

JANUARY EDITION 2023

VOL. II ISSUE 01

Varthaman

MONTHLY CURRENT AFFAIRS MAGAZINE
BY RV TRAINING ACADEMY

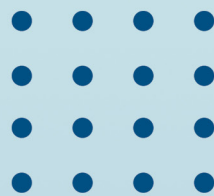
SPONGE BLEACHING EVENT

In the year 2022, New Zealand recorded the largest-ever sponge bleaching event off its southern coastline.

Sponges are among the most ancient and abundant animals on rocky reefs across the world.

CURRENT AFFAIRS
& PRACTICE QUESTIONS

ADMISSIONS OPEN



**NEW BATCH STARTS
ON 23RD FEBRUARY '2023**

COURSE HIGHLIGHTS

BASIC NCERT FOUNDATION

PRELIMS CLASSES

WEEKLY CURRENT AFFAIRS

MAINS UPGRADATION

ANSWER WRITING PRACTICE

PERSONALISED MENTORING

STUDY MATERIALS

EMINENT PERSONALITIES

SWAMI VIVEKANANDA



Date of Birth : 12 January 1863

One of the Best Orators of India

Did you know?

- Swami Vivekananda's uncontested wisdom and eloquence as an orator and leader were made known to the world during his few years in public life. However, it is known by few that he was an average scorer all through his academic life.
- It is on September 11, 1893, when Swami Vivekananda gave a speech full of wisdom at the World Religion Conference in Chicago. He addressed the audience as 'Brothers and Sisters of America' and mentioned the basic yet most important things that one should follow in life.
- Vivekananda used to borrow books from the library and returned them the next day. The librarian doubted whether he really read the books or not and tested him by asking questions from a random page of the books. He was able to answer them correctly and also quoted lines from the same page.
- Swami Vivekananda predicted that he would not live beyond the age of 40 and it came true. He left for his heavenly abode at the age of 40.

Date of Birth : 15 January 1929

Civil Rights Leader

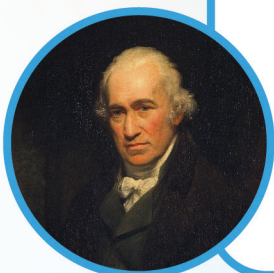
Did you know?

- The civil rights activist was named Michael King Jr. at birth. His father was a minister at Ebenezer Baptist Church in Atlanta. He had visited Germany in 1934 and was greatly inspired by the Protestant Reformation Leader, Martin Luther. He began calling himself and his son Martin Luther King.
- When Martin Luther King Jr. received a Nobel Peace Prize for combating racial inequality through nonviolence, he was just 35 years old—the youngest man at the time to do so.
- From 1957 to 1968, King traveled over 6 million miles and spoke over 2,500 times.
- The civil rights leader was arrested 29 times and assaulted four times.
- King is the only non-president to have a national holiday in his name.

MARTIN LUTHER KING JR.



JAMES WATT



Date of Birth : 19 January 1736

Scottish Instrument Maker and Inventor

Did you know?

- James Watt's pioneering work on steam power significantly improved the efficiency of the Newcomen engine, which was the first machine to use steam to result in mechanical work.
- This was arguably the most important invention of the 18th century, and his steam engine became known as "the workhorse of the Industrial Revolution."
- James Watt came up with the concept of horsepower in 1783 to describe the power output of an engine.
- Because of Watt's contributions to science and industry, the watt, the unit of power in the International System of Units (SI) was named after him.

Date of Birth : 23 January 1897

Most Celebrated Freedom Fighter of India and Founder of INA

Did you know?

- Subhas Chandra Bose was a brilliant student. He secured top ranks throughout his study in school and university. He was ranked 4th in the prestigious Indian Civil Services exam in 1919. He resigned from the government post to fight for India's freedom.
- "Jai Hind", one of the most popular slogans of India was coined by Bose and was also the one to select Rabindranath Tagore's 'Jana Gana Mana' as his preferred national anthem.
- Subhas Chandra Bose termed Mahatma Gandhi 'Patriot of Patriots', even though both shared two different political ideologies.

SUBHAS CHANDRA BOSE



Purpose of the magazine

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

The sources relied for selection and application of issues

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

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Features of the magazine

Current Affairs Analysis

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

Practice Questions

- Prelims Practice Questions
- Mains Practice Questions

Table of Contents

Polity and Governance

• Licensing Framework For Establishing And Operating Satellite Earth	07
• PM Gati Shakti Initiative	07
• Citizenship	08
• National Party Status	09
• Police Commissionerate System	09
• Recalibration Of Central Schemes	10
• Prevention Of Corruption Act	10
• Bharat Series (BH) Registration Mark	11
• North Eastern Council	11
• Crime And Criminal Tracking Network System (CCTNS)	12
• Anti-Maritime Piracy Bill	13
• Citizenship To The Minority Communities	13
• Corporate Governance Norms	13
• Jan Vishwas Amendment Bill	14
• Anti-Competitive Practices By Big Tech – Report	15
• Draft National Retail Trade Policy	16
• Unified Health Interface	16
• Pradhan Mantri Adi Adarsh Gram Yojana	17
• Right To Repair Portal	17
• E-HRMS 2.0 Portal	18

Government Schemes

• Horticulture Cluster Development Programme	18
• Chatgpt Chatbot	18
• Esanjeevani Telemedicine Service	19
• European Securities And Markets Authority (ESMA)	19
• India's Bioeconomy	20
• PM Svanidhi	20
• Arth Ganga	21
• Marine Commando Force	21
• Namami Gange	21
• Youth Co: Lab For Social Entrepreneurs	22
• Scholarship For Higher Education For Young Achievers Scheme (SHREYAS)	23
• Green Rating For Integrated Habitat Assessment	23
• The National Defence Authorisation Act (NDAA) Of USA And India	23
• Suryakiran Exercise	24
• EU Adopts Global Minimum 15% Tax On Big Business	24

Indian Economy

• Kirit Parikh Panel For Gas Pricing Freedom	25
• District Wise Price Monitoring Centre For Essential Commodities	25
• Extension To Cap On Market Share Of UPI Platforms	26

• Production-Linked Incentive (PLI) Scheme For Drones And Drone Components	27
• Re-Hab Project	27
• Young Water Professional Programme	28
• Samruddhi Corridor	28
• Aggregate Technical And Commercial Losses Of Discoms	28
• India Skills Report	29
• New GI Tags	30
• Public Financial Management System	30
• E- Consumer Protection	31
• Turnkey Works	31
• Rupee Trade Settlement Mechanism	32
• GST Council	33
• India's Coal Production	33
• Social Stock Exchange	34

Environment and Ecology

• State Of Global Water Resources 2021	35
• Carbon Capture Utilisation And Storage (CCUS) Framework	35
• India's First-Ever Night Sky Sanctuary In Ladakh	36
• Goods Trade Barometer	37
• International Electrotechnical Commission (IEC)	37
• Municipal Green Bonds	37
• Project Great Indian Bustard	38
• Southern White Rhino	38
• IUCN Red List Included Himalayan Plants	38
• Jeypore Ground Gecko	39
• 30x 30 Goals	39
• World Soil Day	39
• Strep A Infections	40
• Legacy Landfill Sites	41
• Environmental Impact	41
• Sponge Bleaching Event	42
• UN Ground Water Summit 2022	43
• Badri Cow	43
• Energy Conservation Amendment Bill	44
• Arctic Report Card	45
• Restoration Barometer Report	45
• Coalition For Nature	46
• Tal Chhapar Blackbuck Sanctuary	46
• Global Antimicrobial Resistance And Use Surveillance System (GLASS) Report: 2022	47
• UN Convention On Biological Diversity	47
• Bio-Insecticide From 'Ramphal' Leaves	48
• Perennial Variety Of Rice	48
• Oran Land	49
• Environment Education, Awareness And Training (EEAT)	49
• GM Mustard To Pave Way	50

Table of Contents

• Great Lakes	50	• Panini Code	70
• Asean India Grassroots Innovation Forum 2022	51	• Surface Topography And Ocean Topography Mission	71
• Central Pollution Control Board Report On Rivers	51	• Mammalian Evolution	71
• Biofloc Farm	52	• NASA Perseverance Mission	72
		• Dark Patterns	72
		• Organic Solar Cells	73
		• Scheme For Facilitating Startups Intellectual Property Protection (SIPP)	73
Geography			
• Coastal Red Sand Dunes	53		
• Fujiwhara Effect	53		
International Relations		Indian Society/Social Issues/Social Justice	
• United Nations Security Council	54	• National Commission For Backward Classes	74
• Gulf Cooperation Council (GCC)	54	• Panda Task Force	74
• India's Bioeconomy	54	• Maternal Mortality Ratio (MMR)	74
• Engaging Lusophone World	55		
• International Labour Organisation	55	Reports and Indices	
• Kaziranga Indo-French Partnership	56	• Climate Investment Opportunities In India's Cooling Sector-World Bank Report	75
• Connectivity With Central Asian Countries	57	• Coal Index	76
• G20 Finance Track	58	• India Inequality Report: Digital Divide	76
• Group Of Friends Initiative	58		
• Frontier Highway	59		
		Ancient, Modern India and Art & Culture	
Science and Technology		• 7,200-Years-Old Fibres From Indus Valley Found In Israel	77
• Uncontrolled Re-Entries	59	• Sahitya Akademi Awards	77
• Zombie Virus	59	• Betta-Kuruba Community	77
• Incovacc Vaccine	60	• Joynagar Moa	77
• Bluebugging	60	• Kumbhalgarh Fort In Udaipur	77
• Equilibrium Lunar-Earth Point 6U (EQUULEUS) Spacecraft	61	• Bansilalpet Step Well	78
• India's First Private Launchpad	61	• Jallikkattu	78
• Hydrogen Powered Jet Engine	61	• Korku Tribe – Jharoka	78
• PSLV-C54 Launch Vehicle	62	• Sangeet Natak Akademi	79
• Natovenator Polydontus – Dinosaur	62	• UNESCO Convention Of 1970	79
• Akash Weapon System	63	• Temples Of Bilaspur	79
• International Conference On The Contributions Of "J C Bose"	63	• Kanheri Caves	80
• Powerless Heating System	63	• Losar Festival	80
• Elaliite And Elkinstantonite	64	• Burlang Yatra Festival	81
• The Square Kilometre Array (SKA)	64		
• 2Africa Pearls	65	PRACTICE QUESTIONS	82
• L1 Frequency Global Positioning System (GPS)	65		
• NASA's Artemis 1 Mission	66		
• Spacetechnology Innovation Network (SPIN)	66		
• Gamma Ray Bursts	67		
• Rooftop Solar Programme	67		
• Base Editing	68		
• Plasma Waters' Continuous-Flow Cold Plasma Technology	68		
• Agni-5 Nuclear Capable Missile	69		
• DNA Fingerprinting	69		
• Odd Radio Circles	70		

POLITY AND GOVERNANCE

LICENSING FRAMEWORK FOR ESTABLISHING AND OPERATING SATELLITE EARTH

In News: The Telecom Regulatory Authority of India (TRAI) released recommendations on Licensing Framework for Establishing and Operating Satellite Earth Station Gateway (SESG).



More on the Topic:

- A satellite gateway also referred to as a teleport or hub, is a ground station that transmits data to/from the satellite to the local area network.

Important Recommendations:

- There shall be a separate Satellite Earth Station Gateway (SESG) License under the Section 4 of Indian Telegraph Act.
- The SESG License will not form part of the Unified License (UL). The Service Area for the SESG License shall be at National Level.
- The SESG Licensee may establish, maintain, and work SESGs anywhere within the territory of India for all types of satellite systems for which the Government has given the permission.
- The SESG license shall be valid for a period of 20 years from the effective date of the license with a provision of renewal for 10 years.
- Only the companies registered under the Companies Act, 2013 of India shall be eligible to apply for grant of SESG License.

About Satellite Communication (SATCOM):

- Satellite communication refers to any communication link that involves the use of an artificial satellite in its propagation path.
- The commercial launch of SATCOM services for telecom industry is expected in India and companies such as Starlink, OneWeb and others are preparing for this.
- They have plans to send thousands of LEO (low-Earth orbit) satellites into space to

provide global coverage.

Pros of SATCOM:

- Around 20-25% of India's population resides in places which can't be easily covered by terrestrial telecom and lack mobile and internet access. **Satcom can reach these areas.**
- **Lesser Cost** in reaching difficult terrain areas.
- Satcom assures **Increased reliability and quality.** Satellite connectivity works better than microwave technology and is more feasible than fibre in difficult terrain.

PM GATI SHAKTI INITIATIVE

In News: The Union government is in the process of extending PM Gati Shakti initiative to social sectors.

SIX PILLARS OF GATI SHAKTI

Comprehensiveness

Prioritization

Optimization

Synchronization

Analytical

Dynamic

More on the Topic:

- The plan is to **improve functioning of social sector departments and ministries**, including health and education, using PM Gati Shakti initiative.
- Health, Education, Rural Development and Panchayati Raj, Urban development and women and child development departments will be benefitted.
- It will help different departments to prioritize their projects through **cross-sectoral interactions**.

About PM Ghati Shakti National Masterplan:

- Government of India has launched the ambitious Gati Shakti scheme or National Master Plan for multi-modal connectivity plan, with the aim of **coordinated planning and execution of infrastructure projects to bring down logistics costs.**
- It is a national master plan for infrastructure development to give impetus to 21st century India.
- By incorporating infrastructure schemes under various ministries and states, the platform

aims at boosting last-mile connectivity bringing down logistics costs with integrated planning and reducing implementation overlaps.

- A project monitoring group under the Department of Promotion of industry and Internal trade (DPIIT) will monitor the progress of key projects in real-time.
- They will also report any inter-ministerial issues to a group of ministries, who will then aim to resolve these.
- PM Gati Shakti will incorporate the infrastructure schemes of various Ministries and State Governments like Bharatmala, Sagarmala, inland waterways, dry/land ports, UDAN, etc.

CITIZENSHIP

In News: Ministry of External Affairs has informed that Over 16 lakh Indians have given up Indian citizenship since 2011 including 183,741 this year (2022).



