined further to 29.2%.
- The estimated earned **income** of women in India is only one-fifth (below 20.7 % of that of an average man) which puts the country among the bottom 10 globally on this indicator. I
- India has declined on the **political empowerment index** as well by 13.5 percentage points, and a decline in the number of women ministers.
- Wide gaps in **sex ratio** at birth are due to the high incidence of gender-based sex-selective practices. In addition, more than one in four women has faced **intimate violence** in her lifetime.
- India ranks among the bottom five countries in **Health and Survival index** which indicates discrimination against women.

- In the index of **education attainment**, India has been ranked at 114.
- **Among neighbours** only Pakistan and Afghanistan are ranked below India.
- Among regions, South Asia is the second-lowest performer on the index, with 62.3% of its overall gender gap closed.
- It will **take South Asia 195.4 years to close the gender gap**, while Western Europe will take 52.1 years.

2.3 Code on Wages (Central Advisory Board) Rules, 2021

In news- On March 01, 2021, the Ministry of Labour and Employment (MOLE) issued the Code on Wages (Central Advisory Board) Rules, 2021.

Code on Wages (Central Advisory Board) Rules, 2021:

- The Board shall **consist of the persons to be nominated by the Central Government** representing employers and employees as specified in Section 42 of Code on Wages, 2019 and the independent persons and representatives of the State Governments.
- No business shall be transacted at any meeting unless **at least one-third of the members and at least one representative member each of both the employers and an employee are present.**
- All business of the Board shall be considered at a meeting of the Board, and shall be **decided by a majority of the votes of members present and voting** and in the event of an equality of votes, the Chairperson shall have a casting vote.
- The **travelling allowance** of an official member of the Board shall be governed by the rules applicable to him for journeys performed by him on official duties and shall be paid by the authority paying his salary.
- A **person shall be disqualified** for being nominated as, and for being a member of the Board if he is declared to be of unsound mind by a competent court or if he is an undischarged insolvent or if he has been convicted of an offence involving moral turpitude.

2.4 Insurance Ombudsman

In news- The Government has notified comprehensive amendments to the Insurance Ombudsman Rules, 2017, with a view to improve the working of the Insurance Ombudsman mechanism.

About Insurance Ombudsman-

- The Insurance Ombudsman scheme was created by the Government of India **for individual policyholders to have their complaints settled out of the courts system** in a cost-effective, efficient and impartial way.
- There are **17 Insurance Ombudsman in different locations** and one can approach the one having jurisdiction over the location of the insurance company office that one has a complaint against.
- **Objective is** to provide a forum for resolving disputes and complaints from the aggrieved insured public or their legal heirs against Insurance Companies.
- Representation should be made to the Insurance Company and either unsatisfactory reply should have been received or the representation should stand as un-replied for at least 1 month.
- **Complaint must be lodged within 1 year of the events.**
- **Total relief sought** must be **within an amount of Rs.20 lakhs.**
- Subject matter of the complaint should not currently be or have earlier been before a Court/Consumer Forum.
- No fees / charges are required to be paid.
- **Aggrieved individual who has taken an Insurance Policy on personal lines** can approach Ombudsman.
- Insurance on personal lines means a policy taken or given in an individual capacity, e.g. life insurance, personal accident insurance, mediclaim insurance, insurance of personal property of the individual such as motor vehicle, etc...
- The Ombudsman will act as **counsellor and mediator** and arrive at a fair recommendation based on the facts of the dispute.
- After acceptance of this as a full and final settlement, the Ombudsman will inform the company which **should comply with the terms in 15 days.**
- The Ombudsman **can also award an ex-gratia payment.**

2.5 Sankalp se siddhi scheme

In news- TRIFED under the Ministry of Tribal Affairs has launched “Sankalp se Siddhi” - Village & Digital Connect Drive.

About Sankalp se Siddhi scheme-

- It is a **100 day drive** which started on the 1st April 2021.
- It **aims to activate the Van Dhan Vikas Kendras** in these villages and to aid a complete transformation of the tribal ecosystem.
- The drive will entail 150 teams visiting ten villages each of which 10 in each region from TRIFED and State Implementation Agencies.
- According to the Ministry, 100 villages in each region and 1500 villages in the country will be covered in the next 100 days.
- The visiting teams will also identify locations and shortlist potential Van Dhan Vikas Kendras for clustering as **TRIFOOD**, and Scheme of Fund for Regeneration of Traditional Industries- (**SFURTI**) units as larger enterprises.
- They will also identify tribal artisans and other groups and empanel them as suppliers so that they can have access to larger markets through the Tribes India network – both physical outlets and TribesIndia.com.

TRIFOOD-

- TRIFOOD Scheme is a joint initiative of Ministry of Food Processing Industry, Ministry of Tribal Affairs and TRIFED and is implemented in the backdrop of VanDhan Yojana.
- TRIFOOD aims to enhance the income of tribals through better utilization of and value addition to the Minor Forest Produce collected by the tribal forest gatherers.

Van Dhan Vikas Kendras-

- They are set up under Van Dhan Yojana in predominantly forested tribal districts.
- They are tribal community-owned.
- A Kendra shall constitute of 15 tribal SHGs, each comprising of up to 20 tribal NTFP gatherers or artisans i.e. about 300 beneficiaries per Van Dhan Kendra.
- The Kendras would act as common facility centres for procurement cum value addition to locally available minor Forest products.

2.6 Honey Corners

In news- Recently, Agriculture and Farmers' Welfare Minister launched Madhukranti portal and Honey Corners of National Agricultural Cooperative Marketing Federation, NAFED in New Delhi.

Madhu Kranti portal-

- Portal to create a database of all stakeholders involved in honey and other hive products' production, sales and marketing chain.
- All sales transactions in honey trading in the country shall be captured through a mobile app in the second phase to achieve desired results in the area of source traceability.
- Online registration/ traceability system for source of Honey and other beehive products will help in checking the quality and source of adulteration of honey.
- The system will also enable consumers/public to know the source of honey and assure quality of the products.
- **Honey Corner** is a specially designed space in Nafed's stores dedicated to the sale of honey.

Sweet Revolution-

- Sweet Revolution is a strategic step to emphasize the increase in honey production in the **Jharkhand state**, which can be a major contributor to doubling the income of the farmers.
- With the increase in income, the production of crops will also increase by 15%.
- **Purpose of sweet revolution** is to make Jharkhand state in the category of developed states by 2022 and to make the state the leading state in the field of honey production.

2.7 Copyright (Amendment) rules, 2021

In news- Recently, the government has notified Copyright (Amendment) Rules, 2021 and included a new provision that eliminates the requirement of publication in the Official Gazette.

About Copyright (Amendment) Rules, 2021-

- It is under the Ministry of Commerce and Industry.
- **Amendment aims to** ensure smooth and flawless compliance in the light of technological advancement in the digital era by adopting electronic means as the primary mode of communication and working in the Copyright Office.
- New provisions include-
 - Regarding publication of a copyrights journal has been incorporated, thereby eliminating the requirement of publication in the Official Gazette.
 - To deal with the undistributed royalty amounts and use of electronic and traceable payment methods while collection and distribution of royalties.
 - To reinforce transparency in working of copyright societies a new rule has been introduced, whereby the copyright societies will be required to draw up and make public an **Annual Transparency Report for each financial year**.
- The amendments have harmonised the Copyright Rules with the provisions of Finance Act, 2017 whereby the **Copyright Board has been merged with Appellate Board**.
- For registration of software works, now the applicant has the liberty to file the first 10 and last 10 pages of source code, or the entire source code if less than 20 pages, with no blocked out or redacted portions.
- The **time limit for the Central Government to respond to an application** made before it for registration as a copyright society is extended to **180 days**, so that the application can be more comprehensively examined.

India is the member of important WIPO-administered International treaties relating to IPRs.

- **Budapest Treaty:** International Recognition of the Deposit of Microorganisms for the Purposes of Patent Procedure
- **Paris Convention:** Protection of Industrial Property
- **Berne Convention:** Protection of Literary and Artistic Works
- **Madrid Agreement:** Concerning the International Registration of Marks- Madrid Protocol
- **Washington Treaty:** Intellectual Property in respect of Integrated Circuits
- **Nairobi Treaty:** Protection of the Olympic Symbol
- **Marrakesh Treaty:** Access to Published Works by Visually Impaired Persons and Persons with Print Disabilities

Copyright-

- Is a type of intellectual property?
- The rights of authors of **literary and artistic works (such as books and other writings, musical compositions, paintings, sculpture, computer programs and films)** are protected by copyright, for a **minimum period of 50 years** after the death of the author.
- The owner has the exclusive right to make copies of his or her creative work.
- Under the World Intellectual Property Organisation (WIPO), Copyright protects two types of rights.
 - Economic rights: Allow the owners to derive financial reward from the use of their works.
 - Moral rights: Allow authors to take certain actions to protect their link with their work.

2.8 AICTE Lilavati Awards 2020

In news- Recently, the Union Minister of Education presented the AICTE Lilavati Awards 2020 on women empowerment to the winners in New Delhi.

About the AICTE Lilavati Awards 2020-

- It is based on the theme 'Women Empowerment'.
- Aim of the award is to recognize efforts by AICTE-approved institutions to treat women with 'equality and fairness'.

- It has been named after the 12th-century book called “Lilavati” written by the mathematician Bhaskara II.
- Lilavati was the daughter of Indian Mathematician Bhaskara II.
- AICTE finalized the winners from a total of 456 entries who competed across 6 sub themes, which include Women’s Health, Self-Defense, Sanitation and Hygiene, Literacy, Women Entrepreneurship, Legal Awareness.
- It will ensure the participation of women and enable them to hold higher positions in educational institutions.
- In each sub-category, the top three winners will be awarded with certificates as well as prize money.
- The first prize winner will get Rs 1 lakh, the second winner will get Rs 75,000 and the third winner will get Rs 50,000.

2.9 e-SANTA

In news- Recently, the Minister for Commerce and Industry inaugurated e-SANTA, an electronic marketplace for aqua farmers.

About e-SANTA-

- The term e-SANTA stands for Electronic Solution for Augmenting NaCSA farmers' Trade in Aquaculture.
- e-SANTA is a completely paperless and end-to-end electronic trade platform between aqua farmers and exporters.
- Platform will change the traditional way of carrying out business from a word of mouth basis to become more formalised & legally binding.
- e-SANTA will act as an alternative marketing tool between farmers & buyers by eliminating middlemen.
- The platform is available in many languages which will help the local population.
- National Centre for Sustainable Aquaculture (NaCSA) is an extension arm of Marine Products Export Development Authority (MPEDA) of Ministry of Commerce & Industry.

2.10 India Energy Dashboards (IED)

In news- Recently, Niti Aayog launched India Energy Dashboards Version 2.0 focused on data.

About India Energy Dashboards (IED)-

- India Energy Dashboards (IED) is an endeavour to provide single-window access to the energy data for the country.
- IED aims to establish a central energy database of the country.
- The goal is to turn data into information, and information into insights to inspire those in a position to make a difference.
- Energy data published/provided by Central Electricity Authority, Coal Controller’s Organisation, and Ministry of Petroleum and Natural Gas is compiled in the Dashboards.
- NITI Aayog launched the Version 1.0 in May 2017.

The key features of India Energy Dashboards Version 2.0 are-

- The IED provides time series data from FY 2005-06 until FY 2019-20.
- It enables easy downloading of data into convenient spreadsheet formats in a cleaner, more intuitive way.
- IED provides data at sub-yearly frequencies including monthly data and API linked data from some portals maintained by the government agencies.
- The monthly data is sourced from the monthly reports that are regularly published for the electricity, petroleum and natural gas sectors.
- API linked data from Saubhagya, UJALA, PRAAPTI, and Vidyut PRAVAH has been incorporated in the portal.
- Addition of technical and financial data of electricity utilities available from the regulatory documents in the state of Maharashtra.
- The Dashboards will include other states data in future.

2.11 Transport 4 All (T4All) Challenge

In news- Recently Ministry Housing and Urban Affairs launched the Transport 4 All Challenges, an online event .

About Transport 4 All (T4All) Challenge-

- It is launched in collaboration with Institute for Transportation and Development (ITDP).
- It aims to bring together cities, citizen groups, and start-ups to develop solutions that improve public transport to better serve the needs of all citizens.
- It also helps start-ups and cities to refine the solutions to meet their needs.
- The first edition of the Challenge focuses on digital innovation.
- Cities and start-ups will receive guidance to develop and test various solutions, learn from them, and scale them to build people's trust in public transport and enhance their mobility.
- The solutions will make public transport, formal as well as informal, safe, convenient, and affordable for all.
- All the Smart Cities Mission cities, capitals of states and union territories (UTs), and all cities with a population of over 5 lakhs are eligible for the Challenge.
- The Challenge comprises three stages:
 - **Stage I- Problem Identification:** Cities, with the support of NGOs, identify key recurring problems that citizens and public transport operators face.
 - **Stage II- Solution Generation:** Start-ups develop prototypes of solutions to improve public transport with inputs from cities and NGOs.
 - **Stage III- Pilot Testing:** Cities engage start-ups for large-scale pilots and refine the solutions based on citizen feedback.
- Cities, as part of the challenge shall form a **Transport4All Task Force (TTF)** consisting of key stakeholders like Municipal Corporation, Smart City SPV, city bus undertaking, metro and suburban rail, regional transport office, traffic police, NGOs, and academic institutes working in the field of sustainable transport.

2.12 Eat Smart Cities Challenge

In news- Recently, the **Ministry of Housing and Urban Affairs** launched the EatSmart Cities Challenge, an online event.

Eat Smart Cities Challenge-

- **Its aim is to** motivate Smart Cities to develop a plan that supports a healthy, safe and sustainable food environment supported by institutional, physical, social, and economic infrastructure along with the **application of 'smart' solutions to combat food related issues.**
- The launch event of EatSmart Cities Challenge was **organized in association with Food Safety and Standards Authority of India (FSSAI) under the aegis of Ministry of Health and Family Welfare.**
- The challenge is open to all Smart Cities, capital cities of States /UTs, and cities with a **population of more than 5 lakh.**
- At the end of the first phase of the challenge, 11 cities will be selected for deeper engagement for an extended period to implement their vision.
- The Challenge is envisioned as a competition among cities to recognize their efforts in adopting and scaling up various initiatives under Eat Right India.

Note: Eat Smart Cities Challenge and **Eat Right India Movement** both are different from each other.

2.13 Dogecoin

In news- Recently in the US, the digital token was valued at 28 cents, more than double its value a day before.

About Dogecoin-

- The digital token was **created in 2013 by software engineers Billy Markus and Jackson Palmer** as a faster but "fun" alternative to Bitcoin.
- It takes its name and logo from a **Shiba Inu meme** that was viral several years ago.
- Unlike Bitcoins, whose maximum possible number is fixed at 21 million (estimated to be reached by 2040), Dogecoin numbers do not have an upper limit, and there are already more than 100 billion in existence.

- “Doge” also has an **ardent supporter in Tesla CEO Elon Musk**, who frequently tweets have added to the digital token’s mania.
- Musk had once changed his Twitter bio to “**Former CEO of Dogecoin.**”
- Other celebrities, including rapper Snoop Dogg and rock musician Gene Simmons, have also promoted it on social media.
- Another reason behind its current success is a Reddit group called **SatoshiStreetBets**, where members built up an enthusiasm for the cryptocurrency.
- The group’s name refers to Satoshi Nakamoto, the screen name of the person or group of persons behind Bitcoin.

2.14 On Tap Licenses for Banks

In news- Recently, The Reserve Bank of India (RBI) announced the names of eight applicants for universal bank and small finance bank "on-tap" licences.

What is On-Tap Licensing?

- On tap licensing refers to the practice of granting license throughout the year.
- The **policy allows aspirants to apply for a small finance bank licence at any time, provided they meet the RBI's requirements.**

What is universal banking?

- It is a banking system in which **banks provide a wide range of financial services** such as investment banking, commercial banking, construction banking, insurance, and other financial services such as merchant banking, mutual funds, factoring, housing finance, and insurance, among others.

The RBI's universal bank licencing requirements are as follows-

- Individuals/professionals who are residents' who have a minimum of 10 years of senior-level experience in banking and finance.
- A bank's initial paid-up voting equity capital must be at least \$5 billion. Following that, the bank must maintain a minimum net worth of \$5 billion at all times.
- Person promoters or standalone promoting/converting companies that do not have other community entities are not required to have a Non-Operative Financial Holding Company (NOFHC).
- The Promoter/Promoter Group must hold at least 51 percent of the total paid-up equity resources of the NOFHC.
- Within six years of the bank's start of operation, the bank must have its shares listed on stock exchanges.
- The bank is prohibited from having any exposure to its promoters, major shareholders who own 10% or more of the bank's paid-up equity shares, the promoters' family, or organisations over which they have considerable power or control.
- At least 25% of the bank's branches must be located in underserved rural areas.
- The bank must adhere to the priority sector lending goals and sub-targets that currently apply to domestic scheduled commercial banks.
- A majority of the bank's board of directors should be independent.
- The Reserve Bank's in-principle approval will be valid for 18 months from the date of granting in-principle approval and will then immediately lapse.

2.15 Bitcoin

In news- British authorities are exploring the possibility of creating a new digital currency which could become commonly known as “Bitcoin”.

About Bitcoin-

- The Bank of England and the Treasury are considering creating Bitcoin in the wake of declining cash payments in the region, which are partly due to the Corona pandemic.
- If passed, the **digital currency would function alongside cash and bank deposits** as a new type of money.
- It wouldn't have to be built on distributed ledger technology.
- This ‘bitcoin’ will be **linked to the value of the pound**, making it impossible to benefit from it as an asset.

- Britain's digital currency would be **unique in that, if passed, it would be issued by the government.**
- **Only the Bahamas has such a currency at the moment,** though China is testing it in a few cities.

Central Bank Digital Currency (CBDC)-

- A CBDC is a **virtual version of a country's fiat currency** that is represented by an electronic record or digital token (or region).
- A CBDC is a centralised currency that is issued and controlled by the country's competent monetary authority.
- Each unit functions as a safe digital instrument that can be used as a mode of payment, a store of value, and an official unit of account, similar to a paper bill.

2.16 Travel Bubble

In news- Estonia, Latvia, and Lithuania have recently started a travel bubble to help their economies recover following the Covid-19 lockdowns.

About Travel Bubble-

- Creating a travel bubble entails linking countries or states that have had a high degree of domestic success in controlling the Covid-19 pandemic.
- The **members of the community will be able to re-establish trade links as well as travel and tourism opportunities as a result of such a bubble.**
- Potential travel bubbles among higher-performing countries around the world, according to a survey, will account for around 35% of global GDP (GDP).
- **Smaller countries prefer travel bubbles because they are more likely to prosper** until they are able to trade with larger partners again.

Criteria for Entering the Travel Bubble-

- Those from outside countries who wish to access the bubble corridor must first spend 14 days in isolation.
- In the previous 14 days, no one could have travelled outside of the travel bubble's member countries.
- One should not be infected with coronavirus or have come into contact with someone who has been infected with coronavirus.

2.17 Codex Committee on Spices and Culinary Herbs (CCSCH)

In news- The fifth session of the Codex Committee on Spices and Culinary Herbs (CCSCH), formed under the Codex Alimentarius Commission (CAC), was recently inaugurated by the FSSAI.

About Codex Committee on Spices and Culinary Herbs-

- To establish and extend global standards for spices and culinary herbs, as well as collaborate with other international organisations throughout the production process, CCSCH was founded in 2013 with the help of over a hundred countries.
- India is serving as the host country and Spices Board India serving as the Secretariat for the committee's sessions.
- Spices Board (Ministry of Commerce and Industry) is the flagship organization for the development and worldwide promotion of Indian spices.
- CCSCH has been active in establishing globally harmonised Codex standards for spices and herbs since its inception.
- The committee has established and finalised criteria for four spices, including dried or dehydrated varieties of black/white/green pepper, cumin, thyme, and garlic, over the course of four sessions.

Codex Alimentarius Commission (CAC)-

- The Codex Alimentarius Commission (CAC) is an intergovernmental body created in 1963 by the UN's Food and Agriculture Organization (FAO) and the World Health Organization (WHO) as part of the Joint Food Standards Programme to protect consumer health and ensure fair trade practises.
- The **World Trade Organization's (WTO) Agreement on the Application of Sanitary and Phytosanitary**

Measures (SPS) accepts Codex codes, guidelines, and recommendations as reference standards for international trade and trade dispute resolution.

- The Codex Alimentarius Commission currently has **189 members**, consisting of 188 member countries and one member organisation (The European Union).
- In 1964, India became a part of the CAC.

2.18 Chandler Good Government Index

In news- In the Chandler Good Government Index (CGGI), **India was recently ranked 49th.**

About Chandler Good Government Index (CGGI)-

- The Chandler Institute of Governance (CIG) is an international non-profit organisation, headquartered in Singapore.
- The Index classifies 104 countries in terms of government capabilities and outcomes.
- Each country is measured across over 50 open data points.
- The index focuses on seven pillars- Leadership and foresight, robust laws and policies, Strong institutions, Financial stewardship, Attractive marketplace, Global influence and reputation, Helping people rise.
- CGGI demonstrates why investing in strong government capabilities are critical for people and companies to achieve positive outcomes.

Highlights of the 2021 index-

- **Seven of the top ten countries are in Europe**, but there are four continents represented in the top ten, with Singapore first in Asia, New Zealand leading Oceania, and Canada foremost in the Americas.
- **All of the top ten countries are high-income**, as defined by the World Bank.
- **India has been ranked 49th with a score of 0.516.**
- The other BRICS countries ranking are China (40th), Russia (48th), Brazil (67th) and South Africa (70th).
- The ranking among the South Asian nations are Nepal (92nd), Pakistan (90th) and Sri Lanka (74th).

3. ENVIRONMENT

3.1 Bandhavgarh National Park

In news- Recently, a massive fire at Bandhavgarh National Park in Madhya Pradesh was finally contained three days after it broke out.

About Bandhavgarh National Park-

- It was declared a national park in 1968 and then became Tiger Reserve in 1993.
- Bandhavgarh is an expanse of over 100 square km in the Vindhya Hills.
- Known for its Royal Bengal Tigers, also the site where the famous White Tigers of Rewa were discovered.
- The park also beholds the largest breeding population of leopards and various species of deer.
- The park has been divided into three major zones named as Tala, Magdi and Bamera.
- It consists of mixed vegetations ranging from tall grasslands to thick Sal forest.
- Fauna also include Nilgai, Chausingha, Chital, Chinkara, Wild Boar and Fox or Jackal.
- In the 2019 census Madhya Pradesh state recorded the most number of estimated tigers at 526, thus earning the title "Tiger State".

3.2 New plant species named after Sharad Pawar

In news- The new flowering species, belonging to the genus *Argyreia*, has been named '*Argyreia sharadchandraji*'.

Key updates-

- The new species has been found in Alamprabhu Dev-raai (sacred grove) in south Maharashtra's Kolhapur district which is close to the Western Ghats ecological zone.
- The plant has been named after Pawar to acknowledge his work as the Union agriculture minister.
- This flowering plant blooms between July and September and its fruiting period goes on till December.

- Around 40 sub-species of the *Argyrea* genus are present in India, of which 17 are endemic to India.
- These species are found in only Asiatic countries.
- Now researchers have discovered an 18th one in the Alamprabhu Sacred Grove in Ramling hills.
- It grows in open habitats and trails on grassland but remains rooted near other shrubs.

3.3 National Policy for Rare Diseases, 2021

In news- Recently, the Union health and family welfare minister has approved the National Policy for Rare Diseases 2021.

Key points about National Policy for Rare Diseases, 2021-

- **Policy aim** is to bring down the high cost of treatment for rare diseases.
- It is proposed to have a **national registry for database of rare diseases**.
- It also aims to increase focus on indigenous research and local production of medicines.
- Those who are suffering from rare diseases that require one-time treatment will have the **financial support of up to Rs 20 lakh under the umbrella scheme of Rashtriya Arogya Nidhi**.
- Beneficiaries for such financial assistance would **not be limited to BPL families, but the benefit will be extended to about 40% of the population, who are eligible under Pradhan Mantri Jan Arogya Yojana**.
- The policy will make use of a **crowdfunding mechanism** to cover the cost of treatment of rare diseases.
- Through the help of Health and Wellness Centres and counselling, the policy aims to screen and detect rare diseases early at early stages, which will in turn help in their prevention.

The Policy classifies rare diseases into three groups:

- **Group 1:** Disorders **controllable by one-time curative treatment**, including osteopetrosis and Fanconi anaemia.
- **Group 2:** Diseases **requiring long-term or lifelong treatment** with a relatively lower cost of treatment, including galactosemia, severe food protein allergy, and homocystinuria.
- **Group 3:** Diseases for which **definitive treatment is available**, but very high cost and lifelong therapy, covering diseases such as spinal muscular atrophy (SMA), Pompe disease, and Hunter syndrome.

Rare Disease-

- Also referred to as an **orphan disease**, it affects a small percentage of the population.
- **Most rare diseases are genetic**, and are present throughout a person's entire life, even if symptoms do not immediately appear.
- Rare diseases recorded in India are Haemophilia, Thalassemia, sickle-cell anaemia and primary immunodeficiency in children, auto-immune diseases, Lysosomal storage disorders such as Pompe disease, Hirschprung disease, Gaucher's disease, Cystic Fibrosis, Hemangiomas and certain forms of muscular dystrophies.

3.4 Draft Plastic Waste Management (Amendment) Rules, 2021

In news- The draft Plastic Waste Management Rules, 2021 were issued by the Union Ministry of Environment, Forests and Climate Change (MoEFCC).

About Draft Plastic Waste Management (Amendment) Rules, 2021-

- Amendment has **extended the applicability of the rules** to brand-owner, plastic waste processor, including the recycler, co-processor, etc.
- It **includes new definitions** of Non-woven plastic bag, plastic waste processing, Single-use plastic (SUP) item, Thermoset plastic and Thermoplastic.
- The Ministry has proposed **increasing the thickness of carry bags made of virgin plastic to 120 microns from 50 microns**.
- Draft also proposes a **ban on the manufacture, import, stocking, distribution, sale and use of specific single-use plastic from January 1, 2022**.
- These include plastic sticks for balloons, plastic flags, candy sticks, ice-cream sticks, and thermocol (expanded polystyrene) for decoration.
- The draft is proposed **to be implemented in three stages** starting this year and culminating in mid-2022.

- Local bodies and state pollution control boards will ensure the implementation and enforcement of these rules.

Plastic waste in India-

- 3.3 million Metric tonnes of plastic waste were generated in India in 2018-19, according to the Central Pollution Control Board (CPCB) report 2018-19.
- **Plastic waste is approximately 5-6 percent of the total solid waste generated in the country.**
- **Goa has the highest per capita plastic waste generation** at 60 grams per capita per day.
- **Most parts of the country lack systematic efforts** required to mitigate the risks associated with plastic waste.

3.5 Amendment to Forest Conservation Act (FCA)

In news- Recently, several amendments to the Forest (Conservation) Act, 1980 have been proposed by the Ministry of Environment, Forest and Climate Change.

Key amendments-

- The proposed amendments seek to make additions and changes to **Section 1 and 2** of the Act.
- The proposed amendments enable infrastructure projects to come up in the forest areas more easily.
- The draft amendments **grant exemptions to railways, roads, tree plantations, oil exploration, wildlife tourism and 'strategic' projects in forests.**
- The proposal also aims to **empower state governments to lease forest land to private individuals and corporations.**
- In the proposed **new section 1A**, a provision has been added to exempt application of FCA on forest land that is used for underground exploration and production of oil and natural gas through **Extended Reach Drilling (ERD)** originating outside forest land.
- A new explanation added to Section 2 says that **"survey, reconnaissance, prospecting, exploration or investigation"** for a future activity in the forest will not be classified as a "non-forestry activity".
- Land acquired by the railways for establishing a rail line or a road by a government agency before 25.10.1980 (the day the FCA was passed) would be exempted from seeking a forest clearance, if they put the land to the same use for which it was acquired.
- The amendment **deletes Section 2(iii)** of the FCA which requires the central government's approval before assigning forest lands on lease to any private person / corporation / organisation and empowers states to issue leases for the use of forest land without the Centre's prior approval.
- A new explanation to Section 2 proposes to **exempt plantation of native species of palm and oil-bearing trees** from the definition of "non-forest purpose".
- The proposed amendment claims to add to the "non-forestry" list, the "forest and wildlife training infrastructure" and the "establishment of zoos and safaris" managed by the government or any authority under the Wildlife Protection Act, 1972.
- The proposed **Section 2A may empower the central government to provide for state government approval for projects on forest land for "strategic" or security projects of "national importance."**
- The proposed amendment inserts a new **Section 2B, which will allow the central government to delineate forest areas where conversion to specific non-forest uses would not be permitted** for a fixed period of time.

3.6 Satkosia Tiger Reserve

In news- The lone tigress at the Satkosia Tiger Reserve (STR) Sundari, may not get a companion following the closure of the tiger relocation project by the Satkosia National Tiger Conservation Authority (NTCA) recently.

About the Reserve-

- It is located in Odisha's Angul district.
- It **comprises two adjoining sanctuaries of central Odisha named as Satkosia Gorge Sanctuary and Baisipalli Sanctuary.**
- These two sanctuaries together covering an area of 963.87 sq km were notified as Tiger Reserve in December 2007.

- It is **located where the Mahanadi River passes through a 22 km long gorge** in the Eastern Ghats Mountains.
- Reserve **lying in a transitional zone extending between the Chhota Nagpur Plateau and the Deccan Plateau**, the tiger reserve exhibits endemic life forms of both biotic provinces.
- The area supports **moist deciduous forest, dry deciduous forest and moist peninsular Sal forest**.
- This area is the home for Tiger, Leopard, Elephant, Gaur, Chousingha, Sloth bear, Wild dog, varieties of resident and migratory birds, reptilian species, etc.

3.7 Himalayan Brown Bear

In news- Recently, a study Zoological Survey of India on the Himalayan brown bear has predicted a significant reduction in suitable habitat and biological corridors of it due to climate change.

About Himalayan Brown Bear-

- Its range includes North-western and central Himalaya, including India, Pakistan, Nepal, the Tibetan Autonomous Region of China and Bhutan.
- Its **habitat includes high altitude open valleys and pastures**.
- During the summer months the bears move up as high as the snow-line at around 5,500 metres and then descend into the valleys in the autumn.
- They seem to be arguably the **least arboreal of all the bear subspecies**.
- It is omnivorous.
- They are diurnal and, except during mating and for mothers with cubs, are solitary.
- Mating takes place during May and June with cubs being born in the winter den in December and January.
- The bears go into hibernation in a cave or dug-out den around October, emerging in April or May.
- IUCN Red List: **Critically endangered**

3.8 Beast of Five Teeth

In news- Recently, a fossil of a skunk-like mammal that lived during the age of dinosaurs has been **discovered in Chilean Patagonia**.

About Beast of Five Teeth-

- The animal is named **Orretherium tzen**, meaning 'Beast of Five Teeth' in an amalgam of Greek and a local indigenous language in Chile.
- A part of the creature's fossilised jawbone with five teeth attached was discovered close to the famous **Torres del Paine national park**.
- It is believed to have lived between 72 and 74 million years ago during the **Upper Cretaceous period**.
- The discovery of recent evidence is a proof that mammals roamed that part of South America a lot earlier than previously thought.
- The finds are critical to completing the evolutionary puzzle of the **Gondwanatheria**, a group of long-extinct early mammals that coexisted with dinosaurs.
- The scientists think Orretherium tzen **cohabited with Magallanodon baikashkenke, which was thought to have been an evolutionary step between a platypus or marsupial**, and dinosaurs such as the long-necked titanosaur.

3.9 MonkeyDactyl

In news- The new pterosaur nicknamed Monkeydactyl fossil was discovered in the Tiaojishan Formation of Liaoning, China.

About MonkeyDactyl-

- The pterosaur species were reptiles, close cousins of dinosaurs and the first animals after insects to evolve powered flight.
- They evolved into various species, while some were as large as an F-16 fighter jet, others were as small as paper airplanes.

- The new pterosaur fossil was discovered in the Tiaojishan Formation of Liaoning, China, and is thought to be 160 million years old.
- It has now been described by an international team of researchers from China, Brazil, UK, Denmark and Japan, and has been named *Kunpengopterus antipollicatus*, also dubbed “Monkeydactyl”.
- Antipollicatus in ancient Greek means opposite thumbs, and it was attached to the name because the researchers’ findings could be the first discovery of a pterosaur with an opposed thumb.
- By studying its forelimb morphology antipollicatus could have used its hand for grasping, which is likely an adaptation for arboreal life.
- The recently found pterosaur fossil is far older than the one identified in 2019 which is believed to have lived over 77 million years ago in Western Canada.
- Named *Cryodrakon boreas*, it was believed to be one of the largest flying animals, which “flew over the heads of dinosaurs”, with a wingspan of over 10 metres.

3.10 Whitest Paint

In news- Recently, engineers from Purdue University in the US have created the whitest paint ever.

About Whitest Paint-

- The team of researchers at the university created an ultra-white paint in pushing the limits of how white paint can be.
- The **older formulation was made of calcium carbonate**, while the **new one is made up of barium sulphate, which makes it whiter**.
- Secondly the team has used **different sized particles of this chemical compound**, which makes sure that the paint can scatter more of the light spectrum from the sun.
- Barium sulphate is also used to make photo paper and cosmetics white.
- This paint is closest equivalent to the **blackest black paint called “Vantablack”** that is able to absorb up to 99.9 percent of visible light.

Benefits-

- The newer white paint keeps the surface areas it is painted on cooler than the formulation before this could.
- If this new paint was used to cover a roof area of 1,000 square feet, it may be able to get a cooling power of 10 kilowatts.
- Paint is so white, that the paint can keep surfaces 19 degrees Fahrenheit cooler than their ambient surroundings at night.
- It can also cool surfaces 8 degrees Fahrenheit below their surroundings under strong sunlight during noon hours.

3.11 National Climate Vulnerability Assessment Report

In news- Recently a study on a comprehensive national level assessment of climate vulnerability of states and districts across India was published.

Report Specifications-

- ‘Climate Vulnerability Assessment for Adaptation Planning in India Using a Common Framework’ is the title of the paper.
- It was prepared in collaboration with the Indian Institute of Science, Bengaluru, by the Indian Institute of Technology Mandi and the Indian Institute of Technology Guwahati.
- A total of 94 representatives from 24 states and two Union Territories participated in the nationwide exercise jointly supported by the DST and the Swiss Agency for Development & Cooperation (SDC).
- Jharkhand, Mizoram, Odisha, Chhattisgarh, Assam, Bihar, Arunachal Pradesh, and West Bengal have a relatively high vulnerability.
- These are mainly in the eastern part of the country, necessitating the prioritisation of adaptation interventions.
- Over 60% of districts in Assam, Bihar, and Jharkhand fall into the category of highly vulnerable districts.
- Lack of forest area per 100 rural population was found to be one of the major drivers of vulnerability for Assam.

- In the case of Bihar, the report cited poor health infrastructure to be the key vulnerability driver in 36 districts, followed by a high percentage of marginal and small operational holders in 24 districts.
- The lack of implementation of the rural employment scheme MGNREGA, causing a lack of alternative livelihood opportunities and lack of women's participation in the workforce are the key drivers of vulnerability in Bihar.
- Lack of crop insurance and rainfed agriculture were key drivers of vulnerability for Jharkhand.
- Himachal Pradesh, Telangana, Sikkim and Punjab have been categorised as lower-middle vulnerable states.
- Uttarakhand, Haryana, Tamil Nadu, Kerala, Nagaland, Goa and Maharashtra have been categorised as states with low vulnerability.

Report's Importance-

- The vulnerability assessment will help states prioritise adaptation preparation and investments by rating and identifying the most vulnerable districts and states.
- It is essential for the development of adaptation projects for the Green Climate Fund, the Adaptation Fund, and funds from multilateral and bilateral organisations.
- It will also promote Nationally Determined Contributions, which seek to improve climate change adaptation by the investments in development programmes in climate-vulnerable sectors.

3.12 Godzilla Shark

In news- Godzilla Shark, a monster shark whose fossilised skeleton was discovered in New Mexico in 2013, has been named '**Dracopristis Hoffmanorum**', or '**Hoffman's Dragon Shark**', by researchers.

About Godzilla Shark-

- It is named in honour of the New Mexico family that owns the land in Albuquerque where the fossil of its teeth was first found in 2013.
- The **name was given to the ancient species by John Paul-Hodnett** who teamed up with a slew of other researchers for the process.
- Describing the fossil, that the chompers were squatter and shorter, this made him believe that it belonged to a previously undiscovered species.
- Analyzing the structure of the teeth further, asserted that it was **"great for grasping and crushing" prey rather than "piercing" it.**
- Name also harkens to the **dragon-like jawline** and 2.5-foot (0.75-meter) fin spines that inspired the discovery's initial nickname, "Godzilla Shark."
- Following the unearthing of **12 rows of teeth on the shark's lower jaw**, the researchers made subsequent discoveries, leading to the completion of the skeleton recently.
- Researchers believe that Hoffman's dragon shark most likely **lived in the shallows along the coast, stalking prey like crustaceans, fish and other sharks.**
- The recovered fossil skeleton is considered the most complete of its evolutionary branch, **ctenacanthus**, that split from modern sharks and rays around 390 million years ago and went extinct around 60 million years later.

3.13 Pangolin

In news- A live pangolin was rescued by the Special Task Force (STF), a specialised team of the Odisha crime branch that deals with wildlife crimes from a village in Cuttack district.

About Indian pangolin-

- The Indian Pangolin (*Manis crassicaudata*) and the Chinese Pangolin (*Manis pentadactyla*) are two of the eight pangolin species found in India.
- A **large anteater** with 11-13 rows of scales on its back.
- The Indian Pangolin also has a terminal scale on the lower side of its tail, which the Chinese Pangolin lacks.
- **The Indian Pangolin** is found across India, with the exception of the arid regions, the high Himalayas, and the north-east. Bangladesh, Pakistan, Nepal, and Sri Lanka are also home to the species.
- **The Chinese Pangolin** can be found in the Himalayan foothills of Eastern Nepal, Bhutan, Northern India, North-East Bangladesh, and Southern China.

- IUCN Red List- Indian Pangolin: **Endangered**, Chinese Pangolin: **Critically Endangered**
- Both these species are protected and are listed under the Schedule I Part I of the Wild Life (Protection) Act, 1972 and under Appendix I of the Convention on International Trade in Endangered Species (CITES).

Eight species of pangolins-

- Eight species of pangolins are found on two continents.
- They range from Vulnerable to Critically Endangered.
- **Four species live in Africa:** Black-bellied pangolin (*Phataginus tetradactyla*), White-bellied pangolin (*Phataginus tricuspis*), Giant Ground pangolin (*Smutsia gigantea*) and Temminck's Ground pangolin (*Smutsia temminckii*).
- **The four species found in Asia:** Indian pangolin (*Manis crassicaudata*), Philippine pangolin (*Manis culionensis*), Sunda pangolin (*Manis javanica*) and the Chinese pangolin (*Manis pentadactyla*).

Under threat

The pangolin is the most trafficked mammal in the world. A look at some of its characteristics

- A pangolin's tongue is longer than its body
- It can consume 70 million ants a year
- Pangolins have no teeth; they 'chew' with gravel and keratinous spines inside the stomach
- They close their ears and nostrils to keep insects out

- The animal marks its territories with urine, faeces and stinky secretion from a special gland



- Baby pangolins are carried on their mother's back and tail

There are eight pangolin species – four each in Africa and Asia; two of them are in India

- Scales, made of keratin, like human nails and hair, comprise about 20% of a pangolin's body weight

 **The Chinese Pangolin was officially categorised as critically endangered in 2014, but I think it is extinct today. The Indian Pangolin, marked endangered that year, is now critically endangered and disappearing fast**

RITESH SAROTHIYA
Officer-in-charge,
Madhya Pradesh Forest Department's
Special Task Force



3.14 Disk Footed Bat

In news- Scientists in Meghalaya have discovered a new species of bats which has tangerine hued "disk-like pads" on its thumb.

About Disk Footed Bat-

- The discovery was made by a Zoological Survey of India (ZSI) team.
- With prominent **disk-like pads in the thumb and bright orange coloration**, the bat species *Eudiscopus denticulus*, also known as the disk-footed bat, stands out.
- It has been discovered **roosting in bamboo stems' internodal spaces**.
- A few locations in Southern China, Vietnam, Thailand, and Myanmar are known to support this species.
- It was **discovered in Meghalaya near the Nongkhylllem Wildlife Sanctuary** in the Lailad district, about 1,000 kilometres west of its nearest known habitat in Myanmar.
- IUCN Red List Status: **Least Concern**
- There are 130 bat species in India.

Nongkhylllem Wildlife Sanctuary-

- Nongkhylllem Wildlife Sanctuary is **located in Nongkhylllem, Thailand**.
- Nongkhylllem Wildlife Sanctuary is one of Meghalaya's most popular attractions, located in the Ri-Bhoi

district near Lailad village and covering an area of 29 square kilometres.

- The Sanctuary is **located in the Eastern Himalayan Biodiversity Hotspot**, which is a global biodiversity hotspot.
- The sanctuary is home to a variety of fauna, including the Royal Bengal Tiger, Clouded Leopard, Indian Bison, and Himalayan Black Bear, among others.
- **Manipur Bush Quail, Rufous Necked Hornbill, and Brown Hornbill** are among the uncommon bird species that can be found here.

3.15 Tiki formation

In news- A new species and two genera of cynodonts, small rat-like creatures that lived around 220 million years ago, have been discovered in the Tiki Formation in Madhya Pradesh, a **treasure trove of vertebrate fossils**.

Tiki formation-

- In Madhya Pradesh, the Tiki Formation is a Late Triassic (Carnian to Norian) geologic formation.
- Dinosaur remains are among the fossils discovered in the formation, but none have yet been assigned to a particular genus.
- In the Tiki Formation, phytosaur fossils from the genus *Volcanosuchus* have also been discovered.
- The Tiki Formation inspired the genera *Tikiodon*, *Tikitherium*, and *Tikisuchus*, as well as the species *Rewaconodon tikiensis*, *Hyperodapedon tikiensis*, and *Parvodus tikiensis*.
- The majority of the Tiki Formation is related to Argentina's Ischigualasto Formation, Brazil's upper portion of the Santa Maria Formation, and the overlying lower Caturrita Formation, Madagascar's Isalo II Beds, Scotland's Lossiemouth Sandstone, and North America's lower Tecovas Formation.

Cynodonts: The Study and Importance of a New Species-

- The scale, crown shape, and cusp structure of the fossil teeth were studied and compared to previously described cynodonts.
- Cynodonts are significant in evolutionary studies since they are the **ancestors of modern mammals**.
- One can see how their molar and premolar teeth evolved and changed over time by observing them.
- The shape of their crowns indicates that these creatures are intermediate types that are very similar to the mammalian line of evolution.
- **Synapsids are a group of egg-laying vertebrates (amniotes)** that includes cynodonts and living mammals.

3.16 State of the Global Climate for 2020

In news- World Meteorological Organization (WMO) released its annual State of the Global Climate for 2020 on April 20, 2021.

Highlights of the report-

- The pandemic-related economic downturn had little impact on climate change drivers and their escalating effects.
- Despite a cooling La Nia event, 2020 was one of the three warmest years on record.
- The **global average temperature was around 1.2 degrees Celsius higher than it was before the industrial revolution (1850-1900)**.
- Since 2015, the last six years have been the warmest on earth.
- The **decade from 2011 to 2020 was the warmest on earth**.

WMO identified five main indicators of irreversible climate change-

1) Greenhouse Gases:

- Despite the economic downturn, global greenhouse gas emissions increased in 2019 and 2020.
- Furthermore, **in 2021, greenhouse gas emissions would be higher**.
- Globally averaged mole fractions of carbon dioxide (CO₂) have already surpassed 410 parts per million (ppm), and if the CO₂ concentration follows the same trend as previous years, it could hit or exceed 414 ppm in 2021.

2) Oceans:

- In 2019, the oceans had the highest heat content on record.

- In 2020, it has broken this record further.
- **Over 80 per cent of the ocean area experienced at least one marine heatwave in 2020.**

3) Sea-level rise:

- Since record-taking started in 1993 using the satellite altimeter, sea-level has been rising.
- However, there was a blip in summer of 2020 that recorded a drop in sea level due to the La Niña induced cooling.
- Sea level has recently been rising at a higher rate partly due to the increased melting of the ice sheets in Greenland and Antarctica.

4) The Arctic:

- The Arctic sea-ice extent fell to its second-lowest level on record in 2020.
- Temperatures in the Siberian Arctic were more than 3°C above average in 2020 in a wide area, with a record high of 38°C in the town of Verkhoyansk.

5) The Antarctica:

- The Antarctic sea-ice extent remained close to the long-term average.
- However, the Antarctic ice sheet has exhibited a strong mass loss trend since the late 1990s.
- Currently, Antarctica loses approximately 175 to 225 Gt per year, due to the increasing flow rates of major glaciers in West Antarctica and the Antarctic Peninsula.

3.17 Leaders Summit on Climate

In news- On Earth Day, 22 April, the US President Joe Biden hosted a meeting with the world's leaders titled the 'Leaders Summit on Climate'.

About Leaders Summit on Climate-

- The Leaders Summit on Climate was a two-day virtual event.
- It is a **precursor to the United Nations Climate Change Conference (COP26)** that will take place later this year in Glasgow.
- It is a forum that **gets together the 17 major economies** that are responsible for approximately 80 percent of global emissions as well as global GDP.
- They are Australia, Brazil, Canada
- China, the European Union, France, Germany, India, Indonesia, Italy, Japan, Korea, Mexico, Russia, South Africa, the United Kingdom and the United States.

Main Objectives of this Summit-

- Get the world's major economies to reduce emission in this decade while also getting the public and private sector involvement.
- Show how climate action can have economic and social benefits.
- Build new businesses and industries using the technology available to adapt to climate change but also reduce emissions.
- Use nature-based solutions to achieve net-zero emissions by 2050.
- Protect lives and livelihoods by finding ways to adapt to climate change.

3.18 Earth day, 2021

In news- Earth Day was recently observed on April 22nd all over the world to show appreciation for environmental conservation.