More on the Topic:

- The Ministry highlighted that the individuals renounced Indian citizenship due to personal reasons, which are unknown to the government.
- The Citizenship Act of India does not allow anyone to hold dual citizenship.
- As per the Passport Act, it is mandatory for all people having passports issued by the Government of India to surrender their last passports to any of New Delhi's consular missions in foreign capitals or to the Regional Passport Offices of the MEA across the country immediately after acquisition of foreign nationality.
- It is an offence under the Citizenship Act and the Passports Act for foreign nationals to hold Indian Passport.
- The government issues a certificate confirming renunciation of citizenship by an individual.

Articles Related to Citizenship:

- **Article 5** - Citizenship at the commencement of the Constitution.
- **Article 6** - Rights of citizenship of certain persons who have migrated to India from Pakistan.
- **Article 7** - Rights of citizenship of certain migrants to Pakistan.
- **Article 8** - Rights of citizenship of certain persons of Indian origin residing outside India.
- **Article 9** - Persons voluntarily acquiring citizenship of a foreign State are not to be citizens.
- **Article 10** - Continuance of the rights of citizenship.
- **Article 11** - Parliament to regulate the right of citizenship by law.

The Citizenship Act (1955) clauses related to Loss of Citizenship:

- The Citizenship Act (1955) provides for the acquisition and loss of citizenship after the commencement of the Constitution.
- The Citizenship Act (1955) prescribes three ways of losing citizenship whether acquired under the Act or before it under the Constitution, via, renunciation, termination and deprivation:
- **By Renunciation** - Any citizen of India of full age and capacity can make a declaration renouncing his Indian citizenship.
- When a person renounces his Indian citizenship, every minor child of that person also loses Indian citizenship.
- However, when such a child attains the age of eighteen, he may resume Indian citizenship.
- **By Termination** - When an Indian citizen voluntarily acquires citizenship of another country, his Indian citizenship automatically terminates.
- This provision, however, does not apply during a war in which India is engaged.
- **By Deprivation** - It is a compulsory termination of Indian citizenship by the Central government:
- If the citizen has obtained citizenship by fraud.
- The citizen has shown disloyalty to the Constitution of India.
- The citizen has unlawfully traded or communicated with the enemy during a war.
- The citizen has, within five years after

registration or naturalization, been imprisoned in any country for two years.

- The citizen has been ordinarily resident out of India for seven years continuously.

NATIONAL PARTY STATUS

In News: The Aam Aadmi Party (AAP) will be recognized as a national party by the Election Commission of India (ECI).



More on the Topic:

- A national party needs to have 2% of Lok Sabha seats in a minimum of three states. This means 11 seats. AAP has zero Lok Sabha MPs.
- There are only eight national parties recognized by the Election Commission of India as of now. They are BJP, Congress, National People's Party, TMC, NCP, CPI, CPM, and BSP.
- The other criterion is that the aspirant must have state party recognition in four states. For state party recognition, a party needs 6% votes/two seats in a state assembly election, or three seats if its vote share is less than 6%. AAP has governments in Delhi and Punjab with huge mandates. In Goa, the party meets the 6% votes/two seats requirement. Through recent election the party will become a state party in Gujarat.

Benefits of Having National Party Status:

- Recognition as a national or a state party ensures that the election symbol of that party can't be used by any other political party in polls across India.
- Recognized 'State' and 'National' party requires only one proposer to file nomination.
- The recognized 'state' and National Parties are given two sets of electoral rolls free of cost by the Election Commission.

- In addition to this the candidates contesting on the ticket of National or state party get a copy of the electoral roll free of cost during the general elections.
- The National parties receive land or building from the government to establish their party office.
- National parties can have up to 40-star campaigners while other can have up to 20-star campaigners.

POLICE COMMISSIONERATE SYSTEM

In News: The Uttar Pradesh government has decided to introduce the police commissionerate system in Agra, Ghaziabad and Prayagraj after it was implemented in Noida, Varanasi, Lucknow and Kanpur.

Dual system	Commissionerate system
Dual command structure over the district police means that control and direction over the police vests with the SP (head of district police) and the District Magistrate (executive).	Unified command structure with the Commissioner of Police (rank of the Deputy Inspector General or above) as the sole head of the force within the city. Allows for quicker responses to law and order situations.
Separation of powers of the DM (e.g., issues arrest warrants and licenses) and the police (e.g., investigate crimes and make arrests).	Powers of policing and magistracy concentrated in Commissioner. Directly accountable to the state government and state police chief.
Less concentration of power in the police, and accountability to DM at the district level.	Lesser accountability to the local administration.
SP is assisted by Additional/Assistant/ Deputy SPs, Inspectors and constabulary.	Commissioner is assisted by Special/Joint/ Additional/ Deputy Commissioners, etc. Inspector downwards rank structure is the same.

More on the Topic:

- Under the 7th Schedule of the Constitution, 'Police' is under the State list, meaning individual states typically legislate and exercise control over this subject.
- The sixth National Police Commission report, which was released in 1983, recommended the introduction of a police commissionerate system in cities with a population of 5 lakh and above, as well as in places having special conditions.
- Later in 2005 a draft Model Police Act framed by a committee set up by the Union Home Ministry also made similar recommendation saying metro cities and major urban areas with a population of 10 lakhs or more should have a Police Commissioner System.
- Many states have adopted the commissionerate system at the metropolitan level to facilitate faster decision making in solving complex urban centric issues.
- Previously, only four cities had the system: Kolkata, Mumbai, Hyderabad and Chennai.
- Over the years, it has been extended to numerous cities, including Delhi, Pune,

Bangalore and Ahmedabad. By January 2016, 53 cities had this system.

About Police Commissionerate System:

- In the commissionerate system, the Commissioner of Police (CP) is the head of a unified police command structure, is responsible for the force in the city, and is accountable to the state government.
- The office also has magisterial powers, including those related to regulation, control, and licensing.
- The CP is drawn from the Deputy Inspector General rank or above, and is assisted by Special / Joint / Additional / Deputy Commissioners.

Benefits:

- Single point of responsibility
- Unified organisational command
- Specialisation in training and personnel management
- Complete clarity on chain of command
- Accountable to the state government for his performance

Challenges:

- Overlapping Jurisdiction
- Lack of Public Confidence in Police
- Giving More Power to Police

RECALIBRATION OF CENTRAL SCHEMES

In News: In order to reduce unnecessary expenditure, the NITI Aayog and the Economic Advisory Council to the Prime Minister are jointly reviewing all central sector and centrally-sponsored schemes, which account for 40-50% of the annual Budget.

More on the Topic:

- There are about 740 central sector schemes (CS) and 50 centrally-sponsored schemes (CSS), which accounted for Rs 16.2 trillion or 41% of the FY23 Budget of Rs 39.4 trillion.
- The government wants to cut down the number of schemes, merge them or set sunset clauses to stop running them indefinitely.

The Need for Recalibration:

- Many schemes overlap.
- Most of the schemes do not have a sunset clause, they are continuing indefinitely without much efficiency.

- Many of the schemes are not generally linked to outcomes and are process-based.
- 'One-Size-Fits All' approach of CSS gives less flexibility to states in implementing. This reduces the impact on the ground.


About Central Sector Schemes:

- These schemes are funded and implemented by the union government.
- Usually they are schemes related to the subjects over which union government has jurisdiction as per Schedule VII.

PREVENTION OF CORRUPTION ACT

In News: The Supreme Court on Thursday held that direct evidence of demand or acceptance of bribe is not necessary to convict a public servant under the Prevention of Corruption Act and that the such fact can be proved through circumstantial evidence.

Prevention of Corruption Act

 <p>Bribery What is new • Giving a bribe is now an offence, punishable by a 7-year prison term • Except when one is forced to give a bribe. But it should be reported within seven days • Bribe is termed 'undue advantage', defined as 'gratification other than legal remuneration' What it was • No specific provision, except as abatement</p>	 <p>Pre-investigation approval What is new • Police officer cannot begin probe without prior approval of relevant authority or govt (except when caught red-handed) What it was • No such provision in the Act, but a rule similar to it was struck down by Supreme Court</p>	 <p>Sanction for prosecution What is new • Sanction needed for prosecuting former officials for offences done while in office • Centre may notify guidelines for sanction • Decision on request for sanction within 3 months, which may be extended by a month What it was • Sanction was required under PCA for serving officers only</p>	 <p>Criminal misconduct What is new • Only be two forms of criminal misconduct: • Misappropriation of property entrusted to public servant • Intentionally enriching oneself illicitly What it was • There were five kinds: omitted ones are taking bribe habitually, getting anything free or at a concession, obtaining pecuniary advantage for oneself or for another without public interest</p>	 <p>Forfeiture of property What is new • Section introduced for Special Court under this Act to attach and confiscate property What it was • This was not done under the Prevention of Corruption Act, but under a 1944 ordinance through civil courts</p>
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More on the Topic:

- The Prevention of Corruption Act, 1988 is an Act of the Parliament of India enacted to combat corruption in government agencies and public sector businesses in India.
- The Central and the State Government is empowered to appoint Special Judges to try the following offences:
- Any offence punishable under this Act.
- Any conspiracy to commit or any attempt to commit or any abetment of any of the offences specified under the Act.
- A Special Judge, while trying any offence punishable under the Act, shall exercise all powers and functions exercised by a District Judge under the Criminal Law Amendment Ordinance, 1944.

Offences under the PCA along with their punishments:

- Taking gratification other than legal remuneration in respect of an official act,

and if the public servant is found guilty shall be punishable with imprisonment which shall be not less than 6 months extendable up to 5 years and shall also be liable to fine.

- Taking gratification in order to influence public servant, by corrupt or illegal means, shall be punishable with imprisonment for a term which shall be not less than three years extendable up to seven years and shall also be liable to fine.
- Taking gratification, for exercise of personal influence with public servant shall be punishable with imprisonment for a term which shall be not less than six months extendable up to five years and shall also be liable to fine.
- Any public servant, who commits criminal misconduct shall be punishable with imprisonment for a term which shall be not less than one year extendable up to 7 years and shall also be liable to fine.

2018 amendments to the act:

- Giving bribe is a specific and a direct offence.
- Those convicted of taking bribes can be imprisoned for three to seven years besides being fined.
- It makes a provision for providing protection to 'coerced' (forced to pay a bribe) bribe-givers if the matter is reported to the concerned law enforcement agencies within a week.
- It redefines criminal misconduct and will now only cover misappropriation of property and possession of disproportionate assets.
- It proposes a 'shield' for government servants, including those retired, from prosecution by making it mandatory for investigating agencies such as the Central Bureau of Investigation to take prior approval from a competent authority before conducting an enquiry against them.
- However, it states that such permissions shall not be necessary for cases involving the arrest of a person on the spot on the charge of accepting or attempting to accept any undue advantage for himself or for any other person.
- In any corruption case against a public servant, the factor of "undue advantage" will have to be established.
- The trial in cases pertaining to the exchange of bribes and corruption should be completed within two years. Further, even after reasoned delays, the trial cannot exceed four years.

- It covers bribe-giving commercial organizations to be liable for punishment or prosecution. However, charitable institutions have been left out of its ambit.
- It provides powers and procedures for the attachment and forfeiture of a corruption-accused public servant's property.

BHARAT SERIES (BH) REGISTRATION MARK

In News: The MoRTH (Ministry of Road, Transport, and Highways) wanted to change this launched the Bharat Series number plates across the country in 2021.



More on the Topic:

- The Government of India introduced the BH Number Plate or Bharat Series Registration Number for non-transport vehicles in August 2021. The BH Series number plate removes the obligation of transferring vehicle registration after moving from one state to the other.
- Those eligible for the BH number series include:
 - State and Central Government employees
 - Defense sector
 - Bank employees
 - Administrative services
- Private firm employees who have offices in more than four States or Union Territories.
- The reason to bring the BH series license plate is to save the time and energy of the citizens from the annoyances of transfers of vehicles each time they relocate.

NORTH EASTERN COUNCIL

In News: Prime Minister Shri Narendra Modi addressed the meeting of North Eastern Council (NEC) in Shillong.



More on the Topic:

- The meeting marks the golden jubilee celebration of the North Eastern Council, which was formally inaugurated in 1972.
- North-Eastern Council (NEC) means the nodal agency for the social and economic development of the North Eastern region in India.
- The North-Eastern Council includes 8 north-eastern states: Assam, Arunachal Pradesh, Meghalaya, Manipur, Mizoram, Sikkim, Nagaland, and Tripura.
- The formation of the NEC marked the beginning of a new chapter of concerted and planned effort for the region's rapid development.
- NEC members: the Governors and the Chief Ministers of the 8 states including Sikkim, Chairman and 3 members who are nominated by the country's President.

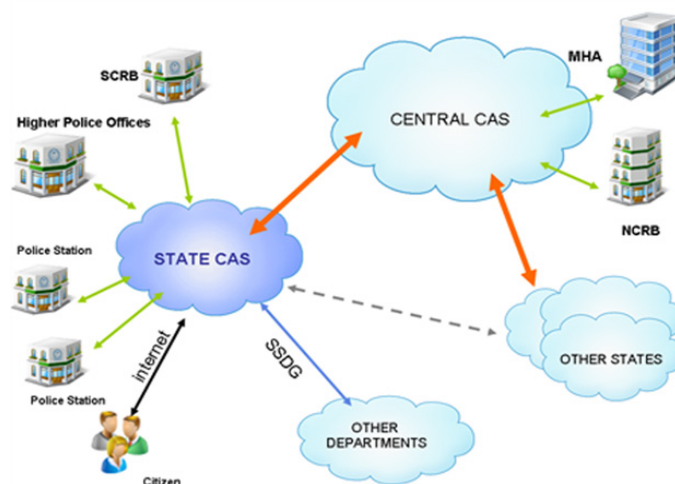
Functions:

- To discuss any matter in which some or all of the States represented in the Council have a common interest and advise the Central Government and the Governments of the States concerned as to the action to be taken on any such matter, particularly with regard to:
- any matter of common interest in the field of economic and social planning.
- any matter concerning inter-State Transport and Communications.

- any matter relating to Power or Flood-control projects of common interest.

CRIME AND CRIMINAL TRACKING NETWORK SYSTEM (CCTNS)

In News: Haryana Police was awarded the first rank among all major state police in implementation of the Crime and Criminal Tracking Network System (CCTNS).