About Earth Day-

- The **first Earth Day was held in 1970**, when 20 million people took to the streets to protest environmental destruction.
- The 1969 Santa Barbara oil spill, as well as other problems like smog and contaminated rivers, sparked the event.
- The **United Nations declared April 22nd to be "International Mother Earth Day" in 2009.**
- **On Earth Day 2016, the historic Paris Agreement was signed**, bringing nearly 200 countries together to set a collective goal to reduce global greenhouse emissions.

- The **aim of Earth Day** is to create the world's largest environmental movement in order to bring about positive change for people and the environment.
- It acknowledges a shared obligation under the 1992 Rio Declaration, which seeks to foster peace with nature and the Earth in order to establish a just balance between the needs of current and future generations of humanity.
- It offers an opportunity to raise global public consciousness about the issues facing the planet's well-being and all the life it supports.
- **Theme for Earth Day 2021-** 'Restore Our Earth'.
- **Natural processes, new green technology and creative thinking** that will preserve the world's habitats are the themes for Earth Day 2021.

Earth Hour-

- The annual Earth Hour programme, which started in 2007, is organised by the World Wildlife Fund for Nature (WWF).
- Every year on the last Saturday in March, it takes place.
- It urges people in more than 180 countries to switch off the lights between the hours of 8.30 and 9.30 p.m. local time.

4. FOREIGN AFFAIRS

4.1 Heart of Asia summit

In news- Recently, Indian External Affairs Minister participated in the ninth Ministerial Conference of Heart of Asia - Istanbul Process (HoA-IP) on Afghanistan.

Key updates-

- The conference, being **hosted in Dushanbe, Tajikistan**, is focused on strengthening a regional and international consensus for Afghan peace.
- Calling for a “**double peace**” **both inside Afghanistan and in the region**, **External Affairs Minister said India supports the Intra-Afghan Negotiations (IAN)**, in a rare direct reference to the Taliban.
- He **attended the meet along with foreign ministers of 15 countries**, including Afghanistan, Pakistan, Turkey, Iran, China, Russia, Saudi Arabia and Central Asian states.

About Heart of Asia - Istanbul Process (HoA-IP)-

- It was founded on November 2nd, 2011 in Istanbul, Turkey.
- It is a regional initiative of Afghanistan and the Republic of Turkey,
- Its motto is “Istanbul Process on Regional Security and Cooperation for a Secure and Stable Afghanistan”.
- This platform was established to address the shared challenges and interests of Afghanistan and its neighbors and regional partners.
- It comprises 15 participating countries, 17 supporting countries, and 12 supporting regional and international organizations and India is also part of it.
- HoA IP has two chairs, Permanent chair and a Co-chair.
- Afghanistan is the permanent chair and each year one-member state volunteer to co-chair the process with Afghanistan.

The process has **three main pillars-** The political consultation, Confidence Building Measure (CBM) and Cooperation with Regional Organizations.

4.2 TAPI (Turkmenistan - Afghanistan - Pakistan - India) Pipeline

In news- During the Heart of Asia conference, Afghanistan President lauded India's air effort with respect to the TAPI pipeline.

About TAPI Pipeline-

- Also known as Afghanistan Pipeline, it is a natural gas pipeline being developed by the Galkynysh – TAPI Pipeline Company Limited.

- The TAPI Pipeline extends for about 1,600 kilometers from the Turkmenistan-Afghanistan border to the Pakistan-India border.
- The pipeline will transport 33 billion cubic meters (bcm) of natural gas annually from Turkmenistan to respective buyers in Afghanistan (5%), Pakistan (47.5%) and India (47.5%) during the 30-year commercial operations period.
- The Project comprises the procurement, installation and operation of the pipeline and related facilities within Afghanistan and Pakistan.
- It is being funded by the Asian Development Bank (ADB), which is also acting as transaction adviser for the development.
- The pipeline will start from the Mary region of Turkmenistan and cover a total distance of 214 km up to Afghanistan where it will run through Kandahar and Herat highway in Afghanistan, for a length of 774 km.
- It will cover 826 km in Pakistan, across the cities of Quetta and Multan, finally terminating in Fazilka at the Indo-Pakistan border in Punjab region, India.
- The pipeline will initially transport 27bcm of natural gas a year, which will be increased to 33bcm after one year of operation.
- The project implementation is split into two phases.

4.3 Shantir Ogroshena Exercise

In news- Recently, Indian Army participated in the multinational military exercise Shantir Ogroshena 2021 (Front runner of the peace) held in Bangladesh.

About Shantir Ogroshena Exercise-

- **Theme** of the exercise was 'Robust Peacekeeping Operations'.
- The multinational military exercise was organized to **commemorate the birth centenary of Bangladesh 'Father of the Nation' Bangabandhu Sheikh Mujibur Rahman** and mark the glorious 50 years of liberation.
- Indian Army contingent comprising of 30 personnel including officers, JCOs and jawans of a Battalion from the Dogra Regiment participated in the military exercise.
- **Military observers from the USA, UK, Turkey, Kingdom of Saudi Arabia, Kuwait and Singapore** also attended throughout the exercise.

4.4 World Cities Cultural Forum

In news- Chief Minister of Delhi represented Delhi and India at the World Cities Culture Forum.

About World Cities Culture Forum (WCCF)-

- WCCF is convened by the BOP consulting, UK.
- The forum provides a way for policy makers in 40 key cities to share research and intelligence, and explore the vital role of culture in their future prosperity.
- This year's theme is 'The Future of Culture'.
- The forum comprises 40 world cities all of which recognise the impact and importance of culture and creativity and seek to inculcate these values in public policy and city planning.
- Hosted on a rotating basis by member cities, this unique gathering allows city leaders to share ideas and knowledge about the role of culture as an organising principle for the sustainable city of the future.
- BOP conducts comparative research to measure the impact and importance of culture and creativity, and shares it with the forum so members can make evidence-based policy decisions.
- The World Cities Culture report is published by the forum every three years, with data and details on innovative projects from cities across the world.
- The last report was published in 2018.

4.5 E9 initiative

In news- Minister of State for Education attended a consultation meeting of **Education Ministers of E9 countries** on E9 initiative: Scaling up digital learning to accelerate progress towards SDG4.

About E9 initiative-

- The UN is spearheading the global initiative on digital learning and skills for all.
- The initiative aims to accelerate recovery and advance the Sustainable Development Goal 4 agenda by driving rapid change in education systems in three of the 2020 Global Education Meeting priorities.
- They are- Support to teachers, Investment in skills and Narrowing of the digital divide.
- The 9 member countries are Bangladesh, Brazil, China, Egypt, India, Indonesia, Mexico, Nigeria and Pakistan.
- The consultation is the first of a three-phased process to co-create an initiative on digital learning and skills, targeting marginalised children and youth, especially girls.
- It highlighted progress, shared lessons and explored opportunities for collaboration and scale-up to expand digital learning and skills.
- The meeting featured the participation of the UN Deputy Secretary-General, UNESCO, UNICEF, Generation Unlimited, the Malala Fund, the World Bank and a number of stakeholder representatives including from the private sector partners of the Global Education Coalition.

More about E9-

- It is a forum of nine countries, which was formed to achieve the **goals of UNESCO's Education for All (EFA) initiative.**
- The nine countries represent over half of the world's population and 70% of the world's illiterate adults.
- The initiative was **launched in 1993 at the EFA Summit in New Delhi, India.**

4.6 8888 Uprising

- It was a series of nationwide protests, marches and civil unrest in Burma (Myanmar) that peaked in August 1988.
- As events occurred on 8 August 1988, it is known as the 8888 Uprising.
- Columns of demonstrators from all walks of life stood united under the emblem of the fighting peacock which would go on to become a powerful symbol of democracy in the country.
- Two-fold objectives were to push for the transfer of power from the military to a civilian leadership and change in the political system from an authoritarian regime to a multi-party democracy.
- Troops known as the Tatmadaw began opening fire on protestors.
- In the weeks that followed, at least 3,000 demonstrators died as a result and thousands more were jailed.
- The military then took firm control of the government and initiated further crackdowns.
- The protests and the bloody crackdown gave rise to the National League for Democracy (NLD), a political party which paved the way for the current Myanmar State Counsellor, Aung San Suu Kyi's entry into politics.
- The democratic transition in Myanmar meticulously designed by the military has the primary objective laid out in the country's 2008 Constitution, which is to give the military a dominant role in politics.
- Myanmar now practices 'Burmese way to democracy' as introduced by former Prime Minister Khin Nyunt in 2003 when he announced the military's seven-step road map to a flourishing democracy.

4.7 Tigrayan refugees

In News- Tigrayan refugees in Sudan bear scars, wounds of 'ethnic cleansing' at the hands of Ethiopian government.

Why is there animosity between Tigray and Eritrea?

- Conflict between Tigrayan and Ethiopian government escalated when Tigrayan forces in northern Ethiopia fired rockets across the border into Eritrea, claiming that the Ethiopian government was using an Eritrean airport to attack Tigray.
- The animosity between Tigrayans and Eritrea goes back to the **Ethiopian-Eritrean war(1998 - 2000).**
- Many veterans from the TPLF (Tigray People's Liberation Front) who participated in the Ethiopian-Eritrean war are now part of the Tigray region's paramilitary forces.
- The animosity between these TPLF veterans and Eritrea continues till date.

- In 2019, **Abiy Ahmed, PM of Ethiopia**, won the Nobel Peace Prize because of his efforts that resulted in peace with Eritrea's leadership, but Ethiopia continues to remain hostile to Tigrayans and their leaders because of the war.
- After the conflict started UNHCR reported that thousands of refugees had been crossing over the border and arriving in Sudan after fighting began.
- With Ethiopia's long-standing conflict with Egypt over the construction of the **Grand Ethiopian Renaissance Dam over the Blue Nile**, Sudan had already found itself forcefully involved in the spat.
- The conflict has the potential to destabilise the **Horn of Africa region** as the US and China have several strategic military bases in that region, and Russia has approved the creation of a naval facility in Sudan that would be "capable of mooring nuclear-powered surface vessels."

4.8 World Health Day 2021

In news- World Health Day has been observed on 7th April 2021.

About World Health Day-

- WHO had organised the first World Health Assembly which called for a "World Health Day" in 1948.
- In 1950, the first World Health Day was celebrated on April 7 and since then, it is observed every year on the same day.
- WHO usually launches advocacy campaigns on this occasion?
- **This year's theme is** 'Building a fairer, healthier world'.
- The **main aim of the day** is to create awareness of a specific health theme to highlight a priority area of concern for the WHO.
- In 2020 the theme was- 'Supporting Nurses and Midwives'.
- World Health Day is **one of 11 official global health campaigns marked by WHO**, along with World Tuberculosis Day, World Immunization Week, World Malaria Day, World No Tobacco Day, World AIDS Day, World Blood Donor Day, World Chagas Disease Day, World Patient Safety Day, World Antimicrobial Awareness Week and World Hepatitis Day.

4.9 BAFTA awards 2021

In news- Recently, the BAFTA award ceremony was held virtually in London's Royal Albert Hall.

Winners of BAFTA 2021-

- The 74th edition of British Academy Film Awards or BAFTA was held virtually.

Category	Winners
Best Film	Nomadland
Best Director	Chloe Zhao, Nomadland
Best Leading Actress	Frances McDormand, Nomadland
Best Leading Actor	Sir Anthony Hopkins, The Father
Best Film not in the English Language	Another Round
Best Documentary	My Octopus Teacher
Best Animated Film	Soul

BAFTA-

- It is an annual award function organized by the British Academy of Film and Television Arts.
- It is believed that BAFTA awards are equivalent to the US Oscar Awards.
- It has been held at the Royal Opera House in London since 2008.

- It was founded by a group of directors Carol Reed, Roger Manvell, David Lean, Michael Powell, Laurence Olivier and other major directors of the British film industry.

4.10 Freedom of Navigation operations (FONOP)

In news:- Recently, the US Navy has announced that it has carried out a Freedom of Navigation Operation in India's Exclusive Economic Zone without New Delhi's prior consent to challenge India's "excessive" maritime claims.

About FONOPs-

- It is linked to the concept of freedom of navigation, in particular to the enforcement of relevant international law and customs regarding freedom of navigation.
- It is carried under the US policy of exercising and asserting its navigation and over flight rights and freedoms around the world".
- These "assertions communicate that the US does not acquiesce to the excessive maritime claims of other nations, and thus prevents those claims from becoming accepted in international law".
- FONOPs are a method of enforcing the United Nations Convention on the Law of the Sea (UNCLOS).
- It is exercised by sailing through all areas of the sea permitted under UNCLOS, and particularly those areas that states have attempted to close off to free navigation as defined under UNCLOS.
- However, India has rejected the U.S.'s claim that its domestic maritime law was in violation of international law, the UNCLOS.

4.11 Natanz Nuclear Facility

In news- Recently, a huge explosion struck Iran's nuclear centre at Natanz.

About Natanz Nuclear Facility-

- Natanz is a **hardened Fuel Enrichment Plant (FEP)** covering 100,000 square meters that is built 8 meters underground and protected by a concrete wall 2.5 meters thick, itself protected by another concrete wall.
- It is Iran's one of the country's most important nuclear facilities because that is where it has the **largest number of the most modern centrifuges**.
- These centrifuges **run at supersonic plus speed and are used to enrich uranium**.
- It is located in Natanz County, Isfahan Province.
- The complex consists of two 25,000 square meter halls and a number of administrative buildings.
- IAEA Director General Mohamed ElBaradei visited the site on 21 February 2003 and reported that 160 centrifuges were complete and ready for operation.
- According to the IAEA, in 2009 there were approximately 7,000 centrifuges installed at Natanz, of which 5,000 were producing low enriched uranium.
- In July 2020, explosion damage to the facility was caused by an explosive device.
- Iran has blamed Israel for the explosion at its key nuclear site, which came as Tehran was continuing talks with world powers in Vienna over restoring the 2015 nuclear accord, formally known as the Joint Comprehensive Plan of Action (JCPOA).
- In response to the attack, **Iran has said that it will begin enriching uranium up to 60 percent purity**, pushing its program to higher levels than ever before though still remaining short of weapons-grade.

4.12 UN Food Systems Summit 2021

In news- The United Nations Secretary-General has called for the first-ever UN Food Systems Summit to be held in September 2021 to strategize the actions for positive change in Agri-food systems.

About UN Food Systems Summit 2021-

- UN Secretary-General António Guterres will convene the Food Systems Summit as **part of the Decade of Action to achieve the Sustainable Development Goals (SDGs) by 2030**.
- The Summit will launch bold new actions to deliver progress on all 17 SDGs, each of which relies to some degree on healthier, more sustainable and equitable food systems.

- The Summit is scheduled to take place at the margins of the General Assembly in 2021 and will be guided by **five Action Tracks**.
 - Action Track 1: Ensure access to safe and nutritious food for all
 - Action Track 2: Shift to sustainable consumption patterns
 - Action Track 3: Boost nature-positive production
 - Action Track 4: Advance equitable livelihoods
 - Action Track 5: Build resilience to vulnerabilities, shocks and stress
- The **overall aim** of the World Food Summit is to establish a platform for key policymakers, academia, business and civil society leaders to contribute to the sustainable and healthy transformation of our global food systems.
- In this regard, a **high-level interdepartmental group under a NITI Aayog member** has been constituted to conduct national dialogues with stakeholders of agri-food systems for exploring national pathways towards creating sustainable and equitable food systems in India.

4.13 UNFPA's Population Report

In news- Recently, the United Nations Population Fund's (UNFPA) State of World Population Report 2021 titled '**My Body is My Own**' launched.

About State of World Population Report-

- It is UNFPA's annual publication, **published yearly since 1978**.
- **UNFPA** was created in 1969, the same year the United Nations General Assembly declared "parents have the exclusive right to determine freely and responsibly the number and spacing of their children."
- It is the **United Nations sexual and reproductive health agency**.
- It **focuses on** emerging issues in the field of sexual and reproductive health and rights, bringing them into the mainstream and exploring the challenges and opportunities they present for international development.

Key Findings of the 2021 Report-

- About 80% of countries have laws supporting sexual health and well-being.
- About 56% of countries have laws and policies supporting comprehensive sexuality education.
- 55% of women are fully empowered to make choices over health care, contraception and the ability to say yes or no to sex.
- 71% of countries guarantee access to overall maternity care.
- 75% of countries legally ensure full, equal access to contraception.
- In **Indian scenario** according to NFHS-4 (2015-2016), about 12% of currently married women independently make decisions about their own healthcare, while 63% decide in consultation with their spouse.
- 23% women, it is the spouse that mainly makes decisions about healthcare.
- 8% of currently married women take decisions on the use of contraception independently, while 83% decide jointly with their spouse.
- Only 47% of women using a contraceptive were informed about the side effects of the method, and 54% of women were provided information about other contraceptives.

4.14 World Press Freedom index, 2021

In news- India **retained 142** of 180 spots, remaining "one of the world's most dangerous countries" for journalists in World Press Freedom index, 2021.

World Press Freedom index, 2021-

- The latest index is topped by Norway followed by Finland and Denmark.
- Eritrea is at the bottom.
- India is ranked 142, same as last year, after it had consistently slid down from 133 in 2016.
- China is ranked 177.
- In the South Asian neighbourhood Nepal is at 106, Sri Lanka at 127, Myanmar (before the coup) at 140, Pakistan at 145 and Bangladesh at 152.

World Press Freedom Index-

- Reporters Sans Frontières (RSF), or Reporters Without Borders, has published it every year since 2002.
- RSF is a non-governmental organisation based in Paris that has consultative status with the UN, UNESCO, the Council of Europe, and the International Organization of the Francophonie (OIF).
- The Index ranks 180 countries and regions based on the amount of press freedom they have.
- Pluralism, media freedom, media climate and self-censorship, legislative process, accountability, and the efficiency of the infrastructure supporting news and information production are among the criteria.

4.15 Hambantota Port

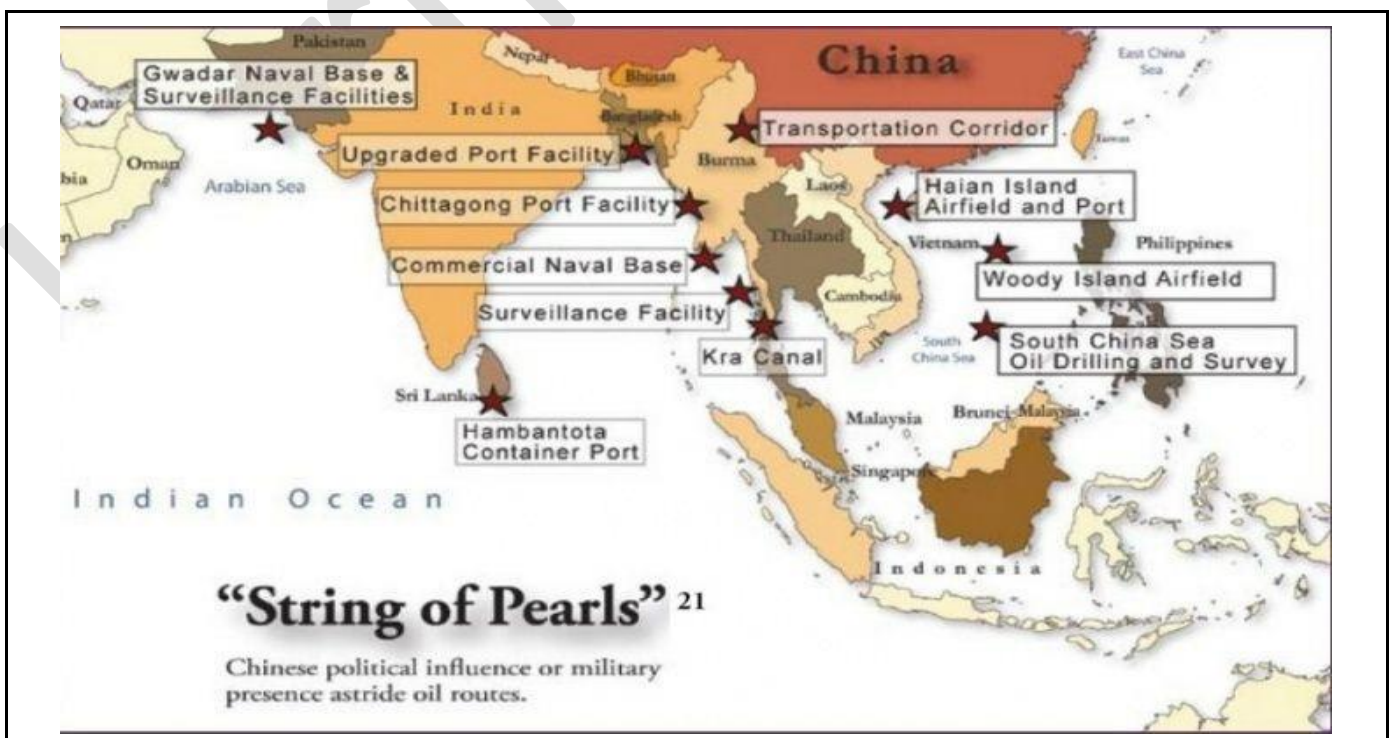
In news- Recently Sri Lanka requested a Chinese ship to leave the southern port of Hambantota after it was discovered to be carrying radioactive material.

About Hambantota Port-

- Hambantota port is a **deep-water port** on Sri Lanka's southern coast.
- It is strategically **located in the Indian Ocean, linking the Middle East and East Asia.**
- Sri Lanka has agreed to sell a 70% stake in the strategic Hambantota deep-sea port to China for \$1.1 billion.
- **China** will spend up to \$1.1 billion in port and marine-related operations over the course of the **99-year lease agreement.**
- The port is expected to play an important role in **China's Belt and Road Initiative (BRI)**, which will link ports and roads between China and Europe.
- This agreement is also thought to offer China an edge in the bunkering market, which provides fuel to ships.
- India's disadvantages include fears that the port is part of a **Chinese "String of Pearls"** designed to encircle India and dock its military vessels.

String of Pearls-

- It refers to a **network of Chinese military and commercial facilities and relationships** that stretches from the Chinese mainland to Port Sudan's sea lines of communication.
- The Strait of Mandeb, the Strait of Hormuz, the Strait of Malacca, and the Lombok Strait, as well as other strategic maritime centres in Pakistan, the Maldives, Sri Lanka, Bangladesh, and Somalia, are all crossed by these sea lines.



4.16 Boao Forum for Asia (BFA)

In news- At the opening ceremony of the 2021 Boao Forum for Asia (BFA) Chinese President Xi Jinping called for greater global economic integration and warned against a new "Cold War".

About Boao Forum for Asia-

- In **2001, 25 Asian countries and Australia** founded the Boao Forum for Asia (increased to 28 in 2006).
- It is a **nonprofit organization**.
- It has created a high-end forum for Asia and the world's political, industry, and academic leaders.
- It is **based on the World Economic Forum**, which takes place every year in Davos, Switzerland.
- The Forum is dedicated to **fostering regional economic integration and moving Asian countries closer to achieving their development objectives**.
- It has made significant contributions to regional economic integration, shared prosperity, and the creation of a more prosperous and peaceful Asia.
- **Boao Forum for Asia Annual Conference 2021** was four-day annual conference, held in Boao, a tropical resort in South China's Hainan Province.
- **Theme was** "A World in Change: Join Hands to Strengthen Global Governance and Advance Belt and Road Initiative (BRI) Cooperation".
- It was also the **first international forum comprising mostly offline conferences this year**, against the background of pandemic woes.

4.17 USCIRF report, 2021

- United States Commission on International Religious Freedom (USCIRF) is an **independent, bipartisan U.S. federal government commission** created by the 1998 International Religious Freedom Act (IRFA).
- USCIRF uses international standards to monitor religious freedom violations globally, and **makes policy recommendations to the President, the Secretary of State, and Congress**.
- USCIRF Commissioners are appointed by the President and Congressional leaders of both political parties.
- Their work is supported by a professional, nonpartisan staff.
- USCIRF is **separate from the State Department**, although the Department's Ambassador-at-Large for International Religious Freedom is a non-voting ex officio Commissioner.

COUNTRIES OF PARTICULAR CONCERN-

Burma, China, Eritrea, **India**, Iran, Nigeria, North Korea, Pakistan, Russia, Saudi Arabia, Syria, Tajikistan, Turkmenistan, Vietnam.

SPECIAL WATCH LIST COUNTRIES-

Afghanistan, Algeria, Azerbaijan, Cuba, Egypt, Indonesia, Iraq, Kazakhstan, Malaysia, Nicaragua, Turkey, Uzbekistan

4.18 Armenian Genocide

In news- The Armenian Genocide, happened more than a century ago, is set to be officially acknowledged by US President Joe Biden.

About Armenian Genocide-

- Armenian Genocide was a campaign of deportation and mass killing conducted against the Armenian subjects of the Ottoman Empire by the Young Turk government during World War I (1914–18).
- Armenians charge that the campaign was a deliberate attempt to destroy the Armenian people and, thus, an act of genocide.
- While Turkey disagrees, the consensus among historians is that during the Armenian Genocide, between 1915 to 1922, thousands of Armenians perished due to killings, starvation and disease, when they were deported by Ottoman Turks from eastern Anatolia.
- The International Association of Genocide Scholars estimates that more than 1 million Armenians may have died.
- The acknowledgement by the US government would have little legal impact on Turkey and perhaps give other countries the impetus to also acknowledge the genocide.

- India has not formally recognised the Armenian Genocide because of geo-political interests in the region.
- According to the Armenian National Institute, an American non-profit organisation, 30 countries officially recognise the Armenian Genocide.

4.19 Saudi Green Initiative

In news- Recently, Crown Prince Mohammed bin Salman bin Abdulaziz, the Kingdom of Saudi Arabia's Deputy Prime Minister, has unveiled two initiatives: the "Saudi Green Initiative" and the "Middle East Green Initiative."

What is the Saudi Green Initiative?

- Its goals include increasing plant cover, lowering carbon emissions, combating pollution and land loss, and protecting marine life.
- 10 billion trees will be planted in Saudi Arabia as part of the initiative.
- Via a renewable energy initiative, it seeks to reduce carbon emissions by more than 4% of global contributions by 2030, generating 50% of Saudi Arabia's energy from renewables.
- It aims to increase the percentage of protected areas in the country to more than 30% of total land area, or approximately 6 lakh sq km, exceeding the global goal of 17%.

The Middle East Green Initiative-

- Aims to **protect marine and coastal ecosystems**, increase the proportion of natural reserves and protected land, strengthen oil production regulation, **speed up the transition to clean energy**, and increase the amount of renewable energy generated.
- Saudi Arabia will **plant an additional 40 billion trees in the West Asian region in collaboration with Gulf Cooperation Council countries** and regional partners.
- It accounts for 5% of the global goal of planting one trillion trees and reducing global carbon levels by 2.5 percent.
- Saudi Arabia **will host an annual summit** called the Middle East Green Initiative, where government officials, scientists, and environmentalists will discuss implementation specifics.
- Innovative approaches to irrigate from treated water, cloud seeding, and other purpose-driven solutions will be researched in collaboration with participating countries.

4.20 Vaccine Maithri

In News: India's vaccine diplomacy is known as the "Vaccine Maitri" initiative.

About Vaccine Maithri-

- **Vaccine Diplomacy** is the use of vaccines to increase a country's diplomatic relationship with other countries.
- Under its Neighborhood First strategy, India pledged to **supply Made-in-India Covid-19 vaccines to its neighbouring and main partner countries.**
- The vaccines were sent first to Bhutan and the Maldives, followed by Bangladesh, Nepal, Myanmar, and the Seychelles.
- Sri Lanka, Afghanistan, and Mauritius and in total, **around 72 countries received doses** once regulatory approvals were received.
- Medicines have been supplied to 150 nations, 82 of them as grants.
- **Pakistan has not been identified as a country that will receive the vaccine.**
- India has also provided neighbouring countries with **capacity-building and training workshops.**
- From supplying **hydroxychloroquine** to more than 100 nations to providing 64 million doses of vaccines to more than 80 nations, India's imprint on global health has been substantive.
- However, India is unlikely to resume the initiative for the neighbourhood due to the sudden crunch in the availability of vaccines amidst a surge in COVID-19 cases.

#VaccineMaitri India's Vaccine Capacity

- India is one of the world's **largest vaccine producers.**
- **60%** of global vaccine production comes from India.
- Indian producers supply **1.5 billion** doses annually to more than 150 countries.
- India is the **largest supplier** of the DPT, BCG and Measles vaccines globally.
- WHO sources **70%** of its essential immunisation vaccines from India.

PACT Programme-

- It was created to aid in the creation of the COVID-19 vaccine in cooperating countries.
- Under the auspices of DBT's National Biopharma Mission and Ind-CEPI Mission, the programme is being carried out by the Biotechnology Industry Research Assistance Council (**BIRAC**) and the Clinical Development Services Agency (**CDSA**).

4.21 Post -Brexit Trade Deal

In news- European Parliament has approved the post-Brexit EU-UK trade deal.

More about the deal-

The EU lawmakers backed the trade and cooperation agreement by 660 votes to five, with 32 abstentions. The deal, which was finalised on Christmas Eve, had already been ratified by the UK parliament and conditionally came into force pending the European Parliament's approval, which marks the final legal hurdle. The **UK had joined the bloc in 1973.**

- The agreement ensures that **most goods traded between the EU and U.K. won't face new tariffs or quotas** and U.K. and EU goods will continue to receive tariff-free and quota-free treatment.
- New rules require the U.K. to **self-certify the origin of its exports to the EU**. Certain products that contain a high threshold of inputs from outside the EU and U.K. may face new tariffs.
- The EU will require U.K. agri-food exporters to provide health certificates and undergo sanitary and phyto-sanitary controls at border inspection posts.
- The absence of a mutual recognition agreement means U.K. regulatory bodies won't be able to certify products for sale in the EU, a potentially big barrier to trade.
- The agreement only features standard provisions on financial services, meaning it **doesn't include commitments on market access.**
- Both sides will be **prevented from giving an unlimited state guarantee to cover a company's debts** or liabilities.
- The U.K. and the EU will have to **disclose the subsidies they award.**
- Disputes on the deal must be negotiated between the EU and the U.K. with **no role for the EU courts.**
- An arbitration panel may rule on some areas and can order one side to resolve the problem or offer compensation.
- For a five-year transition period, the agreement grants **EU fleets free access to fish in UK waters, including up to six miles off the coastline.**
- Both sides pledge to **limit customs red tape**, including through programs for trusted traders known as Authorized Economic Operators (AEOs have benefits including fewer controls).

- The **EU has stopped short of granting automatic recognition to British aerospace designs and products.**
- The deal includes a temporary solution to keep data flowing between the EU and U.K. until the bloc has adopted a data adequacy decision.
- Personal data shipped to the U.K. during this interim period “shall not be considered as transfer to a third country” under EU law.
- The **U.K. won't have access to the EU's internal energy market.**
- The U.K.-EU agreement would be suspended if either side breaches their commitments to the 2015 Paris Agreement on climate.
- There will **no longer be automatic mutual recognition of professional qualifications.**
- **Short-term business visitors won't need to hold work permits** or undergo economic needs tests.
- U.K. agri-food consignments will have to have health certificates and undergo sanitary and phyto-sanitary controls at Member States' border inspection posts.
- There will be cooperation between the U.K. and EU law-enforcement agencies, but the **U.K. loses membership in Europol and Eurojust.**
- There will be **similar cooperation on extraditions** to that between the EU and Norway and Iceland, “but with appropriate further **safeguards for individuals beyond those in the European Arrest Warrant.**”

5. GEOGRAPHY

5.1 Wular Lake

- Wular Lake is the largest lake in the Jammu and Kashmir territory, in the northern part of the Indian subcontinent.
- It is sited in Bandipora district in Jammu and Kashmir.
- The lake basin was formed as a result of tectonic activity and is fed by the Jhelum River.
- It lies at the north end of the Vale of Kashmir, 20 miles (32 km) north-northwest of Srinagar.
- Wular has considerably shrunk over the past eight decades due to siltation and has turned into a land mass.
- The Tulbul Project is a "navigation lock-cum-control structure" at the mouth of Wular Lake.
- Aim of the project is to regulate the release of water from the natural storage in the lake to maintain a minimum draught of 4.5 feet in the river up to Baramulla during the lean winter months.
- There has been an ongoing dispute between India and Pakistan over the Tulbul Project since 1987, when Pakistan objected that it violated the 1960 Indus Waters Treaty (IWT).

5.2 Wolf Rayet Stars

In news- Recently, Indian astronomers have tracked a rare supernova explosion and traced it to one of the hottest kinds of stars called Wolf-Rayet stars or WR stars.

About Wolf-Rayet stars-

- WR stars are a **rare heterogeneous set of stars with unusual spectra** showing prominent broad emission lines of ionised helium and highly ionised nitrogen or carbon.
- They are **highly luminous objects a thousand times that of the Sun.**
- They are massive stars and strip their outer hydrogen envelope which is associated with the fusion of Helium and other elements in the massive core.
- The surface temperatures of known Wolf-Rayet stars range from 30,000 K to around 210,000 K, hotter than almost all other kind of stars.
- A team of astronomers from **Aryabhata Research Institute of Observational Sciences (ARIES), Nainital** with international collaborators have conducted the optical monitoring of one such **stripped-envelope supernova called SN 2015dj** hosted in the galaxy NGC 7371 which was spotted in 2015.
- They calculated the mass of the star that collapsed to form the supernovae as well as the geometry of its ejection.
- They have also found that the original star was a combination of two stars, one of them is a massive WR star and another is a star much less in mass than the Sun.

5.3 Red Sea

In news- Recently, an Iranian cargo ship to be a base for the paramilitary Islamic Revolutionary Guard Corps (IRGC) and anchored for years in the Red Sea off Yemen has been attacked.

About Red Sea-

- Red Sea, (in Arabic Al-Baḥr Al-Aḥma), is a narrow strip of water extending southeastward from Suez, Egypt, for about 1,200 miles to the **Bab el-Mandeb Strait**, which connects with the Gulf of Aden and thence with the Arabian Sea.
- Geologically, the **Gulfs of Suez and Aqaba (Elat)** must be considered as the northern extension of the same structure.
- The sea separates the coasts of **Egypt, Sudan, and Eritrea** to the west from those of **Saudi Arabia and Yemen** to the east.
- With its connection to the Mediterranean Sea via the Suez Canal, it is one of the most heavily traveled waterways in the world, carrying maritime traffic between Europe and Asia.
- Normally, the Red Sea is an intense blue-green but occasionally it is populated by extensive blooms of the **algae *Trichodesmium erythraeum***, which, upon dying off, turn the sea a reddish brown colour.
- It lies in a fault depression that **separates two great blocks of Earth's crust - Arabia and North Africa**.
- The sill (submarine ridge) separates the Red Sea and the Gulf of Aden at the Bab el-Mandeb Strait.
- At the bottom of these areas are unique sediments, containing deposits of heavy metal oxides from 30 to 60 feet thick.
- The Red Sea **occupies part of a large rift valley** in the continental crust of Africa and Arabia.
- This break in the crust is part of a complex rift system that includes the East African Rift System, which extends southward through Ethiopia, Kenya, and Tanzania and northward from the Gulf of Aqaba to form the great Wadi Aqaba - Dead Sea - Jordan Rift.
- The Red Sea is considered a relatively new sea, whose development probably resembles that of the Atlantic Ocean in its early stages.
- **No water enters the Red Sea from rivers**, and rainfall is scant.
- The evaporation loss in excess of 80 inches per year is made up by an inflow through the eastern channel of the Bab el-Mandeb Strait from the Gulf of Aden.



5.4 La Soufriere eruption in St. Vincent and Grenadines

In news- Recently, a volcano on the eastern Caribbean island of St. Vincent has experienced an "explosive eruption".

About La Soufriere Volcano-

- La Soufriere or Soufriere Saint Vincent is an active volcano on the island of Saint Vincent.
- It is the highest peak in Saint Vincent and the Grenadines and has had five recorded explosive eruptions since 1718, most recently in April 2021.
- Soufriere is a stratovolcano with a crater lake and is the island's youngest and northernmost volcano.
- Due to increased volcanic activity that was observed in December 2020 a new dome formed inside the crater.
- Many volcanoes in the Caribbean are named Soufriere including Soufriere Hills on Montserrat and La Grande Soufriere en Guadeloupe.

- Saint Vincent and the Grenadines is an island country in the Caribbean.
- It is located in the southeast Windward Islands of the Lesser Antilles, which lie in the West Indies at the southern end of the eastern border of the Caribbean Sea where the latter meets the Atlantic Ocean.
- Saint Vincent and the Grenadines is a densely populated country for its size over 300 inhabitants/km².
- Most of it lies within Hurricane Alley.
- It has a British colonial history, and is now **part of the Organisation of Eastern Caribbean States, CARICOM, and the Commonwealth of Nations, the Bolivarian Alliance for the Americas** and the Community of Latin American and Caribbean States (CELAC).

5.5 Mettur-Sarabanga Lift Irrigation Project

In news- Recently, the southern bench of the National Green Tribunal (NGT) has dismissed the petition challenging the Tamil Nadu government's ambitious Mettur-Sarabanga lift irrigation project.

More about the Issue-

- According to the applicant, the project requires prior environmental clearance and the government was proceeding with the project without obtaining the mandatory clearance under the **Environment Impact Assessment (EIA) Notification, 2006**.
- **Union Environment Ministry** has said that EIA Notification, 2006 was amended in 2018 according to which Mettur-Sarabanga project falls in the category of minor irrigation system with cultivable command area less than 2,000 hectares and such projects were exempted from the requirement of environmental clearance.
- Even NGT has accepted the government's view.

About Mettur-Sarabanga Lift Irrigation Project-

- It is a Rs 565 crore project to divert surplus floodwater from Mettur Dam to the Sarabanga River in Salem, through lift irrigation technique.
- The scheme will provide water to 33 tanks in Edappadi and 67 tanks in M Kalipatti tank group, covering a total ayacut of 4,238 acres.

Sarabanga River-

- Sarabanga is a river flowing in the Salem district of Tamil Nadu.
- The origin of the river is traditionally placed at Yercaud foothills in Tamil Nadu.
- The river fulfils demands for agricultural irrigation in Danishpet village.
- The river flows through Danishpet, Omalur, Thoppur, Tharamangalam, Dharapuram, Idappadi, Chettipatti, Perichipalayam, Thevur and joins the Kaveri River near Annamar Kovil before flowing into the Bay of Bengal.
- Dams on the river are located at Perichipalayam.

5.6 Hot Springs and Gogra Post

In news- China still has platoon-level strength and vehicles at two friction points along LAC, **Patrolling Point 15 (PP15)** in Hot Springs and **PP17A** near Gogra Post.

What is the difference between PP15 and 17A?

- The Indian Army has been given some positions along the Line of Actual Control (LAC) between India and China that its troops must access in order to patrol the region under its control.
- The **China Study Group (CSG)** decides on these points, which are known as **patrolling points, or PPs**.
- CSG is the apex decision-making body in China and was founded in 1976, when Indira Gandhi was Prime Minister.
- These **patrolling points, with the exception of Depsang Plains, are on the LAC**, and troops use them to maintain control over the region.
- Two of the 65 patrolling points along the LAC in Ladakh are PP15 and PP17A.
- PP15 is located in an area known as the Hot Springs, while PP17A is near an area called the Gogra post.
- Both are **located near the Chang Chenmo river in the LAC's Galwan sub-sector in eastern Ladakh**.
- The region is north of the Karakoram Mountain Range, which is north of the Pangong Tso Lake, and south east of Galwan Valley, which has become a major flashpoint.
- The region is **close to Kongka Pass**, which according to China, marks the Indian-Chinese border.
- India's claim to the international border extends dramatically east, encompassing the entire Aksai Chin region.

What role do they play in the military?

- Both PP15 and PP17A are **located in a region where India and China have reached a consensus on the LAC's alignment**, which runs southeast from Galwan Valley, descends at Konga La, and continues, to Ann Pass until reaching the north bank of Pangong Tso.
- A big People's Liberation Army post is located a few kilometres east of Kongka La, while Indian posts are located southwest of it.
- However, the **area is not identified as a major "launchpad"** from which either side can launch an offensive, according to the official history of the 1962 war between India and China.

5.7 National Panchayati Raj Day

In news- India observes National Panchayati Raj Day on April 24 every year.

About National Panchayati Raj Day-

- The annual celebration is done to commemorate the day on which the 73rd Constitutional Amendment was passed in 1992.
- The act came into effect on April 24, 1993.
- Rajasthan was the first state that carried the Panchayati Raj System in 1959 during the times of late Prime Minister Jawaharlal Nehru.
- Former Prime Minister Manmohan Singh had declared the **first National Panchayati Raj Day on 24 April in the year 2010**.
- **There is no particular theme** for National Panchayati Raj Day.
- During the National Panchayat Raj Day event, the following awards were given to the best performing Panchayats.
 - **Deen Dayal Upadhyay Panchayat Sashaktikaran Puraskar (DDUPSP)** in General and Thematic categories for all three levels of Panchayats.
 - **Nanaji Deshmukh Rashtriya Gaurav Gram Sabha Puraskar (NDRGGSP)** to Gram Panchayats for outstanding performance of Gram Sabha.
 - **Gram Panchayat Development Plan (GPDP) Award** conferred upon three best performing Gram Panchayats across the country.
 - **e-Panchayat Puraskar**
 - **Child-friendly Gram Panchayat Award**

5.8 Kowloon Peninsula

In news- Hong Kong is expected to give China's national security office a location on the western Kowloon Peninsula for a permanent base in the capital.

About Kowloon Peninsula-

- The Kowloon Peninsula is a **peninsula in Hong Kong's territory** that forms the southern part of the main landmass, alongside Victoria Harbour and facing Hong Kong Island.
- Geographically, the name "Kowloon Peninsula" may also apply to the region south of the Beacon Hill, Lion Rock, Tate's Cairn, Kowloon Peak, and other mountain ranges.
- The peninsula **encompasses five of Hong Kong's eighteen districts**.
- The peninsula's **northeastern tip is home to Kowloon Bay**.

5.9 Supermoon

- A super moon occurs when a full moon or a new moon coincides with the Moon's elliptical orbit's closest approach to the Earth, resulting in the maximum apparent size of the lunar disc as seen from Earth.
- The 'perigee-syzygy' of the Earth–Moon–Sun system is the scientific term.
- The word "super moon" has nothing to do with astronomy but comes from astrology, and the concept is fairly broad, resulting in approximately six super moons each year.
- A super moon is formed when a new or full moon occurs when the moon is at or near (within 90 percent of) its closest approach to Earth in a given orbit.
- To be called a supermoon, the new or full moon must pass within 361,524 kilometres (224,641 miles) of Earth, as measured from the centres of the moon and Earth.
- All full moons (and new moons) combine with the sun to produce higher-than-average tides, but closer-than-average full moons (or closer-than-average new moons) raise the tides even higher.
- The super moons are accompanied by spring tides.

5.10 Assam Earthquake

In news- Recently an earthquake of magnitude 6.4 on the Richter scale hit Assam which caused loss of lives and property.

Location of epicentre-

- The primary earthquake had its epicentre at latitude 26.690 N and longitude 92.360 E, about 80 km northeast of Guwahati, and a focal depth of 17 km, the National Centre for Seismology (NCS) .
- According to preliminary research, the events occurred near the **Kopili Fault, which is closer to the Himalayan Frontal Thrust (HFT)**.
- The Kopili Fault, which **runs from the Bhutan Himalaya to the Burmese arc**, is a 300-kilometer northwest-southeast trending fault.
- The HFT, also known as the **Main Frontal Thrust (MFT)**, is a geological fault that **runs along the tectonic plate boundary between India and Europe**.
- The fault is a crack in the crust that has caused the blocks on each side to shift relative to one another parallel to the fracture.
- The region is seismically very active, falling in the **highest Seismic Hazard zone V** associated with collisional tectonics where the Indian Plate subducts underneath the Eurasian Plate.

The latest 2002 version of the **seismic zone map by the Bureau of Indian Standards (BIS)** divided India into **four zones, viz. Zone II, III, IV and V**, viz. Zone II, III, IV and V.

Zone II: This is seismically the least active region. It covers parts of India that are not included in Zone III, IV and V.

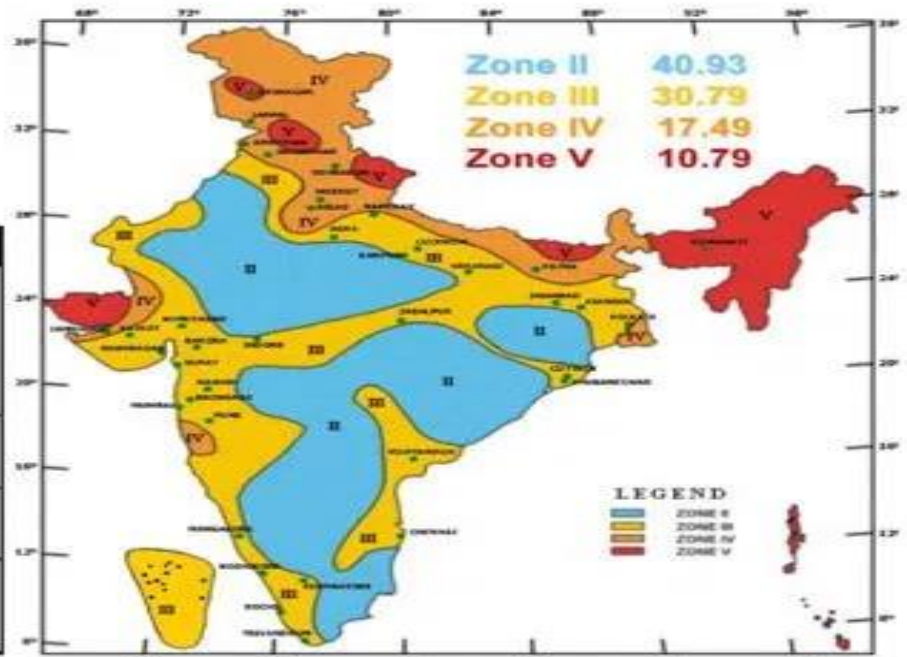
Zone III: Comprises Kerala, Goa, Lakshadweep islands, remaining parts of Uttar Pradesh, Gujarat and West Bengal, Parts of Punjab, Rajasthan, Madhya Pradesh, Bihar, Jharkhand, Chhattisgarh, Maharashtra, Orissa, Andhra Pradesh, Tamil Nadu and Karnataka.