More on the Topic:

- The Crime and Criminal Tracking Networks and Systems, abbreviated to CCTNS, is a project under the Indian government for creating a comprehensive and integrated system for effective policing through e-Governance.
- It aims at creating a comprehensive and integrated system for enhancing the efficiency and effectiveness of policing at the Police Station level.
- CCTNS is a Mission Mode Project (MMP) under the National e-Governance Plan of Government of India.

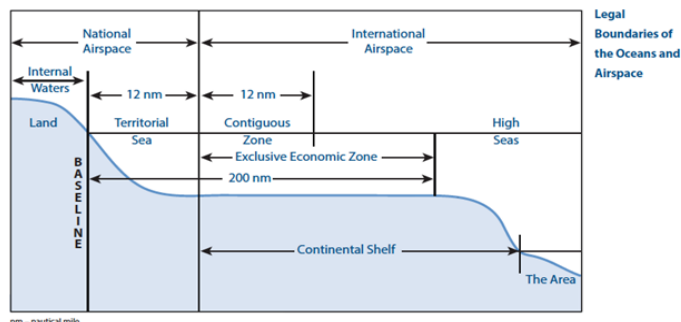
Implementation:

- The Project will interconnect about 15000 Police Stations and additional 5000 offices of supervisory police officers across the country and digitize data related to FIR registration, investigation and charge sheets in all Police Stations.
- It will not only automate Police functions at Police station and higher levels but will also create facilities and mechanism to provide public services like registration of online complaints, ascertaining the status of case registered at the police station, verification of persons etc.

- In 2015, an additional objective of establishing a basic platform for an Inter-operable Criminal Justice System (ICJS) was added to the Project.

ANTI-MARITIME PIRACY BILL

In News: Lok Sabha has passed the Anti-Maritime piracy bill, 2019.



More on the Topic:

- The Bill enables Indian authorities to take action against piracy in the high seas.
- It applies to the sea beyond the Exclusive Economic Zone (EEZ), which is beyond 200 nautical miles from India's coastline.
- **Definition of Piracy:** The Bill defines piracy as any illegal act of violence, detention or destruction against a ship, aircraft, person or property, for private purposes, by the crew or passengers of a private ship or aircraft.
- **Piracy also includes inciting and intentionally facilitating such acts of violence, and voluntarily participating in the operation of a pirate ship or aircraft.**
- It enables Indian authorities to take action against piracy on the high seas that is beyond EEZ (200 nautical miles).
- **Punishment:** For committing acts of piracy – life imprisonment or death, if the act of piracy causes or seeks to cause death. If assisting piracy acts, up to 14 years of imprisonment and a fine.
- **Designated Courts:** Sessions Courts as notified by central gov after consultation with the Chief Justice of the concerned HC.

CITIZENSHIP TO THE MINORITY COMMUNITIES

In News: The Centre is all set to ease the citizenship process for minorities from Pakistan, Afghanistan and Bangladesh who entered India on valid documents, but whose passports and visas have since expired.

Waiting in queue

According to reports, there are 18,000 registered Pakistani Hindus who await citizenship

■ Home Ministry informed Parliament in December 2021 that from 2018 to 2021, the government received 8,244 citizenship applications from the minority groups and granted citizenship to 3,117 applicants



■ According to the Ministry's annual report 2021-22, in the COVID-19 affected year of 2021, from April-December, as many as 1,414 citizenship certificates were granted to members of the minority communities from Pakistan, Afghanistan and Bangladesh

More on the Topic:

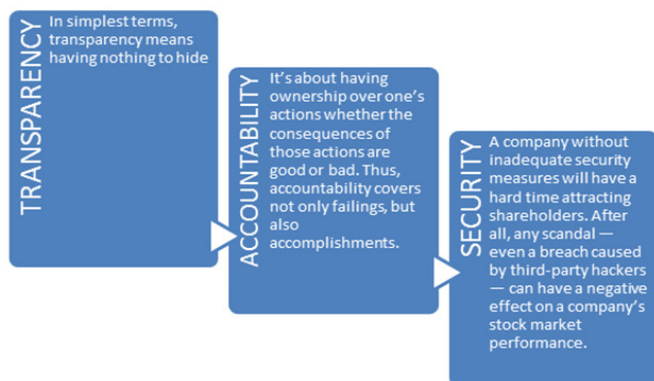
- The Ministry of Home Affairs (MHA) is expected to rejig the citizenship portal to accept expired passports and visas as supporting documents to process the citizenship application for members of six minority communities – Hindu, Sikh, Parsi, Christian, Buddhist and Jain – from Pakistan, Afghanistan and Bangladesh.
- Currently, the citizenship portal accepts expired passports as supporting documents only for those Hindu and Sikh applicants from Pakistan and Afghanistan who entered India before December 31, 2009.
- This causes misery to many of the minority migrants.

The CAA Act:

- The Citizenship Amendment Act (CAA), 2019, that intends to grant citizenship to undocumented (or illegal) migrants from these six non-Muslim communities from the three neighbouring countries who entered India before December 31, 2014, is yet to come into force as the rules that govern the law are yet to be notified.
- The CAA could have helped the documented minority migrants in fast-tracking their applications as it reduces the mandatory requirement of 11 years aggregate stay in India to five years, to be eligible for citizenship.
- Many Pakistani Hindus who entered India legally and have spent more than 11 years in India also await citizenship.

CORPORATE GOVERNANCE NORMS

In News: The Comptroller and Auditor General (C&AG) has highlighted that some Central Public Sector Enterprises are not following provisions related to corporate governance.



More on the Topic:

- The review is based on analysis of corporate governance of 72 listed Public Sector Enterprises under the control of different Ministries.

Important Findings:

- Half of the listed ones not having women directors on the board.
- 32 PSUs have less than 50% Non-executive directors of the Board strength.
- 37 CPSEs (51%) have independent directors.
- 17 CPSEs (24%) have insufficient quorum of directors at the Board meeting, including at least one independent director.

Difference Between Executive, Non Executive and Independent Directors:

- Executive directors have a dual role as employees of the company and as directors. Brings insider's perspective in the decision making.
- Non executive director, may be representing a major shareholder, bring an outside perspective.
- Independent directors does not have a material relationship with a company and is neither part of its executive team nor involved in the day-to-day operations of the company.

About Corporate Governance:

- Corporate governance is the system by which companies are directed and controlled.
- It involves rules, processes and laws by which businesses are operated, regulated and controlled.
- Boards of directors are responsible for the governance of their companies.
- The Companies Act, 2013 provides a formal structure for corporate governance by enhancing disclosures, reporting and transparency through enhanced as well as new compliance norms.

- SEBI monitors and regulates corporate governance of listed companies in India through Clause 49.
- Central Public sector Enterprises are regulated not alone with the Clause 49.
- Their corporate governance is regulated through Guidelines on Corporate Governance for CPSEs issued by the Department of Public Enterprises (DPE) in addition to Clause 49.
- The guidelines deal with matters such as board of directors, audit committee, remuneration committee, subsidiary companies, disclosures, reporting, compliance and schedule of implementation.

Central Public Sector Enterprises:

- CPSEs are those companies in which the direct holding of the Central Government or other CPSEs is 51% or more.

JAN VISHWAS AMENDMENT BILL

In News: Government has introduced the Jan Vishwas (Amendment of Provisions) Bill 2022 in Lok Sabha.

More on the Topic:

- The bill is aimed at amending certain enactments for decriminalising and rationalising minor offences.
- Besides the decriminalisation of minor offences, the bill envisages the rationalisation of monetary penalties, depending on the gravity of the offence, bolstering trust-based governance.
- The bill also proposes to an increase of 10% of the minimum amount of fine and penalty levied, after the expiry of every three years, once the bill becomes a law.
- Decriminalisation of large number of minor offences by replacing them with monetary penalties have been identified.

Significance of the bill:

- The bill once become act will lead to settlement of a large number of issues, by compounding method, adjudication and administrative mechanism, without involving courts.
- This will enable persons to remedy minor contraventions and defaults, sometimes committed unknowingly by them.
- The remedy will also save time, energy and resources.

- This will aid in ease of doing business by not involving precious time and resources in the cumbersome legal procedures.

About Ease of Doing Business Parameters:

- Ease of doing business is an index published by the World Bank. It is an aggregate figure that includes different parameters which define the ease of doing business in a country.
- There are 10 parameters of Ease of Doing Business: Starting a Business of all, Dealing with Construction Permits, Getting Electricity, Registering Property, Getting Credit, Protecting, Minority Investors, Paying Taxes, Trading across Borders, Enforcing Contracts and Resolving Insolvency.
- EoDB is key to entrepreneurship, innovation and wealth creation.
- Low regulatory burden helps entrepreneurs' systems etc. to devote time to productivity.

ANTI-COMPETITIVE PRACTICES BY BIG TECH – REPORT

In News: The Parliamentary Standing Committee on Finance has presented a set of recommendations to rein in Big Tech companies through a digital competition law for regulating anti-competitive practices on their platforms.



More on the Topic:

- Important Recommendations:
- The government must frame a definition for Systemically Important Digital Intermediaries (SIDIs) that need tighter regulations.
- The classification could be based on revenues, market capitalisation, and the number of active users.
- A top tech company must not "favour its own offers over the offers of its competitors" when acting as mediators.

- Technology behemoths such as Alphabet (which owns Google), Meta (which owns Facebook), and Amazon are among those recognized the world over as Big Tech companies that act as crucial digital intermediaries.
- India must identify the small number of leading players or market winners that can negatively influence competitive conduct in the digital ecosystem.
- India's competition law needs to be enhanced for which it is necessary to strengthen the Competition Commission of India to take on new responsibilities.
- A specialized digital markets unit within the CCI should be formed with skilled experts, academics, and attorneys, enabling the commission to closely monitor the SIDIs as well as emerging SIDIs.
- The SIDIs would have to submit a report to the CCI every year describing the measures implemented to fulfill their obligations. They must also publish a summary of this report on their websites.

Significance of Big Tech Monopoly Regulation:

- Report comes amid a rising global scrutiny on big tech companies (such as Google, Apple) for abusing their market position.
- These companies have wiped out any competition in order to maintain their monopolies on power.
- Facebook, which has acquired over 94 companies, the most notable being Instagram, WhatsApp Messenger, Oculus Virtual Reality, Giphy, and more.
- These are just a few examples of how these companies consolidate power and monopolize the industry.
- The Competition Commission of India has imposed a provisional penalty of Rs. 1337.76 crore on Google for abusing its dominant position in multiple markets in the Android Mobile device ecosystem.

Indian Initiatives Applicable to Big Tech Companies:

- **Competition Act, 2002:** established the Competition Commission of India (CCI). The CCI has been established to eliminate practices having an adverse effect on competition.
- **Information and Technology Act, 2000:** The act governs all activities related to the use of computer resources in India.

- **Open Network for Digital Commerce (ONDC):** The platform intends to promote open networks, which are developed using the open-source methodology. The project is aimed at curbing “digital monopolies”.

DRAFT NATIONAL RETAIL TRADE POLICY

In News: The Department for Promotion of Industry and Internal Trade (DPIIT) has sought views of 16 departments and ministries on its draft national retail trade policy.

More on the Topic:

- It is aimed at overall development of all formats of the sector.
- The policy would focus on formulating strategies to provide a globally competitive and sustainable environment for overall development of retail trade through targeted efforts.



Objectives of the Policy:

- The objectives of the policy include ensuring easy and quick access to affordable credit, facilitating modernisation and digitization of retail trade by promoting modern technology and superior infrastructural support;
- Development of physical infrastructure across the distribution chain; promotion of skill development
- To improve labour productivity, and providing an effective consultative and grievance redressal mechanism for the sector.

About India's Retail Industry:

- India is the world's fifth-largest global destination in the retail space.
- According to a report of CII-Kearney on retail, a cohesive national retail policy can help generate 30 lakh more jobs by 2024.

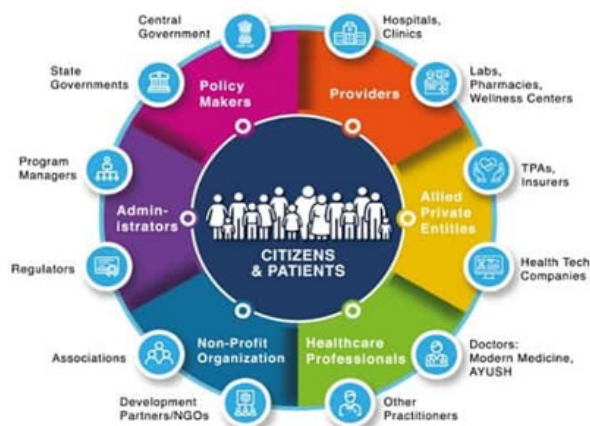
- The retail industry is likely to see 10% annual growth to reach about USD 2 trillion by 2032.

UNIFIED HEALTH INTERFACE

In News: The National Health Authority (NHA) has released a consultation paper on 'Operationalising Unified Health Interface (UHI) in India' that outlines market rules that will govern the UHI Network.

More on the Topic:

- UHI is envisioned as a foundational layer of the Ayushman Bharat Digital Mission (ABDM) and aims to enable interoperability in health services in India through open protocols.
- Currently, the digital health ecosystem in India is highly fragmented; hindering optimal choices from users.



- UHI will remove the fragmentations through an open interoperable network to connect various End User Applications (EUAs) and Health Service Provider Applications (HSPAs).
- The consultation paper focuses on the different elements of UHI and the market rules that will govern them.
- These include guidelines that will govern the way search and discovery will take place in a fair and transparent manner, payment & settlement processes, rules around cancellation & rescheduling, grievance redressal mechanism, and more.

Ayushman Bharath's digital mission:

- Ayushman Bharath's digital mission is a **National Digital Health Eco-system** that supports Universal Health Coverage in an efficient, accessible, inclusive, affordable, timely, and safe manner.
- It works through interoperable, standards

- based digital systems, and ensures the security, confidentiality, and privacy of health-related personal information.

- ABDM aims to develop the backbone to support the integrated digital health infrastructure of the country.
- It will bridge the existing gap between different stakeholders of the healthcare ecosystem through digital ways.
- The implementing agency of the scheme is the **National Health Authority (NHA)** under the Ministry of Health and family welfare.

PRADHAN MANTRI ADI ADARSH GRAM YOJANA

In News: Ministry of Tribal Affairs has revamped the existing Scheme of Special Central Assistance to Tribal Sub-Scheme (SCA to TSS) with nomenclature 'Pradhan Mantri Adi Adarsh Gram Yojna (PMAAGY)', for implementation during 2021-22 to 2025-26.

More on the Topic:

- It aims at transforming villages with significant tribal population into model village (Adarsh Gram) covering about population of 4.22 crore (About 40% of the total Tribal Population).
- The main objective of this scheme is to achieve integrated socio-economic development of selected villages through convergence approach.
- It includes preparing Village Development Plan based on the needs, potential, and aspirations.
- It also includes maximizing the coverage of individual / family benefit schemes of the Central / State Governments and improving the infrastructure in vital sectors like health, education, connectivity and livelihood.

Major Focus of the Scheme:

- The scheme envisions to mitigate gaps prominently in 8 sectors of development viz. Road connectivity (Internal and Intervillage/block), Telecom connectivity (Mobile/internet), School, Anganwadi Centres, Health Sub-Centre, Drinking water facility, Drainage and solid waste management.

RIGHT TO REPAIR PORTAL

In News: Right to repair portal has been launched recently.



More on the Topic:

- On the 'right to repair' portal, manufacturers will share the manual of product details with customers so that they can either repair by self, by third parties, rather than depend on original manufacturers.
- Initially, mobile phones, electronic, consumer durables, automobile and farming equipment will be covered.

Significance:

- It was proposed that allowing the right to repair would allow the growth of repair shops.
- Monopoly on repair parts and processes violates the customer's "right to choose". It also hampers the local shops' growth.
- It would also ensure sustainability of the products and promote employment generation.
- It would also prevent customers from discarding gadgets that were deemed difficult or expensive to repair with the original manufacturers.
- The launch of right to repair portal will now reduce the dependency of consumers on manufacturers in case their product fails to operate.
- After its launch, India joined the clutch of countries like the United States (US) and the United Kingdom (UK).

About Right to Repair:

- The right to repair refers to proposed government legislation that would allow consumers the ability to repair and modify their own consumer products (e.g. electronic, automotive devices or farm vehicles such as tractors).

- Otherwise the manufacturer of such products requires the consumer to use only their offered services by restricting access to tools and components, or software barriers put in place to hinder independent repair or modification.
- These obstacles often lead to higher consumer costs or drive consumers to replace devices instead of repairing them.
- While the global community is concerned over the growing volume of the waste stream (especially electronic components)

E-HRMS 2.0 PORTAL

In News: Department of Personnel and Training (DoPT) has launched revamped e-HRMS 2.0 (e Human Resources Management System 2.0) portal for central government employees.

More on the Topic:

- The revamped e-HRMS 2.0 Portal will provide the services like transfers (rotation or mutual), deputation, private foreign visits, vigilance status, deputation opportunities, service books and other basic HR services like leave, tours, reimbursements among others, in digital mode to the employees.
- The revamped portal is the first digital system in the government of India to provide end-to-end HR services.
- Presently, no other government service cadre system in India is as advanced in its reach and applications as the revamped e-HRMS 2.0.

Significance:

- With the aid of e-HRMS DoP&T will be moving towards total digitisation of HR services.
- e-HRMS 2.0 will save several thousand man-hours and tons of printing paper.
- This will also go a long way in improving employee satisfaction, promoting ease of doing or processing of HR work and enhancing productivity and transparency in administrative functioning
- The new and revamped probity portal and capturing of real-time information using such a platform will send a clear signal that 'non-performance' and 'inefficiency' of the government employees will not be tolerated and that the right attitude towards public service with 'integrity' and 'probity' is expected from every government servant.

GOVERNMENT SCHEMES

HORTICULTURE CLUSTER DEVELOPMENT PROGRAMME

In News: A meeting was held by the Union Ministry of Agriculture and Farmers Welfare for the Horticulture Cluster Development Programme (CDP).

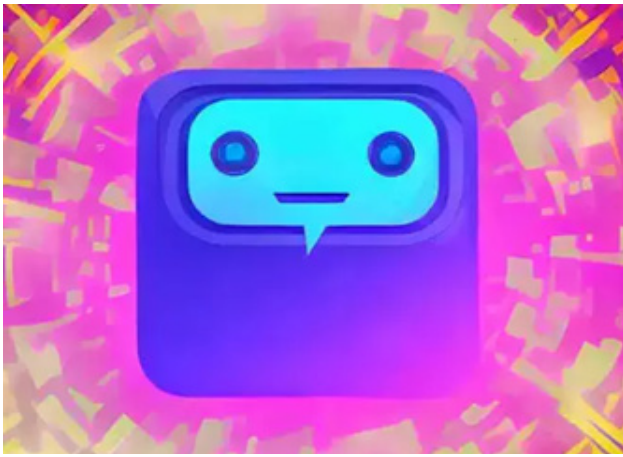


More on the Topic:

- It is a programme, by Ministry of Agriculture and Farmers Welfare, to enhance global competitiveness of horticulture sector.
- National Horticulture Board is the Nodal Agency for its implementation.
- 55 clusters have been identified.
- Financial Assistance will be provided by National Horticulture Board to the Implementing Agencies through CDAs appointed for the respective Clusters.
- The Clusters have been divided into three different categories – Mega, Midi, and Mini depending upon the area covered in the Cluster.
- The program will leverage geographical specialisation of horticulture clusters and promote integrated and market-led development of pre-production, production, post-harvest, logistics, branding etc.

CHATGPT CHATBOT

In News: ChatGPT is a 'conversational' AI which has become sensational recently.



More on the Topic:

- The reason ChatGPT has gone viral is because of the kind of responses it gives, being seen as a replacement for much of the daily mundane writing, from an email to even college-style essays.
- So one can ask ChatGPT for anything; tips on how to set up a birthday party, write an essay on why parliamentary democracy is better, and even a fictional meeting between two well-known personalities.
- ChatGPT can answer "follow-up questions", and can also "admit its mistakes, challenge incorrect premises, and reject inappropriate requests."
- It is based on GPT 3.5 series of language learning models (LLM).
- GPT stands for **Generative Pre-trained Transformer** and this is a kind of computer language model that **relies on deep learning techniques** to produce human-like text based on inputs.
- The model is trained to predict what will come next, and that's why one can technically have a 'conversation' with ChatGPT.
- According to Open AI's (company launched the bot) the chat bot was also trained using "Reinforcement Learning from Human Feedback (RLHF)."

ESANJEEVANI TELEMEDICINE SERVICE

In News: National Telemedicine Service, eSanjeevani, has clocked 8 crore tele-consultations so far.

More on the Topic:

- In less than 3 years, this initiative has garnered the distinction of being the world's largest government owned telemedicine platform.



- It consists of two verticals that cater to patients across all states and UTs successfully making its presence felt in the innermost regions of the nation.
- The first vertical **eSanjeevani AB-HWC** endeavors to bridge rural-urban digital health divide by providing assisted teleconsultations, and ensuring that e beneficiaries of Ayushman Bharat Scheme are able to avail of the benefits they are entitled to.
- This vertical operates on a **Hub-and-Spoke model** wherein the 'Ayushman Bharat-Health and Wellness Centers' (HWCs) are set up at state level, act as spokes, which are mapped with the hub (comprising MBBS/ Specialty/ Super-Specialty doctors) at zonal level.
- **eSanjeevani OPD** is the latter vertical which caters to citizens in both rural and urban alike.
- It leverages technology via smart phones, tablets, laptops enabling doctor consultations to be accessible from the patient's residence regardless of location.
- **eSanjeevani** is a cohesive part **Ayushman Bharat Digital Health Mission (ABDM)**, & more than 45,000 ABHA IDs have been generated via eSanjeevani application.

EUROPEAN SECURITIES AND MARKETS AUTHORITY (ESMA)

In News: The European Securities and Markets Authority (ESMA) and the UK derecognising Indian clearing houses.

More on the Topic:

- The European Securities and Markets Authority (ESMA) is an independent European Union (EU) Authority that contributes to safeguarding the stability of the EU's financial system by enhancing the protection of investors and promoting stable and orderly financial markets.

- The Authority reports to the institutions on its activities regularly at meetings and also through its Annual Report.
- One mission: to enhance investor protection and promote stable and orderly financial markets
- Three Objectives: Investor Protection, Orderly Markets and Financial Stability

INDIA'S BIOECONOMY

In News: One District One Product (ODOP) initiative.



More on the Topic:

- ODOP was launched by the Ministry of Food Processing Industries in 2018.
- It is a centrally sponsored scheme.
- It aims to facilitate balanced regional development across all districts of India.
- The programme helps the districts to attain their maximum potential, promotes economic growth, and creates more employment opportunities.
- The ODOP Initiative is aimed at fostering balanced regional development across all districts of the country, enabling holistic socio-economic growth across all regions.
- The objective is to focus on District of the country as unit for converting into a manufacturing and export hub by identifying products with export potential in the District.
- The State Government would identify the food product from a district. The product could be a perishable Agri product, cereal-based product, or any food product produced in a district.

Districts as Export Hubs (DEH):

- The scheme tries to target export promotion, manufacturing and employment generation

at grass root level and has made States and Districts accountable for the export growth from the Districts in the country.

- Under the DEH initiative, a District Export Promotion Committee (DEPC) is formed which is responsible for preparing a district export action plan.
- To effectively implement the plan, the Committee recommended forming an empowered Group of Secretaries of related Ministries/Departments such as agriculture, textile, food processing, and MSME.
- The Committee also noted that local government bodies should be involved in the implementation of the plan.

PM SVANIDHI

In News: The Government has extended the Prime Minister Street Vendor's AtmaNirbhar Nidhi (PM SVANidhi) Scheme beyond March 2022.

More on the Topic:

- The scheme is extended with the following provisions:
- Extension of lending period till December 2024;
- Introduction of 3rd loan of upto 50,000 in addition to 1st & 2nd loans of 10,000 and 20,000 respectively;
- To extend 'SVANidhi Se Samridhhi' component for all beneficiaries of PM SVANidhi scheme across the country.

What is PM SVANidhi Scheme?

- The scheme was launched by the Ministry of Housing and Urban Affairs in June 2020.
- The main objective of the scheme is to provide affordable Working Capital loans to street vendors to restart their livelihoods that have been adversely affected due to the Covid-19 lockdown.
- Vendors can get collateral-free working capital loans up to 10,000, which are repayable in monthly instalments in term of one year.
- An enhanced loan of up to 20,000 and 50,000 on the second and third times respectively, on repayment of earlier loans.

ARTH GANGA

In News: NMCG has launched Project on 'Capacity Building Programme for Leveraging Community and Local Resources Based on Technology' Under Arth Ganga.

More on the Topic:

- The programme aims to develop new need-based skills for the future amongst the local community along River Ganga and provide alternative solutions to the community members under Arth Ganga.
- The project is being jointly implemented by NMCG and Himalayan Environmental Studies and Conservation Organization (HESCO).
- The National Mission for Clean Ganga (NMCG) is implemented by the National Council for Rejuvenation, Protection and Management of River Ganga also known as the National Ganga Council.
- This mission was established on 12th August 2011 under the Societies Registration Act, 1860 as a registered society.

Arth Ganga:

- PM Modi first introduced the concept in Kanpur in 2019.
- It is a shift from Namami Gange, the Union Government's flagship project to clean the Ganga, to the model of Arth Ganga.
- The latter focuses on the sustainable development of the Ganga and its surrounding areas, by focusing on economic activities related to the river.
- The Arth Ganga model seeks to use economics to bridge people with the river.

Features of Arth Ganga:

- Under Arth Ganga, the government is working on six verticals. They are
- Zero Budget Natural Farming,
- The Monetization and Reuse of Sludge and Wastewater
- Livelihood Generation Opportunities, by creating haats where people can sell local products.
- The fourth is to increase public participation by increasing synergies between the stakeholders involved with the river.
- The model also wants to promote the cultural heritage and tourism of Ganga and its

surroundings, through boat tourism, adventure sports and by conducting yoga activities.

- To promote institutional building by empowering local administration for improved water governance.

MARINE COMMANDO FORCE

In News: In a historic move, the Indian Navy has decided to allow women to be part of its elite special forces the Marine Commandos (Marcos).



More on the Topic:

- The historical move will allow women will serve as commandos in any of the three defence services.
- The historical move will allow women will serve as commandos in any of the three defence services.
- Until now, only men were allowed to be part of the Special Forces.
- MARCOS was raised in 1987. Exclusivity of the unit lies in its competence to operate in all three mediums namely Sea, Air and Land.
- The Army, Navy and Air Force have Special Forces comprising the toughest soldiers who have to undergo rigorous training to be able to conduct a swift and stealthy response in denied territories.

NAMAMI GANGE

In News: UN recognises India's Namami Gange Initiative to rejuvenate Ganga River as one of the top ten world restoration flagship projects.

More on the Topic:

- Namami Gange was selected from over 150 such initiatives from 70 countries across the globe.
- The initiatives were selected under the banner of the United Nations Decade on Ecosystem

Restoration, a global movement coordinated by the United Nations Environment Programme (UNEP) and the United Nations Food and Agriculture Organization (FAO).

- It is designed to prevent and reverse the degradation of natural spaces across the planet.
- The recognised initiatives, including Namami Gange, will now be eligible to receive UN support, funding or technical expertise.



About Namami Gange Initiative:

- Government of India has launched Namami Gange Programme, an integrated umbrella programme, aimed to ensure effective abatement of pollution and conservation of river Ganga and its tributaries by adopting a river basin approach.
- Under Namami Gange comprehensive set of interventions in the areas of wastewater treatment, solid waste management, river front management (ghats and crematoria development), e-flow, afforestation, biodiversity conservation and Public Participation etc. are being taken up for the rejuvenation of river Ganga.
- The program is being implemented by the National Mission for Clean Ganga (NMCG), and its state counterpart organizations i.e., State Program Management Groups (SPMGs).
- NMCG is the implementation wing of

National Ganga Council (set in 2016; which replaced the National Ganga River Basin Authority (NRGBA).

- National Ganga Council (NGC) was created in October 2016 under the River Ganga (Rejuvenation, Protection and Management) Authorities Order, 2016. It is headed by the Prime Minister.

YOUTH CO : LAB FOR SOCIAL ENTREPRENEURS

In News: The Atal Innovation Mission (AIM) of NITI Aayog in collaboration with UNDP India on Thursday launched the fifth edition of Youth Co: Lab to support young social entrepreneurs.