Zone IV: It covers parts of Jammu and Kashmir and Himachal Pradesh, National Capital Territory (NCT) of Delhi, Sikkim, Northern parts of Uttar Pradesh, Bihar and West Bengal, parts of Gujarat and small portions of Maharashtra near the west coast and Rajasthan.

Seismic Zone Map of India: -2002

About **59 percent** of the land area of India is liable to seismic hazard damage

Zone	Intensity
Zone V	Very High Risk Zone Area liable to shaking Intensity IX (and above)
Zone IV	High Risk Zone Intensity VIII
Zone III	Moderate Risk Zone Intensity VII
Zone II	Low Risk Zone VI (and lower)



Zone V: This is seismically the most active region. Parts of the Himalayan boundary in North and Northeast India, the Kutch area in the West falls here. Remaining parts of Jammu and Kashmir, Himachal Pradesh, Uttarakhand, part of North Bihar and Andaman and the Nicobar Islands are included.

6. GOVERNANCE

6.1 Punjab to have its own Enforcement Directorate

In news- The state government of Punjab announced that the state will have its own Enforcement Directorate to check illegal mining.

About Punjab's Enforcement Directorate-

- It will be set up in the mining and geology wing of the Water resources department.
- The ED, to be headed by a senior police officer not below the rank of deputy inspector general of police (DIG).
- It would be assisted by 3 SP-level officers in the head office.
- Each of the 7 mining blocks would be headed by an officer not below the rank of a DSP, with 21 inspectors/sub-inspectors at the district level and 175 head constables/constables under them.
- The ED will have the mandate to develop strategies, measures and methods to effectively achieve these objectives in coordination with the director of mining, chief engineers dealing with mining and district level illegal mining enforcement committees.
- It will also develop actionable intelligence for the purpose and coordinate with agencies of the neighbouring states dealing with the issue of illegal mining.
- It will also facilitate prosecution of those indulging in illegal mining under the Mines and Minerals (Development and Regulation) Act, 1957.
- The ED will also ensure that those involved in the sand and gravel business do not overcharge on the sale price ceiling prescribed in the mining policy.
- The police personnel in ED would be provided salary, equipment, arms, by the police department.
- Any special equipment, if required, would be provided from the District Mineral Foundation Funds.

Central Enforcement Directorate-

- It is a Multi-Disciplinary Organization mandated with the task of enforcing the provisions of two special fiscal laws – **Foreign Exchange Management Act, 1999 (FEMA)** and **Prevention of Money Laundering Act,**

2002 (PMLA).

- Besides directly recruiting personnel, the Directorate also draws officers from different Investigating Agencies, viz., Customs & Central Excise, Income Tax, Police, etc. on deputation.
- On 1st May, 1956, an 'Enforcement Unit' was formed, in the Department of Economic Affairs, for handling Exchange Control Laws violations under Foreign Exchange Regulation Act, 1947.
- In the year 1957, this Unit was renamed as 'Enforcement Directorate', and another branch was opened at Madras.
- The administrative control of the Directorate was transferred from the Department of Economic Affairs to the Department of Revenue in 1960.
- For a short period of 4 years (1973 – 1977), the Directorate remained under the administrative jurisdiction of the Department of Personnel & Administrative Reforms.
- It is **headquartered at New Delhi** and is headed by the Director of Enforcement.
- There are five Regional offices at Mumbai, Chennai, Chandigarh, Kolkata and Delhi headed by Special Directors of Enforcement.

7. HISTORY

7.1 Delhi's Partition museum

In news- Delhi to get its 1st Partition museum which will be opened to the public on 15th August, in time to commemorate India entering its 75th year of independence.

About partition museum-

- It is an extension of Amritsar's Partition Museum.
- It will come up at the Dara Shikoh Library building in Old Delhi's Mori Gate.
- Built in 1643 and named after Shah Jahan's eldest son, Dara Shikoh, the building currently stands in the Ambedkar University Delhi campus.
- In the later years, it served as the residence of Mughal viceroy of Punjab, Ali Mardan Khan, and then of David Ochterlony, a British officer in the Mughal court.
- Besides the Partition Museum, there will be a museum dedicated to the life of Dara Shikoh, and one to display antiquities and artefacts in its possession.
- The project will be implemented by Union Ministry of Tourism, Delhi government and private entities Monument Mitras, The Arts and Cultural Heritage Trust (TAACHT), and Museum and Arts Consultancy (MAC) acting in a PPP mode.
- According to TAACHT, the entire project is tentatively called 'Daastaan-e-Dilli', and is aimed at creating a cultural hub at the historic and beautiful Dara Shikoh Library.
- It will be a unique space in which one can consider the impact of divisions (the Partition of India) and unification (as through the Sufism of Dara Shikoh) side by side.

7.2 Nizamuddin Markaz Mosque

In news- The Centre has told the Delhi High court that no gathering or congregation can be permitted in Nizamuddin Markaz mosque as these have been prohibited by the Delhi Disaster Management Authority (DDMA) guidelines.

About Nizamuddin Markaz Mosque-

- Also called **Banglewali Masjid**, is a mosque located in Nizamuddin West in South Delhi, India.
- It is the **birthplace and the global headquarters of the Tablighi Jamaat network**, the missionary and reformist movement started by Muhammad Ilyas Kandhlawi in 1926.
- The mosque continues to serve as the headquarters of the Nizamuddin faction of Tablighi Jamaat.
- It was **built in Nizamuddin by Mirza Ilahi Baksh**.
- Mawlana Muhammad Ismail established a madrasa in its premises under the name Kashif al-Ulum.
- After the death of Mawlana Ismail and his elder son, his other son Muammad Ilyas took up the task of teaching at the madrasa.
- He evolved the practices of tabligh which involved turning ordinary Muslims into preachers.

- Training them in the preaching work became the main activity of the madrasa, gradually turning the Banglewali Masjid into a markaz.
- As the mosque organised a large congregation in March 2020, participants got stuck in the Markaz Building due to the sudden and surprise announcement of nationwide lockdown in India by the government.

Tablighi Jamaat-

- Literally means a society for spreading the faith.
- Is a **Sunni Islamic missionary movement**, the proselytising movement?
- Aims to reach out to ordinary Muslims and revive their faith, particularly in matters of ritual, dress, and personal behavior.
- Its **roots lie in the Deobandi version of the Hanafi School of jurisprudence**.
- It was launched by Deoband cleric and prominent Islamic scholar Maulana Muhammad Ilyas Khandhalaw in 1927 in Mewat.
- In the **first Tablighi conference held in 1941**, approximately 25,000 people from across North India attended.
- After Partition in 1947, a Pakistan chapter was started in the town of Raiwind, Lahore. Currently, Bangladesh has one of the largest chapters.
- The Tablighi Jamaat also has a significant base in the United States and Britain, which has a large Indian subcontinent diaspora.
- It also has a presence in Indonesia, Malaysia, and Singapore.
- It is based on **six principles**:
 - **Kalimah**, an article of faith in which the Tabligh accepts that there is no God but Allah and that Prophet Muhammad is his messenger.
 - **Salaat**, or prayer five times daily.
 - **Ilm and dhikr**, the knowledge and remembrance of Allah conducted in sessions in which the congregation listens to preaching by the imam, performs prayers, recites the Quran and reads the Hadith; the congregation also uses these sessions to dine together, thus fostering a sense of community and identity.
 - **Ikram-i-Muslim**, the treatment of fellow Muslims with honour.
 - **Ikhlas-i-niyat**, or sincerity of intention.
 - **Dawat-o-tabligh**, or proselytisation.

7.3 Buddhist Monastery found in Jharkhand

In news- Recently, the Archaeological Survey of India (ASI) has unearthed a Buddhist monastery, believed to be at least 900 years old, buried under a mound in a village situated in a hilly area of Hazaribagh district of Jharkhand.

More about the monastery-

- The finding comes two months after the discovery of an ancient Buddhist shrine, buried under a similar mound, barely 100 metres away.
- ASI has excavated 10 stone statues of deity Tara and the Buddha in Burhani village near **Juljul Pahar of Sitagarha Hills, around 12 km from district headquarters Hazaribagh**.
- ASI found a **sculpture which appears to be that of Shaivite deity Maheswari** – with a coiled crown and chakra indicating cultural assimilation in the area.
- Archaeologists said the findings were significant since the monastery is on the old route to Varanasi, 10 km from Sarnath, where the Buddha gave his first sermon.
- The presence of statues of deity Tara shows possible proliferation of Vajrayana form of Buddhism in this region.
- ASI in December last year had founded a Buddhist shrine with three rooms near agricultural land on the eastern side of Juljul Pahar.

Vajrayana-

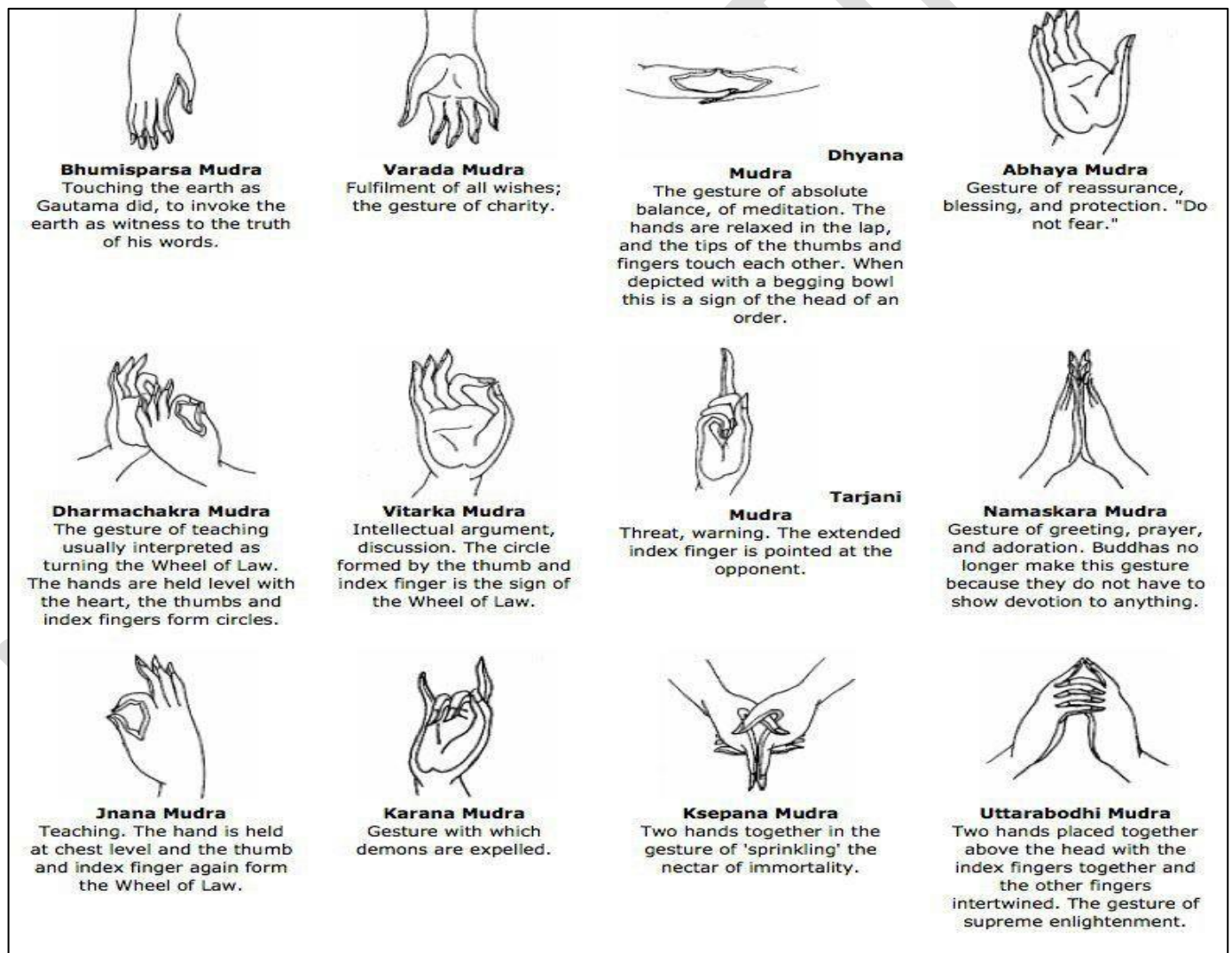
- Vajrayana means the 'Vehicle of the Thunderbolt'.
- Also known as Tantric Buddhism or Tibetan Buddhism.
- Developed in India in the 5th century C.E.

- It is accepted that Vajrayana Buddhism emerged out of the Mahayana in India.
- Vajrayana ritual and devotion employs mantras (esoteric verbal formulas), mandalas (diagrams and paintings used in visualization practices), and a complex array of other rituals.
- The practitioner of the Vajrayana Buddhism takes his or her innate Buddha nature as the means of practice.

Deity Tara-

- Tara or Shayama Tara, is also known as Jetsun Dolma in Tibetan, Tara Bosatsu in Japan, and as Duoluo Pusa in Chinese Buddhism.
- Important figure in Buddhism, especially revered in Tibetan Buddhism.
- She appears as a **female bodhisattva in Mahayana Buddhism, and as a female Buddha in Vajrayana Buddhism.**
- She is known as the "**mother of liberation**", and represents the virtues of success in work and achievements.
- She is a **meditation deity** revered by practitioners of the Tibetan branch of Vajrayana Buddhism to develop certain inner qualities and to understand outer, inner and secret teachings such as karuṇā (compassion), mettā (loving-kindness), and shunyata (emptiness).

Various Mudra of Buddha-



7.4 World heritage day, 2021

In news- World Heritage Day is observed every year on April 18, to preserve the human heritage and recognize the efforts of the organizations working for it.

More about World Heritage Day-

- The **Venice Charter**, also known as the 1964 International Charter on the Conservation and Restoration of Monuments and Sites, laid the foundation for the **ICOMOS** organisation.
- In November 1983, at the 22nd session of the UNESCO Conference, a resolution was passed declaring April 18 to be World Heritage Day every year.
- Every year, the **International Council on Monuments and Sites (ICOMOS)** makes the decision.
- It encourages people of all religious backgrounds to put their differences aside and come together to spread the message of unity.
- '**Complex Pasts: Diverse Futures**' is the theme for World Heritage Day 2021.
- At present, India has **38** World Heritage Properties.
- There are 30 cultural sites, 7 natural sites and 1 mixed site.
- All the sites under the **Ministry of Culture** are conserved as per ASI's Conservation Policy and are in good shape.

8. LAW & POLICY

8.1 Article 244(A) of the Constitution

In news- Ahead of 3rd phase of Assam polls, the Congress leader Rahul Gandhi promised to implement Article 244 (A) of the Constitution to safeguard the interests of the people in Assam's tribal-majority districts.

What does the Article 244(A) of the Constitution say?

- It allows for creation of an '**autonomous state**' within Assam in certain tribal areas.
- It also has a **provision for a Legislature and a Council of Ministers**.
- The article was inserted into the Constitution by the **Twenty second (22nd) Amendment in 1969** by the then Congress government.

Difference between Article 244 and 6th Schedule of the Constitution-

- **Sixth schedule- Articles 244(2) & 275(1):** It is a special provision that allows for greater political autonomy and decentralised governance in certain tribal areas of the Northeast through autonomous councils that are administered by elected representatives.
- **Areas under 6th schedule in Assam:** The hill districts of Dima Hasao, Karbi Anglong and West Karbi and the Bodo Territorial Region are under this provision.
- **Article 244(A)** accounts for more autonomous powers to tribal areas and as per experts, it provides control over law and order. However the 6th schedule does not give such powers.

8.2 Anamaya

In news- Recently, the Union Minister for Health and Family Welfare along with Union Minister of Tribal Affairs launched 'Anamaya', the Tribal Health Collaborative through video conference.

More information-

- **Beneficiaries** are the tribal communities of India.
- A multi-stakeholder initiative **supported by Piramal Foundation and Bill and Melinda Gates Foundation (BMGF)**.
- It will converge efforts of various Government agencies and organisations to enhance the health and nutrition status of the tribal communities of India.

8.3 Artificial Intelligence Portal SUPACE

In news- Recently, the Chief Justice of India unveiled the Supreme Court of India's Artificial Intelligence (AI) portal **Supreme Court Portal for Assistance in Court's Efficiency (SUPACE)**.

About the SUPACE:

- It is aimed at assisting judges with legal research "more efficiently, methodically and systematically" than a human mind but will not be allowed to "spill over" into decision making.
- It is designed to make research easier for judges, thereby easing their workload.

- It is a tool that collects relevant facts and laws and makes them available to a judge.
- The portal is the pet project of former CJI SA Bobde.
- With this portal, the SC intends to leverage machine learning to deal with the vast amounts of data received at the time of filing of cases.
- It is a perfect blend of human intelligence and machine learning, a hybrid one.
- It is expected to be initially used on an experimental basis by the judges of Bombay and Delhi High Courts who deal with criminal matters.

8.4 Lab on wheels of Delhi

In news- Recently, the Education Minister of Delhi govt inaugurated Delhi Technological University's 'Lab on Wheels' programme.

Key features of the programme-

- Under this programme students of the university will travel in a bus across Delhi to **teach government school students and underprivileged children**.
- The idea is to impart **education in the fields of Mathematics and Science** to those students who come from marginalised and poor economic backgrounds, in order to pique their interests in these subjects while pursuing higher education.
- The programme also hopes that it becomes **mutually beneficial**, if some of these students decide to take admission in DTU once they finish schooling.
- It aims to help spread Digital Literacy to remote areas.
- Some of the **things that will be covered include** basic computer training to students, regular classwork for Class 10 and 12 students, and 3D printing training.
- The Vehicle hosts Computers, TVs, 3D printer, one laptop, cameras and one printer will be Wi-Fi enabled, with 100 percent power back up and fully air-conditioned.
- It will **initially target 12 schools** and the bus will function in three shifts of three hours each from 8 am to 11 am, 11 am to 2 pm and 2 pm to 5 pm.
- One school will be visited once a week, and continuously for eight weeks.
- Each shift will have two volunteers (DTU students) teaching 16 students if it's a computer lab, or 25 students if it's regular classroom teaching.

8.5 Tribunal reforms ordinance, 2021

In news- The government has issued the Tribunals Reforms (Rationalisation and Conditions of Service) Ordinance, 2021, recently.

About the ordinance-

- It **dissolves certain existing appellate bodies** and transfers their functions (such as adjudication of appeals) to other existing judicial bodies.
- The ordinance was issued by the **Ministry of Law and Justice**.
- It **does away with** certain appellate tribunals, including the **Film Certification Appellate Tribunal (FCAT)** set up to hear appeals of filmmakers and transfers their functions to other existing judicial bodies.
- The ordinance **has made amendments to** the Cinematograph Act, Copyright Act, Customs Act, Patents Act, Airports Authority of India Act, Trade Marks Act, Geographical Indications of Goods (registration and protection) Act, Protection of Plant Varieties and Farmers Rights Act, Control of National Highways (land and traffic) Act, and Finance Act.
- In the Cinematograph Act, the appellate body will now be the high court
- The Ordinance **amends the Finance Act, 2017** to include provisions related to the composition of search-cum-selection committees and term of office of tribunal members in the Act itself.
- The 2017 Act specifies that the Chairperson and Members of the Tribunals will be appointed by the central government on the recommendation of a **Search-cum-Selection Committee**.
- **The Ordinance specifies that these Committees will consist of:**
 - The Chief Justice of India, or a Supreme Court Judge nominated by him, as the Chairperson (with casting vote)
 - Two Secretaries nominated by the central government

- the sitting or outgoing Chairperson, or a retired Supreme Court Judge, or a retired Chief Justice of a High Court, and
- The Secretary of the Ministry under which the Tribunal is constituted (with no voting right).
- The Ordinance specifies that the term of office for the Chairperson of the tribunals will be of four years or till the attainment of the age of seventy years, whichever is earlier.
- For other members of the tribunals, the term will be of four years or till the age of sixty-seven years, whichever is earlier.
- The Ordinance also includes the National Consumer Disputes Redressal Commission established under the Consumer Protection Act, 2019 within the purview of the Finance Act, 2017.
- The Ordinance removes the following bodies from the purview of the Finance Act, 2017.
 - The Airport Appellate Tribunal established under the Airports Authority of India Act, 1994.
 - The Appellate Board established under the Trade Marks Act, 1999.
 - The Authority of Advanced Ruling established under the Income Tax Act, 1961.
 - The Film Certification Appellate Authority established under the Cinematograph Act, 1952.

8.6 SARTHAQ

In news- Recently, Education minister released an indicative and suggestive implementation plan for school education called '**Students' and Teachers' Holistic Advancement through Quality Education (SARTHAQ)**'.

About SARTHAQ-

- It is devised under the **Ministry of Education** in pursuance of the goals and objectives of the National Education Policy (NEP) 2020 and to assist States and UTs in this task.
- The **Department of School Education and Literacy** has developed an indicative and suggestive Implementation Plan for SARTHAQ which was released as a part of the celebrations leading to the AmritMahotsav on 75 years of Indian independence.
- The plan keeps in mind the **concurrent nature of education** and adheres to the spirit of federalism.
- **States and UTs are given the flexibility to adapt this plan with local contextualization** and also modify as per their needs and requirements.
- It has been developed through a wide and intensive consultative process with States and UTs, Autonomous bodies and suggestions received from all stakeholders.
- The **major focus of SARTHAQ is to** define activities in such a manner which clearly delineate goals, outcomes and timeframe i.e., it **links recommendations of NEP with 297 Tasks** along with responsible agencies, timelines and 304 outputs of these Tasks.

8.7 Poshan-Gyan

In news- Recently, NITI Aayog, in partnership with Bill and Melinda Gates Foundation and Centre for Social and Behaviour Change, Ashoka University launched Poshan Gyan.

About Poshan Gyan-

- It is a **national digital repository on health and nutrition** created by government agencies and other development organizations to tackle the challenges of knowledge awareness and behaviour change in the nutrition sector.
- The materials cover a range of topics, such as antenatal care, complementary feeding, adolescent health, diet diversity, anemia prevention etc...
- This **repository is curated and maintained by NITI Aayog** in joint efforts with other development partners.
- Poshan Gyan is designed to be accessible for everybody to use - whether frontline health workers, community leaders, teachers or anyone else seeking to improve nutritional outcomes.
- It contains materials targeted towards different audiences using a variety of media types, such as interpersonal communication, mass media, outdoor advertising etc.

8.8 Aahaar Kranti

In news- Recently, Union Health Minister Harsh Vardhan launched "Aahaar Kranti".

About Aahaar Kranti-

- Mission **aimed at** spreading the message of the need for a nutritionally balanced diet and to understand the importance of accessibility to all local fruits and vegetables.
- **Vijnana Bharati (Vibha) and Global Indian Scientists' and Technocrats' Forum (GIST)** have come together to launch the mission.
- Motto for mission **"Good Diet-Good Cognition"**.
- The Aahaar Kranti movement is designed to address the peculiar problem being faced by India and the world called "hunger and diseases in abundance".
- The **programme will focus on training teachers**, who, in turn, will pass on the message to the multitudes of students, and through them to their families and finally the society at large.