More on the Topic:

- Youth Co: Lab is an initiative launched in 2019 by UNDP India in partnership with AIM to establish a common agenda for Asia-Pacific countries to invest in and empower youth to accelerate implementation of the Sustainable Development Goals (SDGs) through leadership, social innovation, and entrepreneurship.
- Through Youth Co: Lab, 30 early-stage start-ups would be supported by the springboard programme, and the best would be provided a seed grant for scaling up their start-up.
- Entrepreneurs between the age brackets of 18-29 can apply for the programme.
- The five focuses thematic areas for Youth Colab 2022-23 are: Digital and Financial Literacy for Youth, Gender Equality and Women Economic Empowerment, Developing FinTech Solutions focused on Biodiversity Conservation, Promoting Biodiversity-friendly Lifestyles through Technological Solutions

in Finance, Accelerating Circular Economy through Upcycling Innovations, and Behavioural Nudges for LiFE (Lifestyle for Environment).

SCHOLARSHIP FOR HIGHER EDUCATION FOR YOUNG ACHIEVERS SCHEME (SHREYAS)

In News: Underutilisation of the funds allocated for Scholarship for Higher Education for Young Achievers Scheme (SHREYAS) has been reported by the Parliamentary Panel.



More on the Topic:

- The main objective of the schemes is **Educational Empowerment of SC, OBC & EBC students** by way of awarding fellowship (financial assistance) in obtaining quality higher education and interest subsidy on educational loan for overseas studies.
- It is a **Central Sector Scheme (CSS)** under Ministry of Social Justice and Empowerment
- The scheme is designed to provide a total number of 1000 Junior Research Fellowships per year to undertake advanced studies and research leading to M.Phil /Ph.d degrees.
- The UGC is the nodal agency for implementing the scheme.

GREEN RATING FOR INTEGRATED HABITAT ASSESSMENT

In News: UIDAI Headquarter in New Delhi has won the GRIHA Exemplary Performance Award 2022.

More on the Topic:

- It is the **national rating system of India for any completed building construction.**
- GRIHA is recognised as India's own green building rating system in India's Intended Nationally Determined Contributions (INDC) submitted to the United Nations Framework

Convention on Climate Change (UNFCCC).



- Created, conceived developed jointly with the Ministry of New and Renewable Energy.

THE NATIONAL DEFENCE AUTHORISATION ACT (NDAA) OF USA AND INDIA

In News: The National Defence Authorisation Act (NDAA) bill of United States' recommended expanding US' cooperation with India in emerging technology, readiness and logistics.



More on the Topic:

- The act focuses on the most critical national security priorities for the United States, such as strategic competition with China and Russia; disruptive technologies such as hypersonic weapons, artificial intelligence, 5G and quantum computing and modernising our ships, aircraft and vehicles.
- The bill states that a **strong US-India defence partnership is critical to advancing US interests in the Indo-Pacific region.**
- The bill also seeks to study opportunities and challenges related to **reducing India's reliance on Russian-built weapons and defence systems.**

About India-US Defence Relations:

- Defence relationship has emerged as a major pillar of India-U.S. strategic partnership with the signing of 'New Framework for India-U.S. Defense Relations' in 2005.
- India and the United States have launched a Defence Technology and Trade Initiative (DTTI) aimed at simplifying technology transfer policies and exploring possibilities of co- development and co-production to invest the defence relationship with strategic value.
- During the visit of Prime Minister to the U.S. in June 2016, the U.S. recognised India as a "Major Defence Partner", which commits the U.S. to facilitate technology sharing with India equal to closest allies and partners.
- India was accorded 'Strategic Trade Authorization Tier 1 status' in 2018 for high-technology product sales particularly in civil space and defence sectors.

India's Major Defence Agreements with USA

- General Security of Military Information Agreement (GSOMIA), 2002-military information exchange.
- Logistics Exchange Memorandum of Agreement (LEMOA), 2016-utilise each other's military base.
- Communications Compatibility and Security Agreement (COMCASA), 2018 - interoperability between two militaries and sale of high-end technology to India.
- Basic Exchange and Cooperation Agreement (BECA), 2020 - high-end military technology, logistics and geospatial maps.

SURYAKIRAN EXERCISE

In News: The joint military exercise between the armies of India and Nepal 'SURYA KIRAN' began at Nepal.



More on the Topic:

- Ex Surya Kiran will go a long way in improving bilateral relations and mutual cooperation between both the armies and further strengthening the unique, time-tested friendship between India and Nepal.
- Suryakiran series of exercises also stands testimony to strong Indo-Nepal relations which are vast and varied.

EU ADOPTS GLOBAL MINIMUM 15% TAX ON BIG BUSINESS

In News: The European Union has adopted a plan for a global minimum 15% tax on big business.

More on the Topic:

- Agreement on Global Minimum Tax (GMT) was drawn up under Inclusive Framework on Base Erosion and Profit Sharing (BEPS) from Organisation for Economic Cooperation and Development (OECD) and G20.
- The newly-approved plan was drawn up under with the guidance of the Organisation for Economic Cooperation and Development (OECD).
- It is joined by 142 countries, including India to reform international taxation rules and stop governments racing to cut taxes in a bid to attract companies.
- The global minimum tax is only one part, known as Pillar Two, of the OECD agreement.
- The first pillar, which provides for the taxation of companies where they make their profits to limit tax evasion, primarily targets digital giants.
- It requires an international agreement which is not yet finalised.

Why Minimum Taxation:

- Corporation tax is usually based on a company's profits.
- But often they might be able to pay less depending on where their offices are registered or how they invest in their business.
- Tax havens would no longer exist since taxes avoided in haven would be collected at home.

INDIAN ECONOMY

KIRIT PARIKH PANEL FOR GAS PRICING FREEDOM

In News: The Kirit Parikh panel to review natural gas prices in India has submitted its recommendations recently.



More on the Topic:

- The panel was set up in September 2022 to review India's gas pricing formula to ensure **fair prices to consumers** after state-set prices of gas from old fields and a ceiling price for output from difficult blocks rose to a record high.
- Currently there are multiple gas pricing mechanism including administered gas price mechanism and non administered gas price mechanism.
- The two sets of prices-tied to global benchmarks, including Henry Hub, Alberta gas, NBP and Russian gas - are annually revised.

Recommendations:

- **Completely free and market-determined pricing for natural gas** extracted from legacy fields and remove all caps by January 1, 2027.
- Legacy or old fields are given to ONGC and OIL on a nomination basis without any condition of sharing profits and therefore government controls its price.
- **Linking the price of gas produced by the state-owned firms with the imported crude oil prices** rather than benchmarking them to gas rates in international markets.
- **Including natural gas in the GST regime** by subsuming excise duty charged by the central government and varying rates of VAT levied by state governments.
- **Price escalation for the old fields**, with an increase of \$0.5 per metric million British thermal units (mmBtu) annually with no

change in pricing for the first two years or a \$0.25 per mmBtu escalation for five years.

Gas Based Economy:

- The government of India proposed in 2018 to increase natural gas's primary energy mix contribution from its current level of 6% to 15% by 2030. India has implemented the following steps to achieve this:
- **Policy for Hydrocarbon Exploration and Licensing (HELP):** HELP calls for a standard licensing scheme that will apply to all hydrocarbons, including coal bed methane, gas, and oil. It uses the revenue-sharing concept and allows for flexible marketing and pricing.
- **SATAT Plan:** A sustainable Alternative towards Affordable Transportation is known as SATAT. This initiative invites expressions of interest from potential entrepreneurs with the goal of establishing compressed bio-gas production facilities and making them available on the market for use in vehicle fuels.
- The Petroleum and Natural Gas Regulatory Board (PNGRB) has authorised about a 33,500 km natural gas pipeline network throughout the nation in an effort to establish a national gas grid.
- The Indian Gas Exchange (IGX), India's first gas exchange, was established in June 2020. The exchange is anticipated to make natural gas price discovery more transparent.
- **Pradhan Mantri Urj Ganga Project and North East Gas Grid:** Connected eastern and north eastern parts with gas grid.

DISTRICT WISE PRICE MONITORING CENTRE FOR ESSENTIAL COMMODITIES

In News: According to the Department of Consumer Affairs, all states should establish price monitoring centres for essential commodities in all districts.



More on the Topic:

- The Centre intends to achieve target of having 750 price monitoring centres by 31 March, 2023 for which financial support will be assured.
- The Price monitoring centres will be useful in controlling prices of the commodities there by keeping check over inflation.
- Department of consumer affairs collect and disseminate wholesale and retail prices of 22 essential food commodities in the country.
- To improve quality of price data, department launched PMS App for reporting of daily prices by price reporting centres.

Significance of Price Monitoring:

- It enables businesses to quickly understand changes in prices and promotions, allowing for quick strategy changes.
- Pricing data can also be extremely valuable on a macro level. Monitoring a select basket of goods can provide an indication if there is inflation or changes in the market that might need to be acted upon.
- It also ensures that shortages of commodities do not adversely affect consumers, particularly vulnerable sections.

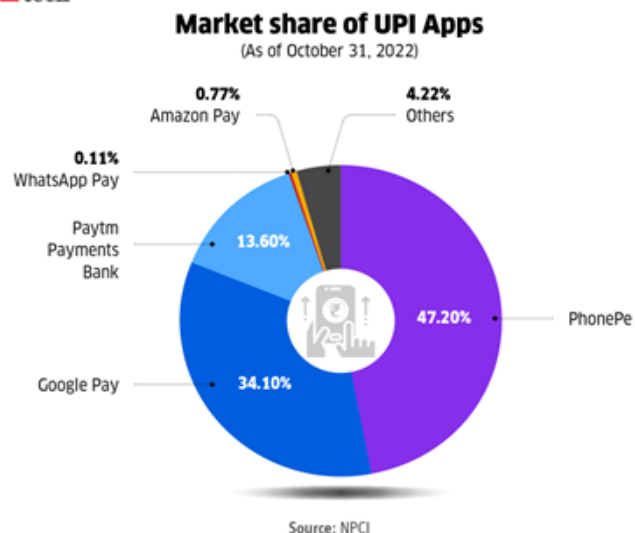
Price Stability Schemes by Government of India:

- **Price Stabilisation Fund:** Established in 2014-15, PSF is any fund created to absorb extreme volatility in selected commodity prices. (Ex: Onion, tomato etc.)
- Such goods will be procured directly from farmers or farmers' organisations at the farm gate/mandi, and made available to consumers at a more affordable price.
- **Market Intervention Scheme:** It intends to tackle higher price issues as well as availability of commodities like pulses and certain vegetables.

EXTENSION TO CAP ON MARKET SHARE OF UPI PLATFORMS

In News: The National Payments Corporation of India (NPCI) has extended by two years the deadline to comply with its 30% cap on the market share of platforms operating on the Unified Payments Interface (UPI).

tech



More on the Topic:

- NPCI had initially planned to enforce the market cap rules in January 2021, saying it would limit any single payments app from processing more than 30% of UPI transactions in a month, but has postponed the timeline several times since.
- Present extension is clarified as :
- The extension has been done taking into account the present usage and future potential of UPI and other relevant factors.
- It also noted that within the extension period other existing and new players (banks and non-banks) shall scale-up their consumer outreach for the growth of UPI and achieve overall market equilibrium.

How could it impact UPI platforms?

- The move comes as a shot in the arm for PhonePe and Google Pay, which collectively control more than 80% of UPI's market share.
- For platforms like Paytm and WhatsApp Pay, however, the extension could be seen as a natural loss.
- As of October, Paytm had a market share of 15% on UPI. In comparison, PhonePe had a 47% market share, while Google Pay accounted for around 35%.
- New regulatory circular "acknowledges that the burden is on other existing and new UPI players to invest more time, effort and money to increase their own UPI market share."

How is UPI performing?

- According to the Reserve Bank of India's Payment Vision 2025, UPI is expected to register an average annualised growth of 50%.

About UPI:

- UPI is a system that powers multiple bank accounts into a single mobile application (of any participating bank), merging several banking features, seamless fund routing & merchant payments into one hood.
- NPCI launched UPI with 21 member banks in 2016.
- UPI is currently the biggest among the National Payments Corporation of India (NPCI) operated systems including National Automated Clearing House (NACH), Immediate Payment Service (IMPS), Aadhaar enabled Payment System (AePS), Bharat Bill Payment System (BBPS), RuPay etc.
- It is an advanced version of Immediate Payment Service (IMPS)- round-the-clock funds transfer service to make cashless payments faster, easier and smoother.

PRODUCTION-LINKED INCENTIVE (PLI) SCHEME FOR DRONES AND DRONE COMPONENTS

In News: The Central Government has approved the Production-Linked Incentive (PLI) scheme for drones and drone components.



More on the Topic:

- The PLI scheme comes as a follow-through of the liberalised Drone Rules, 2021 in August 2021.
- The PLI scheme and new drone rules are intended to catalyse super-normal growth in the upcoming drone sector.
- The drone services industry (operations, logistics, data processing, traffic management etc.) is far bigger in scale.
- It is expected to grow to over INR 30,000 crore in next three years. The drone services industry is expected to generate over five lakh jobs in three years.

Recommendations:

- The total amount allocated for the PLI scheme for drones and drone components is INR 120 crore spread over three financial years.
- This amount is nearly double the combined turnover of all domestic drone manufacturers in FY 2020-21.
- The incentive for a manufacturer of drones and drone components shall be as high as 20% of the value addition made by her.
- The value addition shall be calculated as the annual sales revenue from drones and drone components (net of GST) minus the purchase cost (net of GST) of drone and drone components.
- The Government has agreed to keep the PLI rate for all three years, an exceptional treatment given only to the drone industry. In PLI schemes for other sectors, the PLI rate reduces every year.
- The PLI scheme covers a wide variety of drone components including airframe, propulsion systems, cameras, sensors, spraying systems etc.

Production Linked Incentives Scheme:

- Production Linked Incentive or PLI scheme is a scheme that aims to give companies incentives on incremental sales from products manufactured in domestic units.
- The scheme invites foreign companies to set up units in India, however, it also aims to encourage local companies to set up or expand existing manufacturing units and also to generate more employment and cut down the country's reliance on imports from other countries.
- It was launched in April 2020. This scheme was introduced in line with India's Atmanirbhar Bharat campaign.

RE-HAB PROJECT

In News: Khadi and Village Industries Commission has inaugurated the ambitious Re-Hab Project (Reducing Human Attacks using Honey Bees) at Nainital, Uttarakhand.

More on the Topic:

- Re-Hab project is running in 7 states of the country, namely in Karnataka, Maharashtra, West Bengal, Assam and Orissa, where attacks of the elephants is more common,

- Under this project **fencing of bee boxes is installed** in such areas from where elephants move towards the human settlements and farmers' agriculture.
- Fencing of Bee-boxes on the routes of movement of elephants blocks the path of wild elephants.
- In this way, through honey-bees, elephants can be prevented from attacking humans and destroying farmers' crops.

YOUNG WATER PROFESSIONAL PROGRAMME

In News: Department of Water Resources has organised concluding event of Young Water Professional Programme in collaboration with Western Sydney University, Australia and Indian Institute of Technology, Guwahati in New Delhi.

More on the Topic:

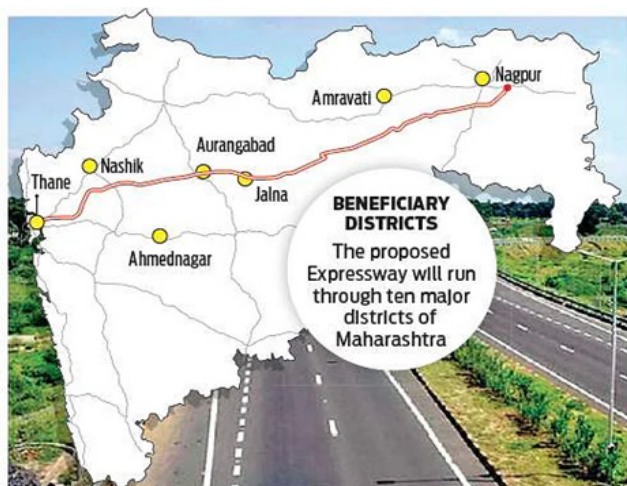
- The National Hydrology Project, Department of Water Resources initiated this innovative 11-month long programme with an objective to build the capacity of Young Water Professionals.
- It intends to provide them with the required knowledge, skills, attitude, and aptitude to offer their best in the country's water sector by accepting leadership roles and responsibilities.

SAMRUDDHI CORRIDOR

In News: PM Narendra Modi will inaugurate Samruddhi Corridor in December 2022.

More on the Topic:

- The **Samruddhi Mahamarg** or Nagpur-Mumbai Super Communication Expressway is an under-construction 701-km long access-controlled expressway in Maharashtra.



- It is considered one amongst the country's longest green field road projects, which will connect the two capital cities of the state, its capital, Mumbai, and its third-largest and vice-capital city, Nagpur.
- It is designed under the **Engineering, Procurement and Construction (EPC)** model.
- Ecologists have expressed concerns that the express way is less animal friendly.
- It passes through three wildlife sanctuaries
- Katepurna wildlife sanctuary in Akola;
- Karanja-Sohol Black Buck sanctuary in Washim; and
- Tansa wildlife sanctuary in Thane.

AGGREGATE TECHNICAL AND COMMERCIAL LOSSES OF DISCOMS

In News: In the last 2 years, the AT&C loss of the DISCOMs of the country has declined significantly.



More on the Topic:

- Preliminary analysis of data for FY2022 of 56 DISCOMs contributing to more than 96% of input energy, indicates that the AT&C losses of DISCOMs have declined significantly to ~17% in FY2022 from ~22% in FY2021.
- Ministry of Power instituted a number of measures to improve the performance of utilities.
- Reduction in AT&C losses improves the finances of the utilities, which will enable them to better maintain the system and buy power as per requirements; benefitting the consumers.
- The reduction in AT&C losses has resulted in reduction in the Gap between Average Cost of Supply (ACS) and Average Realizable Revenue (ARR).

- The ACS-ARR Gap is based on subsidy received basis, excluding Regulatory Income and UDAY Grant.

AT&C Losses:

- It is combination of energy loss (Technical loss + Theft + inefficiency in billing) and commercial loss (Default in payment + inefficiency in collection).
- Transmission and Distribution losses are the losses incurred in Electrical networks due to reasons including heat losses and billing inefficiencies.
- The cost of power generation depends on various factors including the type of Generation, Capital cost, Finance costs, Cost of fuel, Operation and Maintenance (O&M) costs and employees & administrative costs.

Key Schemes to address DISCOM Problems:

- **UDAY Scheme:**
- Launched in November 2015, the Ujjwal DISCOM Assurance Yojana (UDAY) was designed to turn around the financial position of DISCOMs.
- The state governments took over 75% of the debt of their DISCOMs, issuing lower-interest bonds to service the rest of the debt.
- **Reforms-Linked, Result-Based Scheme for Distribution (RLRBSD):**
- In budget 2021-22, the Union government had announced the launch of a "reforms-based and results-linked" scheme for improving the financial health and operational efficiency of discoms.
- Under the scheme, AT&C losses will be brought down to 12-15% by 2025-26, from 21-22%.
- **Liquidity Scheme:**
- Under Liquidity Infusion Scheme (Aatmanirbhar Bharat Abhiyan), loans of 1,35,497 crore have been sanctioned. As of December 31, 2021, a total of 1.03 lakh crore has been disbursed.

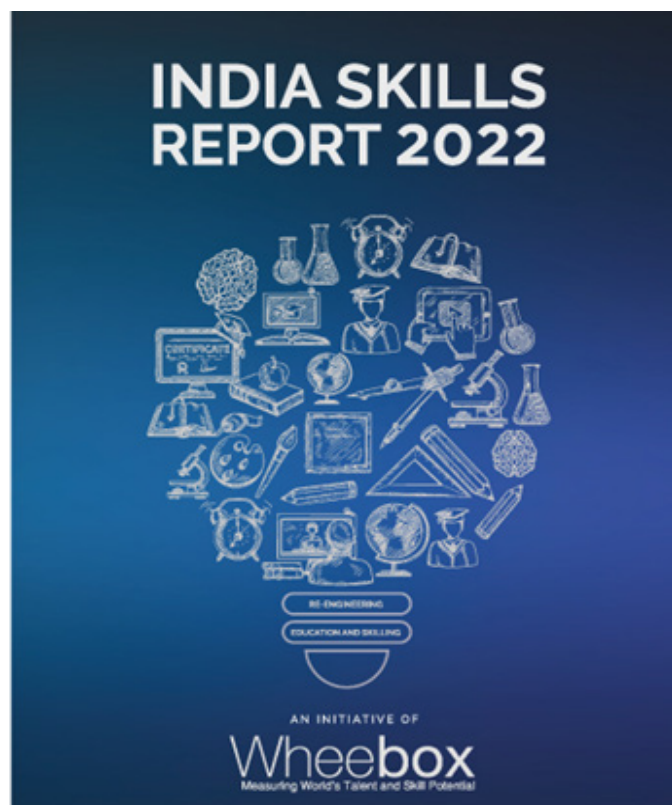
INDIA SKILLS REPORT

In News: Wheebox India Skills Report was published recently.

More on the Topic:

- In India, the overall young employability has improved to 50.03% over the previous year.

- The age range with the highest employability was found to be between 22 and 25 years old.
- The percentage of employable women has gone up from 41.25% in 2021 to 53.28%. And, in 2023, it is expected to stay stable at 52.80%.
- In fact, the rate of employable women has been consistently higher than employable men. The overall employability rate for men went up from 34.26% in 2021 to 47.28% in 2022.



- Though the percentage of employable women is high, only 33% (67% in case of men) are participating in the workforce.
- The sectors that would be hiring the most in the coming year are automotive, engineering and internet business.
- The courses most in demand in 2023 will be B.Com and MBA with the most employable and BE/B.Tech.

Recommendations:

- The need of the hour for organisations across the board is to invest in skilling and reskilling of women talent and more importantly create infrastructure and the congenial environment so that they don't exit the workforce.
- Instill the required vocational and skill development programs in our secondary, high secondary, and undergraduate education.

- Significant skills gap in the fields of data science, cloud computing, healthcare, and finance.

Skill Development Programs of Government of India:

- **Pradhan Mantri Kaushal Vikas Yojana:** The flagship Pradhan Mantri Kaushal Vikas Yojana (PMKVY) scheme was launched in 2015 to provide short-term training, skilling through ITIs and under the apprenticeship scheme.
- **SANKALP & STRIVE:** The SANKALP programme which focuses on the district- level skilling ecosystem and the STRIVE project which aims to improve the performance of ITIs are other significant skilling interventions.
- **TEJAS Initiative for Skilling:** Recently, TEJAS (Training for Emirates Jobs and Skills), a Skill India International Project to train overseas Indians was launched at the Dubai Expo, 2020.
- **National Policy on Skill Development and Entrepreneurship, 2015.** Skill India Mission 2015.

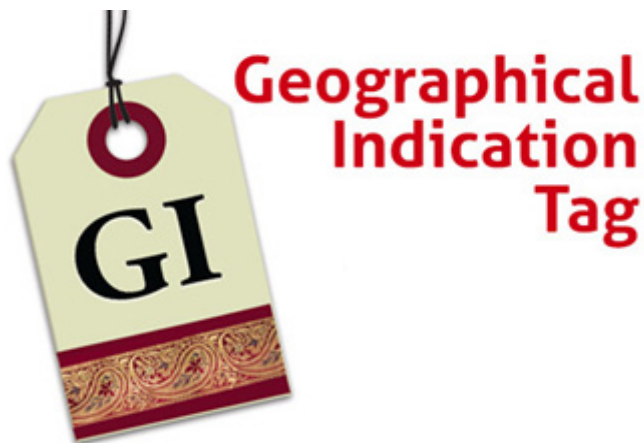
- **Attappady Aattukombu Avara** - A beans variety from Kerala,
- **Attapadi Thuvara**- A type of Redgram from Kerala,
- **Onattukara Ellu** - Sesame seed - Kerala,
- **Kanthallur Vettavada Veluthulli** - Garlic variety from Kerala,
- **Kodungallur Pottuvellari** - Snap Melon from Kerala,

About GI Tags:

- Recognised by the World Trade Organization (WTO), GI is used to denote the geographical territory from where a product, be it agricultural produce, natural product, or manufactured, conveys the assurance of quality, distinctiveness, and attributes that are unique to that specific geographic region/place of origin.
- India became a signatory to this convention, when, as a member of WTO, it enacted the Geographical Indications (Registration and Protection) Act, 1999, which came into effect on September 15, 2003.
- To protect the GI of goods, a GI registry has been established to administer the GI of Goods (Registration and Protection) Act, 1999, under the Controller General of Patents, Designs & Trade Marks.

NEW GI TAGS

In News: Nine new items has been awarded GI tags.

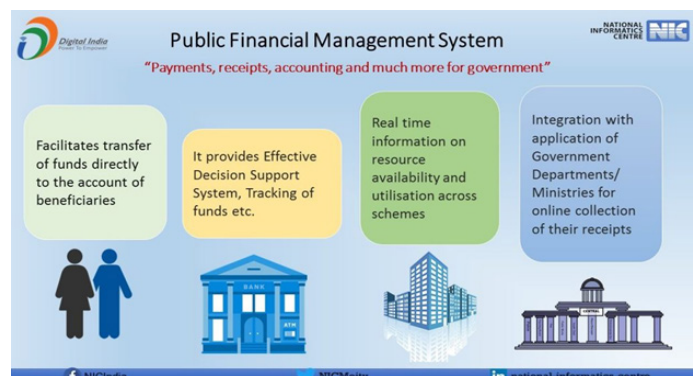


More on the Topic:

- The nine new items are
- **Gamocha of Assam** - It is generally a white rectangular piece of cloth with primarily a red border on three sides and red woven motifs on the fourth,
- **Tandur red gram of Telangana,**
- **Raktsey Karpo apricot of Ladakh,**
- **Alibag white onion of Maharashtra,**

PUBLIC FINANCIAL MANAGEMENT SYSTEM

In News: The Public Accounts Committee (PAC) has stressed fiscal prudence in financial planning by incorporating scientific methods into budgeting, projecting and utilisation of funds.



More on the Topic:

- Implementation of PFMS has been dealt with casual approach and the financial planning lacks proper planning.
- Human resource deployment, infrastructure,

and technological schemes advancement is lacked in the PFMS.

- Absence of full coverage of all Direct Benefit Transfer (DBT) schemes is another drawback.

Recommendations:

- There is a need for incorporating scientific methods into budgeting, projecting and utilisation of funds for fiscal prudence.
- Swift inclusion of all implementing agencies and integration of payment-transfer software within fixed timelines to ensure transparency, accountability and revenue saving.
- Thorough assessment of nature of DBT scheme and its components prior to integration in PFMS.

About PFMS:

- The Public Financial Management System (PFMS) is a web-based online software application developed and implemented by the Ministry of Finance, Government of India.
- PFMS started during 2009 with the objective of tracking funds released under all Plan schemes of Government of India, and real time reporting of expenditure at all levels of Programme implementation.
- Subsequently, the scope was enlarged to cover direct payment to beneficiaries under all Schemes.
- The primary function of PFMS today is to facilitate sound Public Financial Management System for Government of India by establishing an efficient fund flow system as well as a payment cum accounting network.
- PFMS has established interface with the treasury systems of all the 28 States and the 2 Union Territories with Legislatures.
- This facilitates exchange of data regarding budget, allocation and expenditure against the central transfer of funds for Centrally Sponsored Schemes of the Government of India.

E- CONSUMER PROTECTION

In News: India has become the first country to bring a new standard framework on fake and paid reviews on e-commerce sites which aim to safeguard and protect consumers.

More on the Topic:

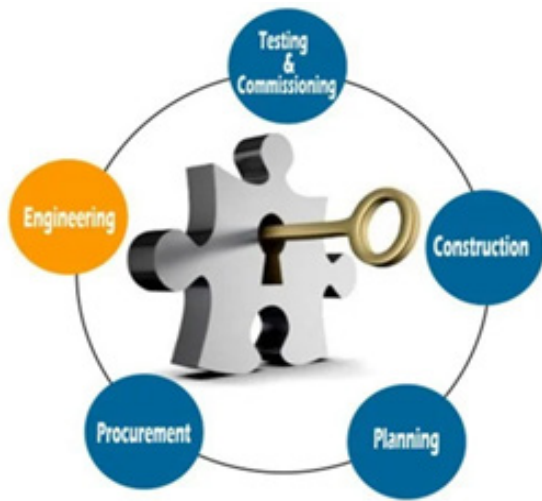
- The new set of regulations was launched by the Department of Consumer Affairs.
- The standards will be applicable to every online platform which publishes consumer reviews.
- The standard will initially be voluntary for compliance for all e-commerce platforms operational in the country.
- However, when made mandatory, the violation of the standard can invite punishment for unfair trade practice or violation of consumer rights.
- Once made mandatory, a consumer may submit grievances to the National Consumer Helpline, Consumer Commissions, or the CCPA.