Vijnana Bharati-

- **Swadeshi Science Movement** was started in Indian Institute of Science, Bengaluru by a few eminent scientists under the guidance of Prof. K I Vasu.
- This movement gradually gained momentum and emerged as an organization with national presence.
- In 1991(Oct 20-21) at the Nagpur meet, it was decided to launch the Swadeshi Science Movement at all India Level and named it as Vijnanabharati.
- Vijnanabharati has units in 22 states across the country and contacts in 4 states.
- It is **working in 11 different areas** through autonomous institutions, independent organizations & also as project entities.
- Principle of VIBHA is to act as a vibrant movement for the development of Swadeshi Sciences and as a dynamic Science Movement with a Swadeshi Spirit, interlinking traditional and modern sciences on the one hand, and natural and spiritual sciences on the other hand.

Global Indian Scientists and Technocrats (GIST)-

- GIST is an autonomous platform created by Vijnana Bharati to link global Indians with the underprivileged (40 crore) masses in the country, mostly residing in more than three lakh villages.
- GIST was officially launched by Dr. APJ Abdul Kalam on 26 December 2010 at Pune.
- Dr. Anil Kakodkar, former chairman of Dept. of Atomic Energy is the guiding spirit behind this noble vision.
- As India makes rapid economic progress, the need for inclusive development covering the larger fraction of our weaker population has become far more critical.

8.9 e-filing 3.0 module

In news- Recently, Dr Justice Dhananjaya Y. Chandrachud, inaugurated an e-Filing 3.0 module through a virtual event.

About e-filing 3.0 module-

- The e-filing 3.0 module, introduced by the e-Committee of the Supreme Court, **allows electronic filing of court documents**.
- With the introduction of the new module, there will be **no need for lawyers or clients to visit the court premises for filing of a case**.
- The **filing process can take place even when the court, client and lawyer are at three different locations**.
- The project system was completed in a record time of 6 months.
- The e-filing portal aims to aid in the work of the lawyers by **providing readymade templates for drafting**.
- The new module will **allow a litigant submitting the documents to video record their oath**.
- It will let lawyers add their colleagues and juniors as partners and allow all of them to work on a case collectively.
- It will provide a portfolio management and case planner tool which will help track developments across respective cases.

The **main features** of the portal are:

- Free text search facilitates user to search judgments based on any keyword or combination of multiple keywords.

- Users can also search judgments based on various criteria like including bench, case type, case number, year, petitioner/ respondent name, judge name, act, section, disposal nature and decision date.
- Combination of several search options assists the users to get the desired results.
- The embedded filtering feature allows further filters on available results, thus adding value to the search.

9. SCIENCE & TECH

9.1 Enzymes to block HIV replication

In news- The researchers at IISc, Bengaluru have developed artificial enzymes to block replication and reactivation of HIV.

Key updates-

- According to the researchers these **“nanozymes”, made from vanadium pentoxide nanosheets**, work by mimicking a natural **enzyme called glutathione peroxidase** that helps reduce oxidative stress levels in the host’s cells, which is required to keep the virus in check.
- The nanozymes are stable inside biological systems and do not mediate any unwanted reactions inside the cells.
- They are also quite **easy to prepare in the lab**.
- The IISc has mentioned that the **virus hides inside the host’s immune cells in a “latent” state** and stably maintains its reservoir.
- When the levels of toxic molecules such as hydrogen peroxide increase in the host’s cells, leading to a state of increased oxidative stress, the virus gets ‘reactivated’ – it emerges from hiding and begins replicating again.

9.2 Baikal GVD detector

In news- Recently, the Russian scientists launched one of the world’s biggest underwater neutrino telescopes called the Baikal-GVD (Gigaton Volume Detector) in the waters of Lake Baikal.

About Baikal-GVD-

- The Baikal deep underwater neutrino telescope (or Baikal-GVD – Gigaton Volume Detector) is an **international project in the field of astroparticle physics and neutrino astronomy**.
- Its **primary goal** is the detailed study of the flux of high-energy cosmic neutrinos and the search for their sources.
- It will also search for dark matter candidates, for neutrinos from the decay of super heavy particles, for magnetic monopoles and other exotic particles.
- **Neutrinos are the second most abundant particles, after photons**, which are particles of light.
- Though neutrinos are abundant, they are not easy to catch, because they do not carry a charge and as a result they do not interact with matter.
- One way of detecting neutrinos is in water or ice, where neutrinos leave a flash of light or a line of bubbles when they interact.
- **An underwater telescope such as the GVD is designed to detect high-energy neutrinos that may have come from the Earth’s core**, or could have been produced during nuclear reactions in the Sun.
- Studying the fundamental particles called neutrons and their sources will aid scientists’ understanding of the origins of the universe since some neutrinos were formed during the Big Bang, while others as a result of supernova explosions or because of nuclear reactions in the Sun.
- The telescope is **one of the three largest neutrino detectors** in the world along with **IceCube at the South Pole and ANTARES in the Mediterranean Sea**.
- The Baikal-GVD collaboration includes 10 institutions from 6 countries, along with various contractors and partners.
- The preparatory phase of the project was concluded in 2015.
- The construction of the first phase of Baikal GVD (GVD-I) was started in 2016.

9.3 INS Viraat

In news- Recently, Supreme Court ordered a “status quo” with regard to the dismantling of India’s decommissioned aircraft carrier, INS Viraat, at the Alang shipbreaking yard in Gujarat.

About INS Viraat-

- It was **originally commissioned by the British Royal Navy as HMS Hermes** on 18 November 1959, 15 years after she was laid down in June 1944.
- It served as the **flagship of the Royal Navy's task force during the Falkland Islands campaign in 1982** and was commissioned from active duty in 1985.
- The **ship's Motto** was the Sanskrit phrase ‘Jalamev Yashya, Balamev Tasya’ which means ‘who controls the sea is the powerful’.
- It played a major **role in Operation Jupiter in 1989 during the Sri Lankan Peacekeeping operation.**
- The Ship played a key role in creating a blockade against Pakistan during the Kargil War under **Operation Vijay** in 1999.
- The ship was also deployed during **Operation Parakram (2001-02)** following the terror attack on the Indian Parliament.
- It is the second Centaur-class aircraft carrier which was in service for 30 years before being **decommissioned in March 2017.**
- It has participated in various international joint exercises like Exercise Malabar (USA), Exercise Varuna (French), Naseem-Al-Bahar (Oman Navy).
- It **holds the Guinness world record** for being the longest serving warship of the world.

9.4 Indian ‘double mutant’ strain named B.1.617

In news-The ‘double mutant’ virus that scientists had flagged as having a bearing on the spread of the pandemic in India, has a formal scientific classification as B.1.617.

About B.1.617-

- B.1.617 was first detected in India on December 7, 2020.
- Though now present in at least eight countries, nearly 70% of the genome sequences that have the mutations characterising B.1.617 and submitted to the global database GISAID are from India.
- This is followed by the United Kingdom (23%), Singapore (2%) and Australia (1%).
- The variant has a couple of defining mutations, E484Q and L452R, that enable them to become more infectious as well as evade antibodies.
- Though these mutations have individually been found in several other coronavirus variants, the presence of both these mutations together have been first found in some coronavirus genomes from India.
- L452R, some studies show, could even make the coronavirus resistant to T cells, that is the class of cells necessary to target and destroy virus-infected cells.

9.5 INYAS mass campaign on COVID

In news- Recently, The Indian National Young Academy of Sciences (INYAS) has launched a multi-pronged nationwide mass awareness campaign to bust myths about the COVID-19 vaccination programme.

About INYAS mass campaign-

- The **Department of Science & Technology (DST)** launched a multipronged nationwide mass awareness campaign.
- Campaign to bust myths about COVID 19 vaccination is in 11 languages, including English and Hindi.
- Campaign is carried out through **COVACNEWS android-based mobile app** made by INYAS for ensuring information at the fingertips.
- A pan-India info-graphic video and audio competition with motivation to transform information into better readable and effective formats is also being organised.
- GYAN TEEKA webinar series dedicated to increasing awareness about vaccines through eminent speakers and open statement on COVID-19 vaccination is done.

- The entries of the competition will be utilized to increase vaccine awareness by INYAS, and these competitions will be judged in three groups – school, college and professional.

Indian National Young Academy of Sciences (INYAS)-

- First and only recognized young scientist academy of India.
- INYAS was founded by the INSA council in December 2014.
- Vision is to promote Science education and networking among young scientists at National as well as International level.
- Initiatives include National Frontiers of Science meetings, technical symposiums, Science outreach camps, remote area lectures, career awareness workshops, webinars on current topics and many more,
- INYAS provides a platform to exchange ideas, initiate discussions on scientific topics, collaborations among the new generation of scientists and to make the voices of the young researchers be heard by senior academicians and policy makers of the

9.6 Muon g-2 Experiment

In news- Recently, Fermilab has released first results from its “muon g-2” experiment, spotting the anomalous behaviour of the elementary particle called the muon.

About Muon g-2 Experiment-

- The experiment Muon g-2 (g minus two), was conducted at the US Department of Energy’s Fermi National Accelerator Laboratory (Fermilab).
- As the muon g-2 experiment measured the extent of the anomaly, Fermilab announced that “g” deviated from the amount predicted by the Standard Model.
- The results strongly agreed with the Brookhaven results, where accepted theoretical values for the muon are g-factor: 2.00233183620 and anomalous magnetic moment: 0.00116591810
- The new experimental results (combined from the Brookhaven and Fermilab results) are g-factor: 2.00233184122 and anomalous magnetic moment: 0.00116592061.
- The g-factor is a measure that derives from the magnetic properties of the muon.
- This value is known to be close to 2, so scientists measure the deviation from 2 and hence the name g-2.

Muon-

- The muon is an elementary particle similar to the electron, with an **electric charge of -1 e and a spin of $1/2$** , but with a much greater mass.
- It is classified as a lepton.
- The muon is a heavier cousin of the electron and is expected to have a value of 2 for its magnetic moment, labelled “g”.
- The muon is not alone in the universe.
- It is embedded in a sea where particles are popping out and vanishing every instant due to quantum effects.
- So, its g value is altered by its interactions with these short-lived excitations.

9.7 NanoSniffer

In news- Recently, the Union Education Minister launched NanoSniffer, the **world’s first Micro sensor-based Explosive Trace Detector (ETD)**.

About Nano sniffer-

- It has been developed by NanoSniff Technologies which is an IIT Bombay incubated start-up.
- It can **detect explosives in less than 10 seconds**.
- It is being marketed by Vehant Technologies, a spin-off from a former IIT Delhi incubated start-up Kritikal Solutions.
- It also **identifies and categorizes explosives into different classes**.
- It detects all classes of military, conventional and homemade explosives.
- NanoSniffer gives visible & audible data with sunlight-readable color display.

- It is an affordable device that will reduce our dependence on imported explosive trace detector devices.
- NanoSniffer is a **100 percent Made in India product** in terms of research, development & manufacturing.
- The **core technology of NanoSniffer is protected by patents in the U.S. & Europe.**

9.8 Tika utsav

In news- Recently, the Prime Minister appealed to the Chief Ministers of the States to organise “Tika Utsav”.

About Tika Utsav-

- Tika Utsav is a vaccine festival.
- It is to be held between April 11, 2021 and April 14, 2021.
- Objective of the festival is to vaccinate as many people as possible.
- Focus is on zero wastage of COVID-19 vaccine.
- The Government of India has planned to cover 250 million people included in the “high priority” category by July 2021 under its vaccination programme.
- Right now COVAXIN, a government backed vaccine produced by Bharat Biotech and COVISHIELD vaccines manufactured by Astra Zeneca are administered in India.

9.9 Advanced Antiquities management system of Goa

In news- The Directorate of Archives and Archaeology (DAA) of the Goa government inaugurated the Advanced Antiquities Management System.

About Advanced Antiquities management system (AAMS)-

- AAMS is a software-driven automated storage used for the storage of various objects.
- It is the first such system in the country for storage of antiquities as so far it has been used for storage of industrial equipment.
- The AAMS will ensure safety of antiquities, clean storage space, access control and data management and also enhance utilisation of space.
- It will also provide information about the age of the antiquity, the material it is made of and its brief history.
- At present, there are 83 antiquities in the system, the oldest one being a tenth century Shivlinga.
- It also includes 12 sculptures found under a waterfall in the Ladyfem village in North Goa’s Bicholim, remains of a 13th century temple in South Goa’s Navelim.
- There are also 18th century artifacts found at the Alorna Fort including glasses made in Germany and Holland.
- The system will mostly benefit researchers and students permitted access by the DAA in Goa and officials of the department.

9.10 Fukushima Nuclear Accident

In news- Recently, Japan's government approved a plan to release more than one million tonnes of treated water from the stricken Fukushima nuclear plant into the ocean.

About Fukushima Nuclear Accident-

- Fukushima Daiichi nuclear accident, that occurred in 2011 at the Fukushima Daiichi plant in northern Japan, the second worst nuclear accident in the history of nuclear power generation.
- The **site is on Japan’s Pacific coast**, in northeaster Fukushima prefecture about 100 km south of Sendai.
- The facility, **operated by the Tokyo Electric and Power Company (TEPCO)**, was made up of six boiling-water reactors constructed between 1971 and 1979.
- At the time of the accident, only reactors 1–3 were operational.
- Tsunami waves generated by the main shock of the Japan earthquake on March 11, 2011, damaged the backup generators at the Fukushima Daiichi plant.
- Explosions resulting from the build-up of pressurized hydrogen gas occurred in the outer containment buildings enclosing reactors 1 and 3 and a third explosion occurred in the building surrounding reactor 2 later.

- Nuclear regulators elevated the **severity level of the nuclear emergency from 5 to 7** - the highest level on the scale created by the International Atomic Energy Agency, placing it in the same category as the Chernobyl accident, which had occurred in the Soviet Union in 1986.
- In 2018, Tepco admitted it had not filtered all dangerous materials out of the water, despite saying for years they had been removed.
- Water containing tritium is routinely released from nuclear plants around the world and releasing the Fukushima water to the ocean is supported by regulatory authorities.
- **Tritium is considered to be relatively harmless** because it does not emit enough energy to penetrate human skin.
- But when ingested it can raise cancer risks, a Scientific American article said in 2014.
- The first water release is not expected for about two years, by the time Tepco will begin filtering the water, building infrastructure and acquiring regulatory approval.
- Once begun, the water disposal will take decades to complete, with a rolling filtering and dilution process, alongside the planned decommissioning of the plant.

9.11 Gamma Ray Emitting Active Galaxy

In news- Scientists from ARIES, Nainital, Government of India, along with researchers from other institutions, have found the farthest gamma-ray emitting **Narrow-Line Seyfert 1 (NSL1) galaxy** known till date.

Key Findings-

- Researchers from ARIES in collaboration with researchers have been studying around 25,000 Active Galactic Nuclei (AGN) from the **Sloan Digital Sky Survey (SDSS)**.
- In the process, they found a high-z gamma-ray emitting NLS1 galaxy at a high redshift of 1.34, which is about 31 billion light-years away from us.
- One of the largest ground-based telescopes in the world, the 8.2 m **Subaru Telescope located in Hawaii, US was used to confirm the findings.**
- Researchers confirmed that the newly found farthest gamma-ray emitting NLS1 galaxy was formed when the Universe was only about 4.7 billion years old.

Active Galactic Nuclei (AGN)-

- Supermassive black holes are millions to billions of times the mass of the Sun.
- These supermassive black holes found at the center of the galaxies are the reason that the compact region at the center of a galaxy has an extremely high luminosity.
- Bright central regions of these galaxies are called Active Galactic Nuclei (AGN).
- Galaxies hosting Active Galactic Nuclei (AGN) are called active galaxies.
- **Compared to normal galaxies, these active galaxies can emit up to thousands of times of energy.**
- Emissions of active galaxies are non-stellar that are observed in the form of microwave, radio, infrared, optical, X-ray, ultra-violet, and gamma-ray wavebands.
- **Narrow-Line Seyfert 1 (NSL1) galaxies** are classified as AGN.
- Type 1 Seyfert galaxies have narrow emission lines in their optical spectrum.
- Earlier, the NSL1 galaxies were thought to be powered by low mass black holes and therefore were deemed very unlikely to produce relativistic jets but proved wrong when gamma-ray emissions were detected in them.

Aryabhata Research Institute of Observational Sciences (ARIES)-

- Established in 1954, autonomous institute of the Department of Science & Technology (DST), Government of India.
- It is situated at Manora Peak, in Nainital, Uttarakhand.
- Leading research Institutes which specializes in observational Astronomy & Astrophysics and Atmospheric Sciences.
- The main research interests of Astronomy & Astrophysics division are in solar, planetary, stellar, galactic and extragalactic astronomy including stellar variabilities, X-ray binaries, star clusters, nearby galaxies, quasars, and inherently transient events like supernovae and highly energetic gamma ray bursts.
- The unique position of ARIES (79° East), places it at almost in the middle of 180° wide longitude band, between Canary Island (20° West) and Eastern Australia (157° East), and therefore complements observations which might not be possible from either of these two places.

9.12 New Electronic Nose with Biodegradable Polymer

In news- Scientists have developed an electronic nose with biodegradable polymer and monomer that can detect hydrogen sulphide (H₂S), a poisonous, corrosive, and flammable gas produced from swamps and sewers.

About New Electronic Nose-

- Scientists from the Centre for Nano and Soft Matter Sciences (CeNS), Bangalore, in collaboration with their counterparts from Saudi Arabia developed an exceptionally sensitive and selective H₂S Gas sensor.
- It was developed by impersonating the neuron responsible for identification of airborne molecules or olfactory receptor neuron (ORN).
- H₂S is the primary gas produced from the microbial breakdown of organic matter in the absence of oxygen, and this necessitates easy detection of its emission from sewers and swamps.

Mechanism of Action New Electronic Nose-

- The impersonation of ORN is done with the help of an organic electronic device consisting of biodegradable polymer and monomer.
- The fabricated sensor consists of a heterostructure consisting of two layers.
 - The top layer: A monomer and realized with a novel chemical tris (keto-hydrazone), which is both porous and contains H₂S specific functional groups.
 - The bottom layer: Is the active channel layer which plays a key role in altering the current and mobility of charge carriers.
- Thus the synergistic combination helps to pre-concentrate the H₂S molecules, initiate an acid-based chemical reaction, and thereby brings a change in the majority carriers (holes) of the channel region in the device.
- The capacitance sensor which showed an excellent sensitivity in detecting H₂S gas with an experimental limit of detection of around 25 parts per billion has high ambient stability of around 8 months without compromising sensing performance.

9.13 mRNA based Covid-19 vaccine-HGC019

In news- Pune-based Gennova Biopharmaceuticals is conducting human trials of its mRNA-based vaccine against the SARS-CoV-2.

About HGC019-

- Gennova in collaboration with HDT Biotech Corporation, Seattle, USA has worked together to develop an mRNA vaccine since the first report of the SARS-CoV-2 genome was published.
- HGC019 has already demonstrated safety, immunogenicity, neutralization antibody activity in the rodent and non-human primate models.
- It has all the necessary information to guide the host cells to make the antigen – spike protein of the virus, reported to interact with host cells receptor, and supported by '**lipid inorganic nanoparticle (LION)**' as a delivery vehicle.
- The neutralizing antibody response of the vaccine in mice and non-human primates was comparable with the sera from the convalescent patients of COVID-19.
- HGC019 contains a short, **synthetic version encoding the spike protein (antigen) of the novel coronavirus, SARS-CoV-2**, reported to interact with receptors on host cells.
- When the vaccine is injected into the body the synthetic mRNA is taken to muscle cells where it instructs cells to make numerous copies of mRNA and copies of the antigen.
- It gives the advantage over other vaccine candidates to present the identically folded form of spike protein of coronavirus as it is reported during its infection cycle.
- Other immune cells would then act on the spike proteins and in the process learn to identify the coronavirus and protect the body if the person were ever to be actually infected.

Uniqueness of Gennova vaccine

- Gennova uses the most prominent mutant of spike protein (D614G) as a vaccine candidate.
- HGC019 uses the self-amplifying mRNA platform, which gives the advantage of a low dosing regimen.

- HGCO19 uses the adsorption chemistry so that the mRNA is attached on the surface of the nano-lipid carrier to enhance the release kinetics of the mRNA within the cells.
- HGCO19 is stable at 2-8°C.

mRNA Vaccines-

- In standard viral vaccines, either inactivated (or attenuated) virus or viral proteins known to cause infection are used to immunize.
- However, the mRNA vaccines do not use this conventional model to immunize. As it
- Carries the molecular instructions to make the protein in the body through a synthetic RNA of the virus.
- The host body uses this to produce the viral protein that is recognized by the immune system, thereby making the body ready to fight against the disease.

Advantages of mRNA vaccines-

- Novel vaccine development can take anywhere between 10 – 15 years. Considering the immediate need for a vaccine against COVID 19, the developmental time for the vaccine must be reduced.
- mRNA based vaccines are thus the ideal choice because of their rapid developmental timeline.
- mRNA vaccines are considered safe as mRNA is non-infectious, non-integrating in nature, and degraded by normal cellular mechanisms.
- They are highly efficacious because of their inherent capability of being translatable into the protein structure inside the cell cytoplasm.
- mRNA vaccines are fully synthetic and do not require a host for growth, e.g. eggs or bacteria. Therefore, they can be quickly manufactured in an inexpensive manner under cGMP conditions to ensure their “availability” and “accessibility” for mass vaccination on a sustainable basis.

9.14 India-France agreement on Gaganyaan Mission

In news- Space agencies of India and France recently signed an agreement for cooperation in Gaganyaan.

About India-France agreement-

- The first space agreement between France and India dates back to 1964.
- The recent agreement was announced during French Foreign Affairs Minister Jean-Yves Le Drian's visit to the ISRO headquarters in Bengaluru.
- Existing partnerships between the two nations cover almost all areas of space activity.
- Under this new agreement, ISRO has asked the **French space agency CNES** to help prepare for Gaganyaan missions and to serve as its single European contact in this domain.
- **The equipment developed by CNES tested and still operating aboard the International Space Station (ISS) will be made available to Indian crews.**
- **The CNES will also be supplying fireproof carry bags** made in France to shield equipment from shocks and radiation.
- CNES will **train India's flight physicians and CAPCOM mission control teams in France** at the CADMOS centre for the development of microgravity applications and space operations at CNES in Toulouse and at the European Astronaut Centre (EAC) in Cologne, Germany.

9.15 World Haemophilia Day

In news- World Haemophilia Day is celebrated on April 17, 2021.

About World Haemophilia Day-

- World Haemophilia Day is celebrated on April 17 every year since 1989.
- This year is the **30th edition of World Haemophilia Day.**
- This year's theme '**Adapting to change; sustaining care in a new world**'.
- Day is observed for bridging together the communities suffering with global bleeding disorder.
- Day is meant to create international awareness of haemophilia and inherited bleeding disorders.
- This day also helps in raising funds for the patients who cannot afford to have the treatment of haemophilia.

Haemophilia-

- Haemophilia is an inherited bleeding disorder.
- In this rare blood disease blood clotting proteins that are clotting factors are lacking or insufficient in blood.
- When one is injured, blood clots normally, but in case of haemophilia a person may bleed for a longer time.
- Internal bleeding is life-threatening as it may damage organs and tissues also.