Implementation:

- BIS will also develop a Conformity Assessment Scheme for the standard to assess compliance.
- The guiding principles of the standard are integrity, accuracy, privacy, security, transparency, accessibility and responsiveness.
- It also provides for the responsibilities of an organisation, including developing a code of practice, and necessary stipulations for terms and conditions like accessibility, criteria, and ensuring content does not contain financial information etc.
- The standard also provides for methods for verification of review author through email address, identification by telephone call or SMS, confirming registration by clicking on a link, using the captcha system to check traceability and genuineness of the review author.
- The standard is expected to benefit all stakeholders in the e-commerce ecosystem i.e., consumers, e-commerce platforms, sellers etc.
- It will help usher in confidence among consumers to purchase goods online and help them take better purchase decisions.

TURNKEY WORKS

In News: NMDC (National Mineral Development Corporation) has released Standard Bidding Document for Turnkey Works..



More on the Topic:

- A turnkey project is a delivery method in which a single entity—a contractor—works with a project owner under a single contract to complete all stages of a project from detail engineering through construction.
- Under this a firm agrees to **fully design, construct and equip** a manufacturing/ business/ service facility and turn the project over to the purchaser when it is ready for operation for a remuneration.
- Some of the few examples of Turnkey Projects include Engineering Projects, large construction projects i.e Construction of Airports, Ports, skyscrapers, Bridges, In IT (turnkey implementation of information systems), and more.
- It is one of the modes of carrying out international business project.
- It will help NMDC retain and comply with four axioms of public procurement i.e., transparency, equity, fairness, and competitiveness.

RUPEE TRADE SETTLEMENT MECHANISM

In News: Banks from India's neighbouring island nation have opened special rupee trading accounts, called Vostro accounts.

More on the Topic:

- RTS mechanism uses rupees instead of dollars and other big currencies for international transactions.
- Rupee settlement means that the citizens of countries opted for rupee settlement can now hold \$10,000 (INR 8,26,823) in physical form.
- RTS mechanism uses rupees instead of dollars and other big currencies for international transactions.

- Reserve Bank of India in July 2022 set up RTS mechanism after the western sanctions on Russia over Ukraine War.

India's efforts for Rupee's internationalisation:

- Internationalisation of the rupee is a process that involves increasing use of the local currency in cross-border transactions.
- It involves promoting the rupee for import and export trade and then other current account transactions followed by its use in capital account transactions.
- The Reserve Bank of India in July had notified the new mechanism for settling international trade in the rupee.
- This was aimed at not just reducing the rupee against the dollar but also internationalising the Indian currency.

Benefits of Internationalisation of Rupee:

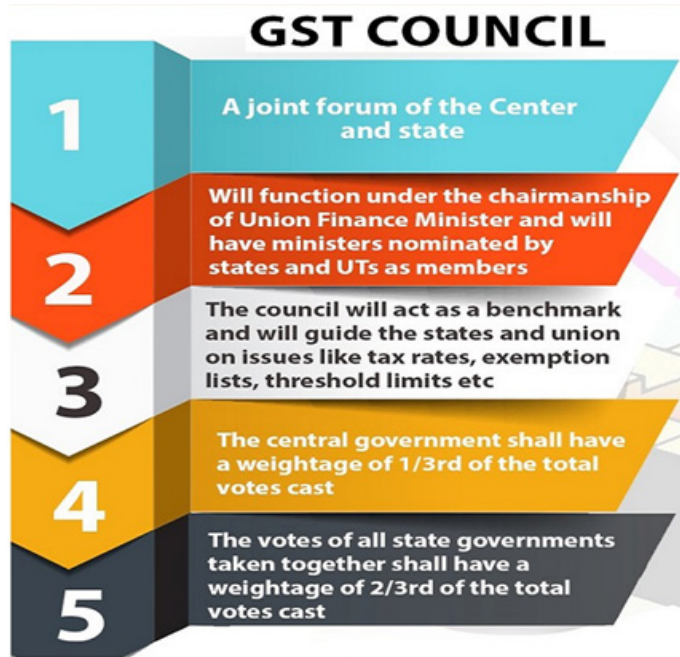
- India is a capital deficient country, and hence needs foreign capital to fund its growth. The requirement for maintaining foreign exchange reserves decreases with internationalisation of Rupee.
- India becomes less susceptible to outside shocks by reducing its reliance on foreign money.
- Improved rupee acceptability and commerce would give Indian companies more negotiating leverage, which would weigh down the Indian economy and raise India's standing and respect around the world.
- It is the ability to effectively build a business while being protected from currency volatility which will increase the likelihood that Indian companies will expand internationally.
- Currency risk is reduced for Indian enterprises when using the rupee in international dealings.
- The value of the rupee will increase with its internationalisation. In other words, it will increase demand for the rupee in global trade.

Disadvantages of Internationalisation of Rupee:

- India lacks sufficient capital; hence foreign investment is required to finance its economic expansion.
- There will be tightened exchange rate volatility.
- Complicates Domestic Monetary Policy by limiting its effectiveness and independence.
- Reduced Reserve Accretion, i.e. gradual and incremental growth of reserve assets.

GST COUNCIL

In News: The 48th Goods and Service Tax (GST) Council meeting has concluded recently.



More on the Topic:

- The Council has doubled the threshold for launching prosecution from Rs 1 crore to Rs 2 crore.
- GST reduction on husk on pulses was announced. Tax on husk reduced to nil from 5%. Ethyl alcohol or biofuel- supplied to refineries for blending with motor spirit (petrol) down to five percent from 18%.
- Decriminalise GST offences under Section 132 of Central GST Act, 2017 such as obstruction or preventing any officers from discharging their duty, deliberate tampering of material evidence etc.
- GST on online gaming and casinos was not discussed.
- No decisions on taxation of tobacco and Gutka has been taken.

About GST Council:

- The GST Council is a joint forum of the Centre and the states.
- GST Council is a constitutional body.
- It was set up by the President as per Article 279A (1) of the amended Constitution.
- The members of the Council include the Union Finance Minister (chairperson), the Union Minister of State (Finance) from the Centre.
- Each state can nominate a minister in-charge of finance or taxation or any other minister as a member.

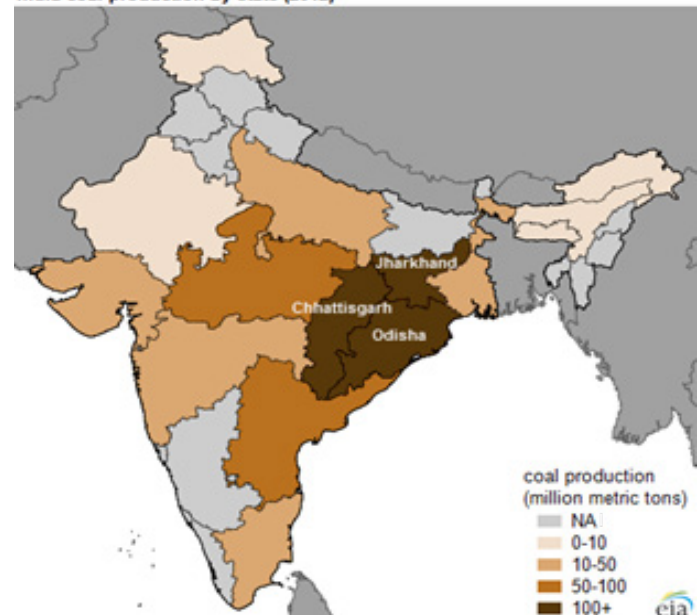
Functions:

- The Council, according to Article 279, is meant to "make recommendations to the Union and the states on important issues related to GST, like the goods and services that may be subjected or exempted from GST, model GST Laws".
- It also decides on various rate slabs of GST.

INDIA'S COAL PRODUCTION

In News: The country is aiming to produce one billion tonnes of coal in the next financial year.

India coal production by state (2012)



More on the Topic:

- India's coal consumption has doubled since 2007 at an annual growth rate of 6%.
- It is set to continue to be the growth engine of global coal demand, Coal 2022: Analysis and forecast to 2025.
- India has the fourth largest coal reserves in the world.
- Global coal demand plateaus around the 2022 level of 8 billion tonnes through 2025.
- The majority of extracted coal is used for electricity production. The remaining coal is used for cement, steel and other industries.
- India does not have enough reserves of good quality coal especially coking coal that is used as a raw material in steel making and allied industries.
- Most of it is imported from Indonesia, South Africa, Russia and Australia.

Coal and Environmental Promises:

- India is developing coal mines despite the Union government's international pledge to achieve net zero emissions by 2070.
- India, in its **nationally determined contributions**, announced a target to cut 1 billion tonne carbon emissions by 2030 and reduce the carbon intensity of the economy to less than 45%.
- However, Coals' domestic and global phase-out is also nowhere in sight, given the demand for it.

Types of Coal:

- The four types of coal are **peat, lignite, bituminous, and anthracite**, with the high heat content of anthracite being the most desirable.
- Coke is a **high-carbon product obtained by the destructive distillation of coal**. Coke is greyish-black in colour and is a hard, porous solid.
- Coal tar is obtained as a by-product in the process of making coke.
- **Coking coal** is a grade of coal that can be used to produce good-quality coke.
- Coke is one of the key irreplaceable inputs for the production of steel.
- Petroleum coke is a byproduct of the oil refining process.

SOCIAL STOCK EXCHANGE

In News: The National Stock Exchange of India (NSE) received in-principle approval from market regulator Securities Exchange Board of India (SEBI) to issue Social Stock Exchange.



More on the Topic:

- Finance Minister Nirmala Sitharaman, in her Union Budget speech of 2019-20, had proposed creation of a Social Stock Exchange, under the regulatory ambit of SEBI.
- It is intended for listing social enterprises and voluntary organizations working for the realization of a social welfare objective, so that they can raise capital as equity, debt or as units like a mutual fund (MF).
- The government, through gazette notification has declared a new security "Zero Coupon Zero Principal (ZCZP)" under the Securities Contracts (Regulation) Act, 1956.
- "The new instrument ZCZP can be publicly or privately issued by Not for Profit (NPO) upon registering with the Social Stock Exchange segment of NSE to raise funds subject to fulfillment of eligibility criteria.
- Currently the regulations have prescribed the minimum issue size as 1 crore and minimum application size for subscription at 2 lakhs.
- Subscription to the ZCZP would be like a philanthropic donation.

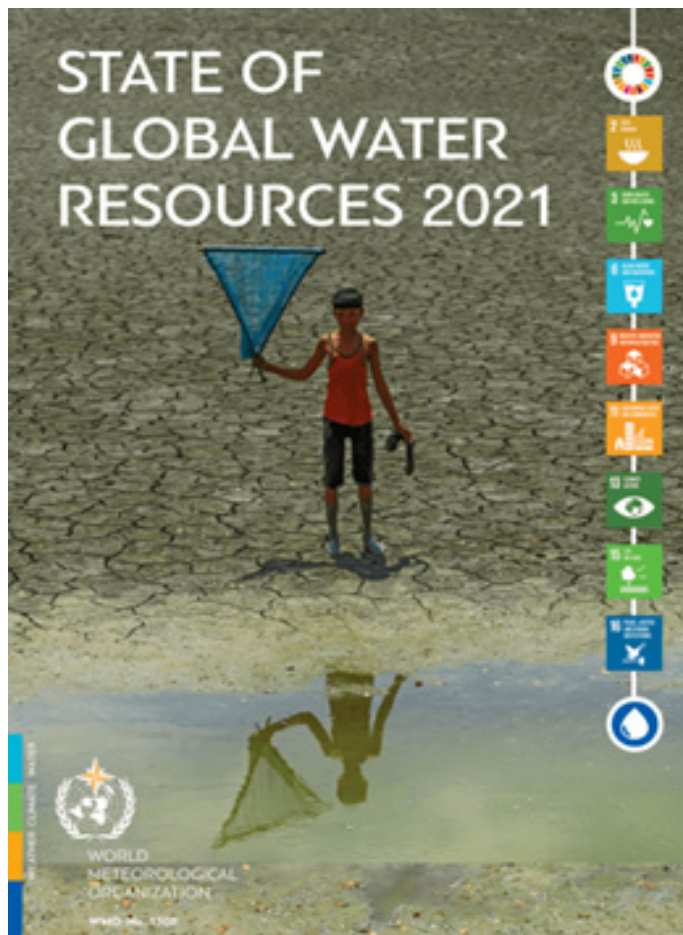
Significance of SSE:

- With this, Social welfare enterprises and non-profits could soon get to raise so-called social capital on a transparent electronic platform, aiding the process of rebuilding livelihoods ravaged by the corona virus pandemic.
- The exchange can result in a vibrant and supportive ecosystem, enabling the non-profit sector to realise its full potential for creating social impact.
- Certain tax incentives allowed under the recommendation would encourage participation in the culture of 'giving' among various stakeholders.
- It would encourage banks and other investors to participate with non profit organisations and thereby making social and economic growth more inclusive..

ENVIRONMENT AND ECOLOGY

STATE OF GLOBAL WATER RESOURCES 2021

In News: A United Nations report called 'State of Global Water Resources 2021' - a first of its kind report was launched recently.



More on the Topic:

- The report published by the UN body - the World Meteorological Organisation, is expected to shed light on **better monitoring and management of water resources**.
- The flagship report is an overview of the status of water resources in each basin compared to the 30-year hydrological average of that basin.

Significant points on the first annual 'State of Global Water Resources' report:

- Extreme droughts and floods are visible consequences of climate change, felt through waters. The report highlights several places that reported either too little or too much rainfall including neighbouring country Pakistan which recorded the worst floods in a decade.
- India also faced extreme events in 2021, mostly due to heavy rainfall. The report says a total of 762 casualties were reported in

India, with Maharashtra, Karnataka, Andhra Pradesh, Kerala, Madhya Pradesh, West Bengal, and Uttarakhand states being the most affected states due to extreme weather events.