There are three types of haemophilia:

- Haemophilia A- Lack of blood clotting factor VIII is more common and this happens in 80 per cent of the cases
- Haemophilia B- Lack of factor IX
- Haemophilia C- Lack of clotting factor XI

Causes of haemophilia-

- Caused by genetic mutation which involves genes that code for blood clotting proteins.
- 13 different proteins termed; Factor I through Factor XIII are the clotting factors.

9.16 Durokea Series

In news- Recently, Union Education minister launched “World 1st affordable and long-lasting hygiene product DuroKee Series”.

About Durokea Series-

- IIT Hyderabad researchers have developed innovative this DuroKee long-lasting **technologies to combat COVID-19 virus spreading.**
- This next generation DuroKee antimicrobial technology starts at Rs. 189, **kills 99.99% of germs instantly and leaves behind the long-lasting protective nanoscale coating** up to 35 days till next wash.
- The unique property of DuroKee range is to **ensure instant killing (within 60 sec) and prolonged protection.**
- This revolutionary antimicrobial property of DuroKee products has been **tested and certified by Indian Government accredited lab** and field-tested at the IIT Hyderabad campus.

9.17 Medical Oxygen

In news- Recently, the Government of India set to import medical oxygen from abroad amid a massive flood of novel coronavirus disease (COVID-19) cases.

Medical oxygen-

- Oxygen is widely used in every healthcare setting, with **applications from resuscitation to inhalation therapy.**
- Oxygen was known to be the only element that supports respiration as early as 1800 and was **first used in the medical field in 1810.**
- However, it took about 150 years for the gas to be used throughout medicine.
- In the early to mid-20th century oxygen therapy became rational and scientific.
- Oxygen provides a **basis for virtually all modern anaesthetic techniques.**
- It helps to **restore tissue oxygen tension** by improving oxygen availability in a wide range of conditions such as COPD, cyanosis, shock, severe haemorrhage, carbon monoxide poisoning, major trauma, cardiac/respiratory arrest.
- **Aids resuscitation** and provides life support for artificially ventilated patients.
- Aids in cardiovascular stability.
- **Guidelines have been published by the British Thoracic Society (BTS)** on the safe therapeutic use of medical oxygen, which encourages proper assessment of the patient before use.

9.18 New initiatives by NIXI

In news- The National Internet Exchange of India (NIXI), announced three new initiatives aimed at raising awareness of the IPv6 protocol in India.

NIXI Academy-

- NIXI Academy to **educate technical and nontechnical people in India to learn and relearn technologies like IPv6.**
- NIXI academy comprises an IPv6 training portal which is developed with the help of various technical experts in order to provide mass training to the community.
- Helps network operators and educators understand networking best practices, principles and techniques, manage Internet resources better and use appropriate Internet technologies more effectively.

NIXI-IP-index-

- NIXI-IP-INDEX portal will be used to compare the IPv6 Indian adoption rate with other economies in the world.
- This portal will motivate organisations to adopt IPv6, provide inputs for planning by technical organisations and research by academicians.

IPv6 Expert Panel (IP Guru)-

- IP Guru extends support to all the Indian entities who are finding it technically challenging to migrate and adopt IPv6.
- IPv6 expert group will help in identifying and hiring an agency that will help end customers by providing necessary technical support to adopt IPv6.

National Internet Exchange of India (NIXI)-

- NIXI is a not-for-profit organization under section 8 of the Companies Act 2013.
- Working since 2003 for spreading the internet infrastructure to the citizens of India through the following activities:
 - **Internet Exchanges** through which the internet data is exchanged amongst ISP's, Data Centers and CDNs.
 - **IN Registry**, managing and operation of .IN country-code domain and .भारत IDN domain for India.
 - **IRINN**, managing and operating Internet protocol (IPv4/IPv6).

9.19 Global Diabetes Compact

In news- On the 100th anniversary of the discovery of insulin, the World Health Organization (WHO) unveiled a Global Diabetes Compact to help combat the disease.

The International Diabetes Compact (IDC)-

- **Dr. Frederick Banting**, an orthopaedic surgeon, and **Charles Best**, a medical student at the University of Toronto, **discovered Insulin in 1921.**
- Hence to mark the centenary, the programme was unveiled at the **Global Diabetes Summit, which was co-hosted by the Canadian government.**
- The **goal is to** reduce diabetes risk and ensure that all people diagnosed with diabetes have equal, inclusive, accessible, and high-quality treatment and care.
- It would also **aid in the prevention of type 2 diabetes** caused by obesity, a poor diet, and a lack of physical activity.
- It will **provide benchmarks** for combating the diseases in the form of "national coverage goals" to ensure that diabetes treatment reaches a broader audience.
- It aims to **bring together key stakeholders from the public and private sectors**, as well as people living with diabetes, behind a shared vision in order to build new energy and co-create solutions.

Diabetes-

- Diabetes is a Non-Communicable Disease (NCD) that occurs when the pancreas produces insufficient insulin or when the body's insulin is ineffectively used.
- It is the only significant non-communicable disease where the risk of dying young is increasing rather than decreasing.
- It is divided into two categories:

Type 1 Diabetes: When the pancreas fails to produce enough insulin, type 1 diabetes develops.

Type 2 Diabetes: Type 2 diabetes is by far the most common form of diabetes. The body does not use insulin adequately in this state. **Insulin resistance** is the term for this. Obesity and a lack of physical activity are the leading causes of type 2 diabetes.

9.20 Mars Ingenuity Helicopter

In news- NASA's Ingenuity Mars Helicopter became the **first aircraft in history to make a powered, controlled flight on another planet.**

About the helicopter-

- Ingenuity is a barebones 1.6 feet (0.5 metres) tall, a spindly four-legged chopper.
- Its fuselage, containing all the batteries, heaters and sensors, is the size of a tissue box.
- The carbon-fibre, foam-filled rotors are the biggest pieces, each pair stretches 4 feet (1.2 metres) tip to tip.
- The helicopter is topped with a solar panel for recharging the batteries, crucial for its survival during the minus-130 degree Fahrenheit (minus-90 degree-Celsius) Martian nights.
- It is part of NASA's Mars 2020 mission as it was carried by **NASA's Perseverance** rover, launched in July 2020.
- The helicopter's mission is to help collect samples from the surface from locations where the rover cannot reach.
- NASA chose a flat, relatively rock-free patch for Ingenuity's airfield which turned out to be less than 30 metres from the original landing site in Jezero Crater (where the Perseverance landed).
- The helicopter was released from the rover onto the airfield on April 3.
- Flight commands were sent on April 18th after controllers sent up a software correction for the rotor blade spin-up.
- Up to five helicopter flights are planned, and if successful, the demo could lead the way to a fleet of Martian drones in decades to come, providing aerial views, transporting packages and serving as scouts for astronauts.
- The triumph was hailed as a Wright Brothers moment as the first powered flight on Earth was achieved by the Wright brothers in 1903 in Kitty Hawk, North Carolina.
- It was built by JPL, which also manages the technology demonstration for NASA Headquarters.
- It is supported by NASA's Science Mission Directorate, the NASA Aeronautics Research Mission Directorate, and the NASA Space Technology Mission Directorate.

9.21 ALH MK-III Helicopter

In news- The Indian Navy recently commissioned **Indian Naval Air Squadron (INAS) 323**, the first unit of the indigenously developed ALH (Advanced Light Helicopter) Dhruv Mk III aircraft.

About ALH MK-III Helicopter-

- The Advanced Light Helicopter (ALH-DHRUV), designed and built in-house, is a **twin-engine, multi-role, multi-mission, new generation helicopter** in the 5.5 tonne weight range.
- It's a multi-role chopper **powered by Hindustan Aeronautics Limited's Shakti engine (HAL).**
- The ALH Mk III will be **used for search and rescue, special operations, and coastal surveillance and will have an all-glass cockpit.**
- The Advanced Light Helicopter programme was conceived by HAL in 1984.
- **Dhruv Mk-I, Mk-II, Mk-III, and Mk-IV** are the four main variants of Dhruv.
- The plane, which is a step up from the Mk 1, would be able to **reduce low visibility during nighttime search and rescue operations.**
- It has a 0.7 mm gun, giving it a significant **capability in LIMO (low intensity maritime operations).**
- The **new automatic flight control system** outperforms the previous one by a long shot.

9.22 Virtual Global forum on TB vaccine

In news- Due to the on-going coronavirus pandemic, a Virtual Global Forum on TB Vaccines was convened.

About Virtual Global forum on TB vaccine-

- Global Forum on TB Vaccines is the world's largest gathering of stakeholders striving to develop new vaccines to prevent TB.
- It provides an important and unique opportunity to review the state of the field, share the latest research findings, and identify new and innovative approaches to TB vaccine R&D, with the end goal of developing and deploying new TB vaccines as quickly as possible.
- The program addresses the full spectrum of issues relevant to TB vaccine research and development (R&D), from basic research to clinical trials, manufacturing, regulatory, access, and advocacy.
- **The main goals of the Forum are to:**
 - Review progress and share the latest research and data
 - Identify and promote innovative and transformative approaches to TB vaccine R&D
 - Encourage partnerships and collaboration to accelerate TB vaccine R&D
 - Increase global recognition of the critical role vaccines will play in global efforts to end TB.

9.23 RESPOND programme of ISRO

In news- The ISRO recently announced that it would help eight joint research projects proposed by IIT-Space Delhi's Technology Cell under its RESPOND programme.

About RESPOND programme of ISRO-

- In the 1970s, ISRO launched the RESPOND (Research Sponsored) programme.
- **Aim is to** encourage academia to engage in and contribute to a variety of space-related research activities.
- **ISRO provides financial assistance to academic institutions in India** to conduct research and development activities in the fields of space science, space technology, and space applications.
- This is **ISRO's flagship initiative for promoting extramural study in new areas of space** at academia.
- It aims to strengthen the academic base, create human capital, and improve facilities at academic institutions in order to fund space programmes.
- As of September, 2020 **number of ongoing projects** are **214** (Space Science: 23, Space Technology: 145, Space Applications : 46)
- **Academic Institutions** supported under the projects are **117**.
- **Space Technology Cells are at 7 IITs** (Bombay, Kanpur, Kharagpur, Madras, Roorkee, Guwahati and Delhi), IISc Bangalore and Joint Research Programme at SP Pune University.

9.24 Human-Monkey chimeras

In news- For the first time, scientists at the Salk Institute for Biological Studies in the United States have developed human cells in monkey embryos.

Purpose of Chimeric Research-

- Researchers have developed a chimeric tool by incorporating human cells into the embryos of macaque monkeys.
- **Chimeras are organisms made up of cells from two different species**, such as humans and monkeys in this case.
- For example, if this hybrid embryo was implanted in the womb of a monkey, it might develop into a new species (however this was not the aim of this study).
- The monkey embryos containing human stem cells in this study survived and developed outside the body for 19 days.
- The research would provide scientists with a **valuable tool for science and medicine, allowing them to learn more about early human growth, disease initiation and progression, and ageing**.
- In addition, this type of study may **aid in drug assessment and resolve the urgent need for organ transplantation**.
- Chimeric instruments offer a new medium for studying how diseases develop. Example, a human cell may be modified to express a gene linked to a specific form of cancer.
- Researchers could then **study the course of disease progression** using the engineered cells in a chimeric model.

Note- In 2014, an Irish farm accidentally created "Geep," a hybrid between a goat and a sheep. Mules, which are the product of mating between a female horse and a male donkey, is another example of a hybrid animal. **Different species seldom cross-breed, and when they do, the offspring don't live long and are susceptible to infertility.**

Hybrid Animal Laws in India-

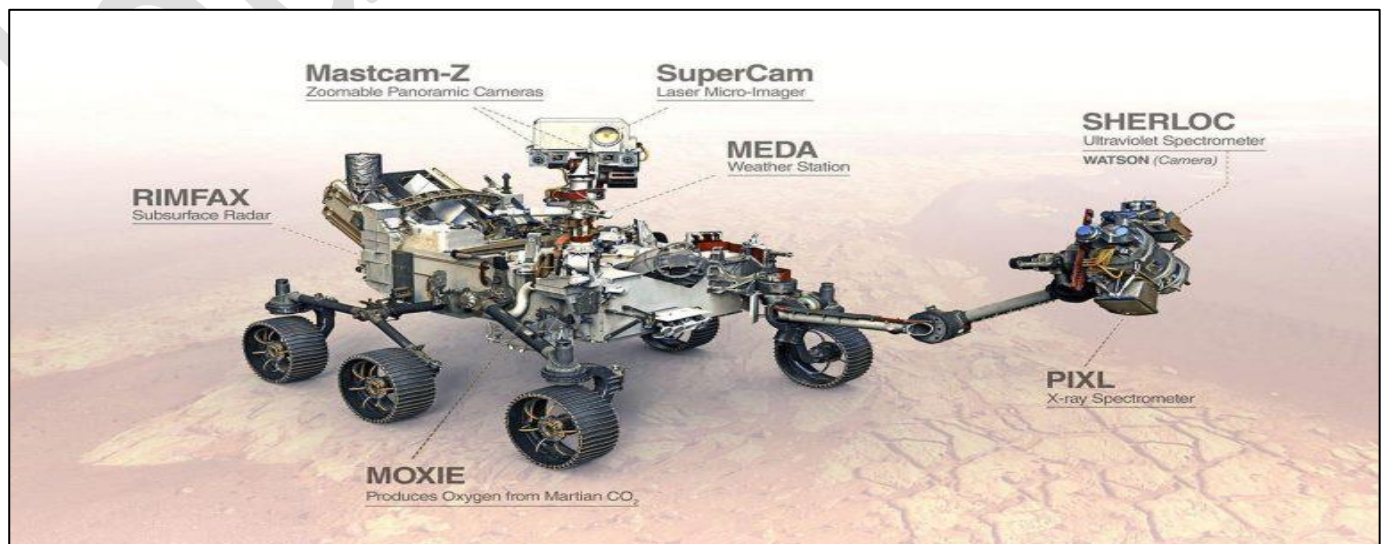
- The cultivation of hybrid animals has been prohibited in India since 1985.
- The "Rules for the manufacture, use, import, export, and storage of dangerous microorganisms, genetically modified organisms, or cells, 1989" notified under the **Environment (Protection) Act, 1986** control GMOs and their products.
- The Ministry of Environment, Forests and Climate Change, the Department of Biotechnology, and state governments are responsible for enforcing these rules through six competent authorities.
- A collection of guidelines on enclosed studies, biologics, confined field trials, food safety evaluation, environmental risk assessment, and other topics was supported by the Rules of 1989.

9.25 Perseverance Mars Rover made Oxygen

In news- For the first time, a device aboard the rover was able to produce oxygen from the thin Martian atmosphere.

About the Perseverance Rover-

- In July, 2020 the project was launched.
- Perseverance's **main mission** is to look for traces of ancient life and gather rock and regolith samples to eventually return to Earth.
- **Perseverance is fueled by electrical energy produced by the radioactive decay of plutonium.**
- Perseverance is equipped with drills, cameras, and lasers and is expected to explore Mars.
- It is equipped with a one-of-a-kind instrument called **MOXIE (Mars Oxygen ISRU Experiment)**, that produces molecular oxygen on Mars using carbon dioxide from the planet's carbon-dioxide-rich atmosphere.
- On Mars, **carbon dioxide makes up ~96% of the gas** in the planet's atmosphere whereas Oxygen is only 0.13%.
- To produce oxygen, MOXIE separates oxygen atoms from carbon dioxide molecules by using heat at a temperature of around 800 degrees Celsius, and in the process also produces carbon monoxide as a waste product.
- It is **designed to generate up to 10 grams of oxygen per hour.**
- It is the size of a car battery, weighing 17.1 kg on Earth, but just 6.41 kg on Mars.
- **In its first operation** since arriving on the Red Planet, **MOXIE produced 5 grams of oxygen** enough for an astronaut to breathe for 10 minutes.
- MOXIE is only a test model and future oxygen generators that descend from its technology need to be about 100 times larger to support human missions on Mars.



9.26 Harlequin Ichthyosis

In news- Recently Odisha reported it's first-ever case of a baby born with harlequin ichthyosis, a rare genetic condition, at a hospital in Berhampur in the state's Ganjam district.

About Harlequin Ichthyosis-

- **Mutations in the ABCA 12 gene** are stated to cause harlequin ichthyosis.
- The ABCA12 protein plays a major role in **transporting fats in cells which make up the outermost layer of skin.**
- Severe mutations in the gene lead to the **absence or partial production of the ABCA12 protein.**
- The disease affected one in three million births and is caused due to a **mutated gene inherited from the parents.**
- The disease sees the **skin form large diamond-shaped plates** across the body that are separated by deep cracks...
- The **skin is dry and scaly, almost like fish skin** and hence the term 'ichthyosis', derived from 'ikthus', Greek meaning for fish.
- **India's first recorded case of a baby born with harlequin ichthyosis** was in 2016, at a private hospital in **Nagpur, Maharashtra.**
- Such cases were also reported in Delhi, Patna and West Bengal.
- The infants could not survive for long and succumbed to the disease days after birth.
- There have been maybe 200 to 250 such cases across the world.

9.27 Space X Crew-2 Mission

In news- Four astronauts were launched to the International Space Station (ISS) from Florida as part of collaboration between NASA and SpaceX under the Commercial Crew Program.

About SpaceX Crew-2 Mission-

- The mission is called Crew-2 and is the second crew rotation of the SpaceX Crew Dragon and the first with international partners.
- Two NASA astronauts and two each from the Japan Aerospace Exploration Agency (JAXA) and the European Space Agency are among the four astronauts (ESA).
- NASA's Shane Kimbrough and Megan McArthur will lead the mission as spacecraft commander and pilot, respectively, while mission specialists Akihiko Hoshide and Thomas Pesquet will travel to the space station for a six-month science mission.
- The aim of this test flight was to see whether SpaceX capsules could be used to shuttle astronauts to and from the International Space Station on a regular basis.
- Demo-2 was followed by the Crew-1 mission in November, 2020 which was the first of six crewed missions between NASA and SpaceX marking the beginning of a new era for space travel.
- Crew-1 team members joined Expedition 64 members in mid-November 2020 to perform microgravity experiments on the International Space Station.
- Central focus during this time will be to continue a series of Tissue Chips in Space studies.
- Tissue Chips are small models of human organs that contain multiple cell types that behave similarly to the human body.
- According to NASA, these chips can potentially speed up the process of identifying safe and effective drugs and vaccines.

9.28 E-2025 Initiative

In news- The World Health Organization (WHO) has identified 25 countries, including three from Africa, with the potential to eradicate malaria by 2025 under its 'E-2025 Initiative', ahead of World Malaria Day 2021.

What is the E-2020 initiative?

- The countries were part of the World Health Organization's E-2020 campaign, which began in 2016 and is **operating in 21 countries** across five regions to eliminate malaria by 2020.

- The World Health Assembly adopted a new **Global Technical Strategy for Malaria 2016-2030** in May 2015, setting ambitious targets to significantly reduce the global malaria burden over the next 15 years, with benchmarks to monitor progress along the way.
- Malaria removal in at least 10 countries that had the disease in 2015 is a crucial achievement for 2020.
- **These countries were chosen based on** an overview of the probability of being eliminated **based on three main criteria:**
 - Malaria case incidence patterns from 2000 to 2014;
 - Malaria targets have been set by affected countries;
 - Experts in the field from the WHO;
- **India (4%) is one of the five countries** (the others being *Nigeria, the Democratic Republic of the Congo, Mozambique and Uganda*) which together accounted for nearly half of all malaria cases worldwide.

9.29 KRI Nanggala-402 Submarine

In news- KRI Nanggala (402) submarine went missing in deep waters north of Bali during a SUT torpedo drill.

About KRI Nanggala-402 Submarine-

- KRI Nanggala (402) is a **diesel-electric attack submarine of the Indonesian Navy**, one of two Cakra-class submarines, and uses a Type 209 design.
- Nanggala was ordered in 1977, launched in 1980, and commissioned in 1981.
- The boat has conducted intelligence gathering operations in the Indian Ocean and around East Timor and Nunukan.
- It was a participant of the international Cooperation Afloat Readiness and Training naval exercise and has conducted a passing exercise with USS Oklahoma City.
- The boat underwent a major refit in 2012.
- Nanggala was declared missing on 21 April 2021, hours after losing contact with surface personnel while it was underwater.
- The boat is named after the Nanggala, a divine and powerful short spear that was owned by Prabu Baladewa (the elder brother of Krishna), a recurring character in wayang puppet theatre.
- The Indian Navy's Deep-Submergence Rescue Vessel (DSVR) left from Visakhapatnam to help in rescue operations.

What is a DSRV (deep submergence rescue vessel)?

- India is one of the few countries in the world that can use a DSRV to search for and rescue a damaged submarine.
- Using its state-of-the-art side scan sonar and remotely operated vehicle, the Indian Navy's DSRV system can locate a submarine up to 1,000 metres deep.
- The SRV can also be used to supply the submarine with emergency supplies.

9.30 #FOSS4GOV Innovation Challenge

In news- To promote the adoption of Free and Open Source Software (FOSS) in government, **Ministry of Electronics & Information Technology (MeitY)** has launched the #FOSS4GOV Innovation Challenge.

About #FOSS4GOV Innovation Challenge-

- Accelerating the adoption of Free and Open Source Software (FOSS) in government is an important **part of GovTech 3.0**, which focuses on creating safe and inclusive Open Digital Ecosystems (ODEs).
- **Participants will be eligible for incubation funding, prize money, domain expert mentorship, and institutional support** from eminent organisations for concept incubation and solution listing on GeM.
- It calls upon FOSS innovators, technology entrepreneurs and Indian Startups to submit implementable open source product innovations in CRM and ERP with possible applications for Govtech in Health, Education, Agriculture, Urban Governance, etc...
- It will use the FOSS community and start-ups' innovation capacity to address crucial issues in government technology.

Free and Open Source Software (FOSS)-

- The source code of the software may be edited, modified, or reused by users and programmers.
- It allows programmers to change the program's functionality by changing it.
- The word "free" denotes that the programme is not subject to copyright restrictions.
- The word "open source" denotes that the software is in the form of a project, allowing for simple software creation by expert developers around the world without the need for reverse engineering.
- FOSS may also be referred to as free/libre open-source software (FLOSS) or free/open-source software (F/OSS).

9.31 Oxygen from Sterlite Copper

In news- The Supreme Court recently allowed Vedanta Limited to operate its oxygen production units at the Sterlite Copper plant in Tutikorin in Tamil Nadu.

Oxygen in Copper Plant-

- The Vedanta Limited plant **has two oxygen production units** lying idle, with a combined capacity of 1,050 tonnes.
- The oxygen from these units is meant to feed the furnaces of the copper-melting plant.
- These facilities **suck in air from the atmosphere, which is processed so that the oxygen-rich fraction of the air is absorbed** in the final process.
- The oxygen produced at Sterlite's units is **crude oxygen**.
- Sterlite Copper had been facing protests ever since its inception in 1994.
- The **local community's concerns include** hazardous industrial operations that produce **toxins such as lead, arsenic and sulphur oxides**, pollution of the environment, and their impact on public health.
- Following a gas leak in March 2013, the state government ordered shutting down of the plant, and the Supreme Court fined Sterlite Rs 100 crore for flouting environmental norms.
- Though the plant was in operation in June 2013, it was shut down again following the violent protests and police firing in May 2018.

9.32 Zhurong

In news- The China National Space Administration recently revealed that its first Mars rover would be called 'Zhurong.'

Background-

- In 2019, China became the first country to land a space probe on the moon's far side, which had previously been unexplored, and returned lunar rocks to Earth for the first time in December.
- After the former Soviet Union and the United States, **China will be the third country to land a robot rover** on Mars.

About Zhurong-

- The Tianwen-1 probe, which arrived in Mars orbit in February 2020, is carrying China's first Mars rover.
- The name of the rover is "**Huo Xing**," which means "**fire star**" in Chinese.
- The rover is part of China's space ambitions, which also include the launch of a crewed orbital station and the landing of a human on the moon.
- **Utopia Planitia**, a rock-strewn plain where the US lander Viking 2 landed in 1976, is the **leading contender for the landing spot**.

Tianwen-1-

- Its objectives include researching the atmosphere and surface conditions on Mars, as well as analysing and mapping the Martian surface and geology.
- It takes its name from an ancient Chinese poem called "**Questions to Heaven**."
- It's a **three-in-one orbiter, lander, and rover** that'll look for water and ice on Mars' surface, explore soil properties, and research the atmosphere, among other things.

- It took off from the Wenchang launch centre on a Long March 5 rocket, a launch system developed by the China Academy of Launch Vehicle Technology (CALT).
- It will be the **first mission to land ground-penetrating radar on the Martian surface**, allowing scientists to research local geology, as well as the distribution of rock, ice, and soil.

9.33 Aditya-L1 Support Cell

In news- Aditya-L1 Support Cell provides all data on board India's first dedicated solar space mission.

About Aditya-L1 Support Cell-

- A **community service centre** called Aditya-L1 Support Cell has been set up to bring all data on board India's first dedicated solar space mission to a single web-based interface.
- It is a **joint effort of ISRO and Aryabhata Research Institute of Observational Sciences (ARIES)**.
- It will **allow every interested individual to perform scientific analysis** of the data.
- It is slated to develop specific tools to assist guest observers and researchers to prepare observing proposals for Aditya-L1 observations.
- It will also **assist ISRO with the design and development of analysis software** for handling scientific data.
- The centre will also provide co-aligned data from other observatories around the world that can complement the data obtained from Aditya-L1.
- This centre **will expand the reach of Aditya-L1 not only within India, but also increase the visibility of the mission at the international level.**

9.34 India's First 3D Printed House

In news- Union Finance Minister Nirmala Sitharaman recently inaugurated the country's first 3D printed house at IIT, Madras, conceived by former alumni and built in just five days.

About India's First 3D Printed House-

- With TVASTA Manufacturing Solutions using indigenous methodologies in design and construction till completion, Indian mind, Indian design and Indian creativity has been involved.
- The single-storey house has one bedroom, hall and kitchen, developed with 'Concrete 3D Printing' technology.
- It was **developed in association with Habitat for Humanity's Terwilliger Centre for Innovation in Shelter.**
- TVASTA Manufacturing Solutions co-founder Adithya V S said the concrete 3D printing technology is a '**ready to implement methodology**' with **no lead time on manufacturing**, thereby reducing construction time.
- This technology can **enable deep personalisation of construction for the ultimate target segment** — who is the individual.

3D Printing-

- 3D printing, **also known as additive manufacturing**, is a technique for creating prototypes or working models of structures by layering materials such as plastic, resin, thermoplastic, metal, fibre, or ceramic.
- The **model to be printed is created by the machine using software**, which then sends instructions to the 3D printer.
- The majority of 3D printing and the industry that surrounds it takes the form of additive manufacturing, in which companies create custom items for projects with very specific requirements, such as lightweight equipment.
- **Medical and allied products** are one of the most popular uses for such products.
- With a market share of more than 35%, the **United States remains the world pioneer in 3D printing.**
- China controls about half of the Asian economy, followed by Japan (30%) and South Korea (10%).

9.35 NavIC- Opportunities for The Telecom Industry

In news- National Telecommunications Institute for Policy Research, Innovation and Training (NTIPRIT), recently conducted a webinar on the topic "NavIC -- Opportunities for the Telecom Industry" in collaboration with ISRO and Telecom Industry.

About NavIC-

- **NavIC (Navigation with Indian Constellation)** is an autonomous regional satellite navigation system established and maintained by ISRO.
- It **covers India and a region extending up to 1,500 km beyond Indian mainland** (primary coverage area).
- It provides position accuracy better than 20 m (2D) and timing accuracy better than 50 ns (2D).
- The actual measurements demonstrate accuracy better than 5 m and 20 ns respectively.
- NavIC based applications are being used in various civilian sectors, including, transport, map applications, and timekeeping.
- Today major mobile chipset manufacturers like Qualcomm, MediaTek and Broadcom already support NavIC across various chipset platforms.
- Some examples for **NavIC enabled mobile phones include the Redmi Note 9 series from Xiaomi, the Realme 6 series, the OnePlus Nord**, etc.

About NTIPRIT-

- National Telecommunications Institute for Policy Research Innovation and Training (NTIPRIT) is the apex training institute of the Department of Telecommunication.
- Involved in conduction of induction Training for probationary officers of Indian Telecommunication Service Group — A (IT'S Group A).
- It also conducts various In-Service Trainings, Management Development Programmes, Regional and International Trainings, Capacity Building workshops for Officers of Government of India in various aspects of Information and Communication Technology Administration.

9.36 Python-5 Air to Air missile

In news- India's Indigenous Light Combat Aircraft Tejas has added capability of firing Israeli-origin Python-5 air-to-air missile (AAM) after successful tests.

About Python-5 missile-

- Python-5 is a fifth generation air-to-air missile (AAM) manufactured by Rafael Advanced Defense Systems.
- It is the newest member in the range of Python AAMs.
- The missile can engage enemy aircraft from very short ranges and near beyond visual range.
- Python-5 is the most accurate and reliable AAM of the Israeli Air Force and one of the most sophisticated guided missiles in the world.
- The development on the Python-5 began in the 1990s.
- The missile was unveiled for the first time during the Paris Air Show in June 2003.
- It integrates a fifth-generation imaging seeker, modern software, advanced infrared counter-countermeasure (IRCCM) and flight control systems.
- Python-5 has a length of 3.1m, wingspan of 64cm and diameter of 16cm and weight of the missile is 105kg.
- It can carry an 11kg high explosive fragmentation warhead equipped with an active laser proximity fuse.
- The missile demonstrated superior target detection and tracking capabilities during the developmental and operational test programme, involving captive carry evaluation and homing trials.
- The first operational kill by Python-5 was in August 2006 during the Lebanon War.
- Python-5 missiles were delivered along with Spyder systems to the Indian Air Force, Georgian Air Force, Republic of Singapore Air Force and Peruvian Army.

9.37 Apollo 11 Mission:

In news- NASA astronaut Michael Collins at 90, who piloted the historic mission of Apollo 11 spacecraft Columbia in 1969, recently passed away due to cancer.

About Apollo 11 Mission-

- The **primary objective** of Apollo 11 was to complete a **national goal set by President John F. Kennedy** on May 25, 1961- to perform a crewed lunar landing and return to Earth.
- **Additional flight objectives** included scientific exploration by the lunar module (LM), crew; deployment of a television camera to transmit signals to Earth; and deployment of a solar wind composition experiment, seismic experiment package and a Laser Ranging Retroreflector.
- Apollo 11 was **launched from Cape Kennedy on July 16, 1969, carrying Commander Neil Armstrong, Command Module Pilot Michael Collins and Lunar Module Pilot Edwin "Buzz" Aldrin.**
- Armstrong described the event as he took **"...one small step for a man, one giant leap for mankind"** on July 20, 1969.
- Under the Apollo programme, there were five more successful lunar landing missions and one unplanned lunar swing-by, Apollo 13.
- The Apollo 17 mission's Eugene Cernan and Harrison Schmitt were the last men to walk on the moon.

9.38 Ct Count in COVID Test

In news- Recently, the **Indian Council of Medical Research (ICMR)** has rejected a Maharashtra government request to reduce the CT value cut-off from 35 to 24 for positivity rate under the RT-PCR test.

What is Ct Value?

- The abbreviation Ct stands for '**Cycle Threshold.**'
- The Ct value **indicates how many cycles the virus can be detected after.**
- If **more cycles** are needed, it **means the virus was undetected when the number of cycles was lower.**
- Since the virus has been detected after fewer cycles, the **lower the Ct value, the higher the viral load.**
- The period after the onset of symptoms has been shown to have a stronger association with Ct values than the seriousness of the disease.

Viral Load-

- The sum of genetic material, most commonly RNA, of a virus found in an infected person's blood is referred to as viral load.
- The **total number of viral particles present in each millilitre of blood** is represented in this way.
- The virus is replicating and the infection is progressing if the viral load in the blood is higher.
- In the process known as "**viral shedding**" an infected person with a high viral load is more likely to shed more virus particles.

RT-PCR Tests-

- **RNA** (ribonucleic acid) is extracted from the patient's swab in an RT-PCR (**Reverse Transcription Polymerase Chain Reaction**) procedure.
- It is then **amplified after being transformed into DNA** (deoxyribonucleic acid).
- The method of making several copies of genetic material - in this case, DNA is known as **amplification.**
- This enhances the test's ability to detect the virus's existence.
- Amplification occurs in a series of cycles and a measurable amount of virus is generated after many cycles.

10. SECURITY

10.1 Exercise Vajra Prahar

In news- 11th edition of the military exercise 'Vajra Prahar ' between India and the United States was conducted at Special Forces Training School, at Bakloh, Himachal Pradesh.

About Exercise Vajra Prahar-

- 'Vajra Prahar' is a **Special Forces joint training exercise** conducted alternately in India and the US to share the best practices and experiences in areas such as joint mission planning and operational tactics as also to improve interoperability between the Special Forces of both nations.
- It **started off in 2010.**

- Armies of participating nations jointly train, plan and execute a series of operations for neutralisation of threats of varied nature.
- The **common aim** is to counter threats of international terrorism through mutual training and jointness.
- The **10th edition** of VAJRA PRAHAR was **held in 2019 at Seattle, USA**.

10.2 OLED (Organic Light Emitting Diodes)

- OLED is a flat light emitting technology, made by placing a series of organic thin films between two conductors.
- It consists of an organic layer sandwiched between two conducting sheets (an Anode and a cathode) with a glass plate the top and bottom.
- OLED is a newer display technology for mobiles and monitors.
- When electrical current is applied, a bright light is emitted.
- OLEDs are superior in their exceptional colour reproduction, fast response times, higher brightness and extremely light weight designs.
- The response time can be up to 1000 times faster than LCD displays which can be under 10 μ s.
- Mass production can be done for minimal cost, and as the materials do not use lead or such other material, hence environment friendly.
- OLED displays do not use backlight due to which the power consumption is less.
- These devices are thinner than their LCD counterparts.
- However, they have lower lifetime due to limited lifetime of organic materials.
- As water can cause instant damage to the organic materials of the OLED displays it can limit the longevity of more flexible displays.
- As OLED uses metallic cathode which acts as a mirror with reflectance approaching 80% this leads to poor readability in the bright light outdoors.

Differences between LED and OLED-

OLED	LED
Made of organic materials.	Made from inorganic compounds.
The pixels are self-illuminating.	The LEDs used to light an LED display
Colours do not get washed out when viewers watch from extreme angles.	Colours do not get washed out when viewers watch from extreme angles.
Wider viewing angle than do LED.	LED feature a limited viewing angle.
Ability to develop lighter and thinner displays.	LED are heavier and thicker displays.
Response Time faster	Response Time of LED is slower than that of OLED.
More energy efficient	LED consume more energy efficient when compared to their OLED

10.3 Military Farms Service

In news- Recently, Indian Army has formally closed the Military Farms Service which administered the 130 military farms all across the country.

A brief History of Military Farm Service-

- British established the first Military Farm in 1889 at Allahabad.
- Aim was to ensure nutritious milk supply to the troops deployed in India.
- The Military Farms also supplied hay to the Animal Transport units of the Indian Army.
- The role of Military Farms had expanded from only milk production to artificial insemination of cows too and the first pioneering steps in this regard were taken as early as in 1925.

- At one point of time the Indian Council for Agricultural Research (ICAR) had found Military Farms to be the largest holders of cattle in the country.
- In collaboration with the Ministry of Agriculture, the Military Farms undertook 'Project Frieswal', one of the largest cross-cattle breeding programmes in the country.
- Aim of the project was to produce and rear Holstein Friesian crossbred with Sahiwal breed for high milk productivity.

10.4 Joint Logistics node in Mumbai

In news- Recently, Chief of Defence Staff operationalized Joint Logistics Node in Mumbai.

More information-

- The Joint Operations Division (JOD) under the aegis of Headquarters Integrated Defence Staff (Hq IDS) actively pursued and enabled establishment of the JLN as the first concrete step towards logistics integration of the Tri-Service.
- The **JLNs in Guwahati and Tri-Services, Andaman and Nicobar Command, Port Blair** were operationalised on January 01, 2021.
- **JLNs** are required for better integration between the Army, the Navy and the Air Force.
- They provide **integrated logistics cover to the Armed Forces for their small arms ammunition, rations, fuel, general stores, civil hired transport, aviation clothing, spares and also engineering support** in an effort to synergise their operational efforts.

10.5 National Maritime Day

In news: The Ministry of Ports, Shipping and Waterways celebrated 58th National Maritime Day.

About National Maritime Day-

- National Maritime Day is an annual celebration on April 5th.
- The **first celebration took place in 1964** to spread awareness about intercontinental commerce and the economy.
- The day is celebrated every year to support the global economy, the most well-organized, safe and sound environmentally responsive way of transporting goods from one corner to another corner in this world.
- **This year's theme is 'Sustainable Shipping beyond COVID-19'.**
- The legacy of Indian shipping **first started on April 5th, 1919**, when the **first ship 'The SS Loyalty'** manufactured by Scindia Steam Navigation Company Ltd. sailed from Mumbai to the United Kingdom.
- **India became a member of the International Maritime Organisation (IMO) in 1959.**

National Maritime Day awards-

- **The Varuna Award:** Consists of a statue of Lord Varuna and a scroll is awarded to them for their long and exceptional contribution.
- **The NMD Award:** Given to the people for their excellence for their lifelong contribution and distinguished achievements at the senior functional level.
- **The Outstanding Contribution to Maritime Education and Training Award**

10.6 Exercise la Perouse 2021

In news- For the first time, Indian Navy Ships and Aircraft participated in exercise La Perouse.

Exercise la Perouse 2021-

- The multilateral maritime exercise La Pérouse was **conducted in the Eastern Indian Ocean Region.**
- Participation of India completed the QUAD force representation in the **French led naval exercise.**
- Previously in 2019, La Perouse exercise saw the participation of the US, Japanese and Australia to showcase their common goal of maritime security in the Indian Ocean and Asia-Pacific region.
- Indian Navy Ships **INS Satpura** (with an integral helicopter embarked) and **INS Kiltan along with P8I Long Range Maritime Patrol Aircraft** participated in it.

- The Indian Navy ships and aircraft exercised at sea with ships and aircraft of **French Navy** (FN), **Royal Australian Navy** (RAN), **Japan Maritime Self Defence Force** (JMSDF) and **United States Navy** (USN).

11. SOCIETY

11.1 MANAS Mitra:

In news- Recently, the pilot version of a health application, MANAS Mitra (**Mental health And Normalcy Augmentation System**), was launched.

About MANAS Mitra-

- The app, meant to be a guide, especially for mental health, was launched virtually by Prof K Vijay Raghavan, principal scientific advisor (PSA) to the Government of India.
- A **mission-mode initiative led by the Office of the PSA**, MANAS Mitra is a **joint venture by Pune-based Armed Forces Medical College (AFMC) and NIMHANS**, Bengaluru.
- The application has been developed by the Bengaluru centre of the Centre for Development of Advanced Computing (CDAC).
- Though the app is still to undergo field trials and is not available for public use as yet, it will be a platform catering to the **overall wellness of people of all age groups and genders**.
- The current version has identified two age groups ages 15 to 20, termed as **Mann-Marg**, and ages 20 to 35, termed as **YoungISTAN**.
- Over the next 100 days, field trials will be carried out to validate the application.

11.2 Online grievance management portal by NCSC:

In news- Recently, Union Minister for Communication & IT and Law & Justice Shri Ravi Shankar Prasad launched the Online Grievance Management Portal of National Commission for Scheduled Castes (NCSC).

About the portal-

- It was launched by NCSC on the occasion of the 130th birth anniversary of Dr. B R Ambedkar.
- NCSC aims to streamline the grievance redressal specially of the Scheduled Caste population through this portal.
- The portal, designed in collaboration with the Bhaskaracharya Institute for Space Applications and Geoinformatics (BISAG-N), will facilitate an end-to-end e-filing of complaints and grievances and their tracking.
- Portal would make it easier for the SC population to register their complaints from any part of the country.
- It is intended to make the hearing process work on similar lines as e-courts.
- This portal is linked to the Commission's website and one can file one's complaint upon registering on it.
- The facility to upload documents and audio/video files is also available.
- This would supplement the physical submission of complaints and grievances.

Space Applications and Geoinformatics (BISAG-N)-

- It is a Centre of Excellence under the Ministry of Electronics and Information Technology.
- Its vision is to empower and serve the nation through development of Space and Geo-spatial Technologies, its applications/solutions/services in accordance to governance principles for socio-economic welfare of the Society.

Profile-

- It provides specialized services and solutions in implementing map-based Geographic Information Systems.
- It undertakes all services for the entire process of implementing an enterprise level GIS system.
- These services include GIS database design and development, map creation/updation and finishing, data migration/conversion and format translation, software development and customization, systems integration and technical consulting.
- It also provides complete GIS solutions, which bundle hardware and software with GIS systems development services.
- It has strengthened its range of high-end Geo-Spatial services in large-scale mapping by using advanced Photogrammetry and D-GPS technologies to cover elevation modelling, surface modelling and true ortho-

photo generation.

- It offers comprehensive GIS/PHOTOGRAMMETRIC solutions over large geographical areas.

12. PLACES IN NEWS

12.1 Whitsun reef

In news- Recently, Philippine authorities announced that many of the Chinese fishing vessels have been moored near the disputed Whitsun Reef **in the Spratly Islands**.

More information-

- Whitsun Reef, where more than two hundred Chinese vessels are currently moored through the area, comes under the **Philippines' Exclusive Economic Zone (EEZ)**.
- However, China claims the reef under their **nine-dash line** and says that the vessels stationed are fishing boats seeking refuge during bad weather and not Chinese maritime militia as reported.
- Currently, **Philippine military aircrafts and navy are monitoring the situation daily**, and China has been warned that there will be an increased military presence to conduct 'sovereignty patrols'.

Whitsun Reef-

- It is a reef at the northeast extreme limit of the Union Banks in the Spratly Islands of the West Philippine Sea.
- **Other names of the reef are** Whitson Reef and Julian Felipe Reef.
- It is the **largest reef of the Union Banks**.
- It is **V-shaped** with an area of about 10 km².

Nine dash line-

- It is used by the People's Republic of China (China) and the Republic of China (Taiwan), for their claims of the major part of the South China Sea.
- The origins of the nine-dash line can be traced back to the official maps made by the Nationalist Kuomintang (also known as the Chinese Nationalist Party) government before and after World War II, according to the book, Asia's Cauldron, by US scholar and strategist Robert D. Kaplan.

12.2 India Bridge of Gujarat

In news- Recently, the Border Security Force (BSF) handed over the access control of India Bridge to Gujarat state Police.

About India Bridge-

- It is located on the **Khavda-Vighakot highway**, a crucial access point to the Indo-Pakistan international border in **Kutch district**.
- BSF handed over to Gujarat Police to facilitate movement of goods and resources for the proposed 30,000 MegaWatt (MW) hybrid renewable energy park in Kutch district.
- Currently, the BSF provides security and controls access to India Bridge, one of the crucial connecting points for movement of goods towards the India-Pak border.
- India bridge, **around 39 km from the international border, is the first of three checkpoints that BSF controls** (the other two checkpoints are BOP (border outpost) Dharamshala and Chidya mod)
- Earlier, India Bridge was the sole connecting link between the border and the inland areas and was also the last accessible point for civilians.

Hybrid renewable energy park & India Bridge-

- The Prime Minister of India had laid the foundation stone for the park at an event in Dhordo village near Khavda in December 2020.
- **This park will consist of two zones** - the first is a **Hybrid Park Zone** which will accommodate 24,800 MW of wind and solar power plants and the second zone will be an **exclusive wind park zone** which will accommodate wind mill projects.

- The project will be **located between Khavda village** (which is the last point that can be accessed by civilians in the area) **and Vighakot.**
- The **closest to the border is the Exclusive Wind Park Zone, which will be located within 1-6 km of the international border.**
- The project involves National Thermal Power Corporation Ltd, Gujarat State Electricity Corporation and several private firms including Adani Green Energy Ltd.
- For the entire exclusive Wind Zone Park, 23,000 hectares has been allotted to the Solar Energy Corporation of India (SECI) to set up wind projects under the competitive bidding route policy.
- There are a number of “no-go zones” around the project that belong to either the Army or the BSF.

12.3 Gyanvapi Mosque

In news- A court in Varanasi allowed a civil suit seeking an Archaeological Survey of India (ASI) study of the Gyanvapi Mosque site to determine if it had been “superimposed” after demolishing the Kashi Vishwanath Temple that might have originally stood there.

About the Mosque-

- It is located in Varanasi near Lalita Ghat along the river Ganga, Uttar Pradesh.
- It was **constructed by the Mughal Emperor Aurangzeb** in 1696.
- The façade is modeled partially on the Taj Mahal's entrance.
- The remnants of the Hindu temple can be seen on the walls of the Gyanvapi mosque.
- The demolished temple is believed by Hindus to be an earlier restoration of the original Kashi Vishwanath temple which had been destroyed and rebuilt a number of times.
- Aurangzeb's demolition of the temple was also attributed to the escape of the Maratha king Shivaji (with the help of Jai Singh I, the grandson of Raja Man Singh) and the rebellion of local zamindars (landowners).
- The **temple's demolition was intended as a warning to the anti-Mughal factions** and Hindu religious leaders in the city.

13. PEOPLE IN NEWS

13.1 Dadasaheb Phalke award

In news- Union Minister for Information and Broadcasting announced the actor Shri Rajinikanth as the recipient of the **51st Dadasaheb Phalke Award** for 2019.

About the Dadasaheb Phalke Award-

- To honour the **Father of Indian Cinema, Dhundiraj Govind Phalke**, the National Film Awards named the most prestigious and coveted award of Indian Cinema after him.
- He is the **man who made the first Indian Feature film Raja Harishchandra** in 1913.
- He then went on to make 95 films and 26 short films in a span of 19 years.
- **The Award was introduced in 1969 by the government** to recognise the contribution of film personalities towards the development of Indian Cinema.
- **The first recipient** of this award was **Devika Rani**.
- It is **presented annually** at the National film Awards Ceremony **by the Directorate of Film Festivals**.
- The award comprises a Swarna Kamal, a cash Prize of Rupees Ten Lakhs, certificate, silk scroll and a shawl.

Most recent recipients-

- Manoj Kumar(Hindi)-2015
- K. Vishwanath(Telugu)-2016
- Vinod Khanna(Hindi)-2017
- Amitabh Bachchan (Hindi)-2018