- **Constrained by growing demands and limited supplies**, the current pace of managing water resources has left 3.5 billion with inadequate water access for at least one month per year. The UN states in its report that this number is expected to increase to 5 billion by 2050.
- According to data by UN-Water which said between 2001 and 2018, **74% of all-natural disasters were water-related**, a concerning revelation that stresses the need to integrate water into adaptation efforts.
- The report estimates that about 1.9 billion people live in areas where the cryosphere - glaciers and ice caps, etc. are available sources of freshwater.
- Melting glaciers, tropical cyclones, super typhoons, regional prolonged droughts, and hurricanes are occurring with increased intensity.
- Disturbance in hydrological cycles has left global food security management in a vulnerable state.

Recommendations:

- Countries have to Invest in filling the capacity gap in collecting data at the national level.
- There is need for **Increased sharing of hydrological data at the international level**.
- Development of **end-to-end drought and flood early warning systems** is very much essential for mitigation as well as reducing damages and loss during extreme climatic events.
- Working together as a **global hydrological community on developing annual State of Global Water Resources etc.**

CARBON CAPTURE UTILISATION AND STORAGE (CCUS) FRAMEWORK

In News: NITI Aayog has launched Carbon Capture Utilisation and Storage (CCUS) Framework of Home Affairs (HA).



More on the Topic:

- The report titled 'Carbon Capture, Utilisation, and Storage Policy Framework and its Deployment Mechanism in India' explores the importance of the technology as an emission reduction strategy to achieve deep decarbonization from the hard-to-abate sectors.
- As, India is taking steps towards achieving net zero by 2070, the role of Carbon Capture, Utilisation, and Storage (CCUS) becomes important as reduction strategy to achieve decarbonization from the hard-to-abate sectors.

Significance of CCUS:

- CCUS can provide a wide variety of opportunities to convert the captured CO₂ to different value-added products like green urea, food and beverage form application, building materials (concrete and aggregates), chemicals (methanol and ethanol), polymers (including bio-plastics) and enhanced oil recovery (EOR) with wide market opportunities in India, thus contributing substantially to a circular economy.
- It estimates that about 750 mtpa of carbon capture by 2050 can create employment opportunities of about 8-10 million on full time equivalent (FTE) basis in a phased manner.
- CCUS can enable the production of clean products while still utilizing coal, reducing imports and thus leading to an Atmanirbhar Indian economy.

Recommendations:

- CCUS policy should be carbon credits or incentives based, to promote CCUS sector through tax and cash credits.
- There is need to set up National Decarbonisation Fund for transition of Indian industry to a low carbon economy.
- It's a grave important issue to protect communities affected by climate change by

ensuring distribution of economic value created by CCUS.

About Carbon Capture, Utilisation, and Storage (CCUS):

- Carbon capture, utilization and storage (CCUS), also referred to as carbon capture, utilization and sequestration, is a process that captures carbon dioxide emissions from sources like coal-fired power plants and either reuses or stores it so it will not enter the atmosphere.
- Carbon dioxide storage in geologic formations includes oil and gas reservoirs, unmineable coal seams and deep saline reservoirs - structures that have stored crude oil, natural gas, brine and carbon dioxide over millions of years.

INDIA'S FIRST-EVER NIGHT SKY SANCTUARY IN LADAKH

In News: The work on India's first night sky sanctuary in Ladakh will be completed in over a month's time.

More on the Topic:

- The night sky sanctuary will attract tourists from across the world over to picturesque Ladakh and also boost astro-tourism in the region.
- It will be one of the world's highest-located sites for optical, infra-red, and gamma-ray telescopes.
- The proposed dark sky reserve will be located at Hanle in Ladakh as a part of Changthang wildlife sanctuary.
- It aims to work towards the preservation of the night sky from unwanted light pollution and illumination, which is a serious threat to scientific observations and natural sky conditions.

About Dark Sky Reserves:

- The International Dark Sky Association (IDSA) defines an international dark sky reserve (IDSR) as "a public or private land of substantial size (at least 700 km², or about 173,000 acres) possessing an exceptional or distinguished quality of starry nights and nocturnal environment, and that is specifically protected for its scientific, natural, educational, cultural heritage, and/or public enjoyment."

- A dark sky reserve requires a “core” area that has clear sky without any light pollution, which can enable telescopes to see the sky in its natural darkness.
- To support the core, it should be surrounded by a “peripheral” or “buffer” area that supports dark sky values in the core while receiving the same benefits.

Why Ladakh?

- The Hanle Dark Sky Reserve (HDSR) will come up within the Changthang Wildlife Sanctuary, situated 4,500 metres above sea level, which makes it a perfect host for telescopes.
- is also ideal for long-term observatories and dark-sky sites because of its large arid area, high elevation, and sparse population.

GOODS TRADE BAROMETER

In News: World Trade Organization (WTO) has published Goods Trade Barometer recently.

Goods trade barometer
Index value, June 2022 = 100.0



More on the Topic:

- The report hints toward slowing of trade growth in the rest of 2022 and into 2023.
- The indicator gives info on world trade which provides real-time information on merchandise trade trajectory relative to recent trends.
- The baseline value is 100. A value greater than 100 suggests above trend growth while a value Goods Trade Barometer below 100 indicates below-trend growth.
- The current goods Trade Barometer Index reading is 96.2. It indicates the slowdown.

INTERNATIONAL ELECTROTECHNICAL COMMISSION (IEC)

In News: India has won the International Electrotechnical Commission (IEC) Vice Presidency and Strategic Management Board (SMB) Chair for the 2023-25 term.

More on the Topic:

- By securing over 90% of the votes cast by full members of International Electrotechnical Commission (IEC) during its General Meeting held recently in San Francisco, USA, India's representative, a member of the Indian National Committee of the International Electrotechnical Commission (IEC) and various technical committees of Bureau of Indian Standards (BIS-India), was elected.
- The International Electrotechnical Commission is an international standards organization that prepares and publishes international standards for all electrical, electronic and related technologies—collectively known as “electrotechnology”.
- The IEC as a not-for-profit membership organization brings together more than 170 countries including India and coordinates the work of 20 000 experts globally.
- IEC standards cover a vast range of technologies from power generation, transmission and distribution to home appliances and office equipment, semi-conductors, fibre optics, batteries, solar energy, nanotechnology and marine energy as well as many others.
- The IEC also manages four global conformity assessment systems that certify whether equipment, system or components conform to its international standards.

MUNICIPAL GREEN BONDS

In News: Market regulator, SEBI has announced that issuers of municipal debt securities can issue green bonds in compliance with the guidelines for issuance and listing non-convertible debentures.

More on the Topic:

- This circular has come into force with immediate effect.
- The move is to protect the interest of investors in securities and promote the development of and regulate the securities market.
- Green bonds are just like any other bond

where a debt instrument is issued by an issuer for raising funds from investors.

- However, the difference between a green bond from other bonds is that the proceeds of a green bond offering are 'ear-marked' for use towards financing 'green' projects.

PROJECT GREAT INDIAN BUSTARD

In News: The Supreme Court has asked if a 'Project GIB' could be launched to protect the endangered bird Great Indian Bustard..

More on the Topic:

- This large bird, found mainly in Rajasthan and Gujarat, has been categorised as critically endangered by the International Union for Conservation of Nature (IUCN).
- While the GIBs' historic range included much of the Indian sub-continent, it has now shrunk to just 10% of that.
- Among the heaviest birds with flight, GIBs prefer grasslands as their habitats.
- The terrestrial birds spend most of their time on the ground, feeding on insects, lizards, grass seeds, etc.
- GIBs are considered the flagship bird species of grassland and hence barometers of the health of grassland ecosystems.



Why is the Great Indian Bustard endangered?

- Among the biggest threats to the GIBs are overhead power transmission lines. Due to their poor frontal vision, the birds can't spot

the power lines from a distance, and are too heavy to change course when close. Thus, they collide with the cables and die.

- According to the Wildlife Institute of India (WII), in Rajasthan, 18 GIBs die every year after colliding with overhead power lines.

Great Indian Bustard: Conservation efforts:

- The Supreme Court in April 2021 ordered that all overhead power transmission lines in core and potential GIB habitats in Rajasthan and Gujarat should be made underground.
- The SC also directed the installation of bird diverters (reflector-like structures strung on power cables) in priority areas.
- The Centre had launched the GIB species recovery programme. Under this, the WII and Rajasthan Forest department jointly set up breeding centres where GIB eggs harvested from the wild were incubated artificially.

SOUTHERN WHITE RHINO

In News: CITES COP19 has downgraded status of southern white rhino from Appendix I to Appendix II.

More on the Topic:

- Despite the setback, the parties at COP19 rejected the proposal made by Eswatini to reinstate trade in rhino horns.
- The animals named under Appendix II may not necessarily be threatened with extinction, but trade of such species should be controlled to ensure it does not threaten their existence.
- The downgrading of the classification will be perceived as decreased protection to the species among smuggling channels in countries where poaching is rampant.
- The proposal acceptance also means that the rhinos can be relocated over long distances from one country to another.

IUCN RED LIST INCLUDED HIMALAYAN PLANTS

In News: Three Himalayan medicinal plants have entered IUCN Red List.

More on the Topic:

- *Meizotropis pellita* has been assessed as 'critically endangered', *Fritillaria cirrhosa* as 'vulnerable', and *Dactylorhiza hatagirea* as 'endangered'.

- **Meizotropis pellita**, commonly known as Patwa, is a perennial shrub with restricted distribution that is endemic to Uttarakhand.
- **Fritillaria cirrhosa** (Himalayan fritillary) is a perennial bulbous herb.
- **Dactylorhiza hatagirea** (Salampanja) is a perennial tuberous species endemic to the Hindu Kush and Himalayan ranges of Afghanistan, Bhutan, China, India, Nepal, and Pakistan.
- A recent assessment in the biodiversity hotspot shows **deforestation, habitat loss, forest fires, illegal trade and climate change** pose serious threat to the species.
- The fresh data is expected to aid conservation efforts in the region.

JEYPORE GROUND GECKO

In News: Rare Jeypore Ground Gecko listed in Appendix 2 to stall its trafficking.

More on the Topic:

- The proposal to include the gecko in Appendix II was made by India at the recently-concluded 19th Conference of Parties (COP19) to CITES in Panama City. The proposal was adopted by the members of the Working Group.
- The animals listed under Appendix II may not necessarily be threatened with extinction, but trade in such species should be controlled to ensure it does not threaten their existence.

Conservation Status:

- In 2019, the Jeypore Ground Gecko was assessed for the International Union for Conservation of Nature (IUCN)'s Red List of Threatened Species and was listed as 'endangered'.

About Jeypore Ground Gecko:

- The species is rare and was first described by British officer and amateur naturalist Colonel Richard Henry Beddome in 1878 and rediscovered by a team of researchers led by Ishan Agarwal in 2010 and 2011, after a gap of over 130 years.
- The wild reptile species is found in the **Eastern Ghats** and is known to be present in four locations including southern Odisha and northern Andhra Pradesh.
- Its occurrence is estimated in less than 5,000 square kilometres of fragmented geographical area.

- The species resides below rock boulders in high forested hills at an altitude of 1,100-1,400 metres.

30X 30 GOALS

In News: Asia is not likely to meet the ambitious 30X30 goal proposed under the Post 2020 Global Biodiversity Framework of the Convention on Biological Diversity (CBD), according to new research released recently.



More on the Topic:

- 30X30 aims to protect and conserve 30% of world's terrestrial, freshwater, coastal and marine ecosystems.
- 30x30 target aims to halt the accelerating loss of species, and protect vital ecosystems that are source of economic security.
- It was first floated in 2019 and presently more than 100 countries (including India) are part of it.

WORLD SOIL DAY

In News: December 5 is observed as the World Soil Day (WSD), to highlight the value of healthy soil and to promote the sustainable management of soil resources. .

More on the Topic:

- World Soil Day enjoins individuals to consider **sustainably managing soil resources**.
- The main goal of the day is to **increase public awareness of the significant environmental issues that soil degradation can lead to**, such as erosion, the loss of organic matter, and a drop in soil fertility.
- Since the first World Soil Day in 2014 through **Global Soil Partnership (GSP)** more people are connecting and working together to preserve soils with each passing year.



- Since the first World Soil Day in 2014 through Global Soil Partnership (GSP) more people are connecting and working together to preserve soils with each passing year.
- "Soils: Where food begins" is the theme of World Soil Day this year.
- By addressing the rising issues with soil management, raising soil awareness, and encouraging societies to enhance soil health, the day seeks to increase understanding of the value of preserving healthy ecosystems and human well-being.

Soil Degradation in India:

- Soil degradation in India is estimated to be occurring on 147 million hectares (MHA) of land.
- This is extremely serious because India supports 18% of the world's human population and 15% of the world's livestock population, but has only 2.4% of the world's land area.

Causes of soil degradation:

- The causes are both natural and human-induced.
- **Natural causes** include earthquakes, tsunamis, droughts, avalanches, landslides, volcanic eruptions, floods, tornadoes, and wildfires.
- **Human-induced soil degradation** results from land clearing and deforestation, inappropriate agricultural practices, improper management of industrial effluents and wastes, over-grazing, careless management

of forests, surface mining, urban sprawl, and commercial/industrial development.

- **Inappropriate agricultural practices** include excessive tillage and use of heavy machinery, excessive and unbalanced use of inorganic fertilizers, poor irrigation and water management techniques, pesticide overuse, inadequate crop residue and/or organic carbon inputs, and poor crop cycle planning.
- **Social causes of soil degradation in India** are land shortage, decline in per capita land availability, economic pressure on land, land tenancy, poverty, and population increase.

Government Initiatives:

- Soil Health Card Scheme
- Zero budget Natural Farming
- India's pledge to achieve land degradation neutrality by 20230.

STREP A INFECTIONS

In News: UK has reported death of students infected with Strep A infection.



More on the Topic:

- Group A streptococcal (GAS) infection is caused by bacteria known as Group A (beta-haemolytic) Streptococcus, the most common type of which is Streptococcus pyogenes.

- Strep A - or Group A streptococcus (GAS) - is a type of **bacterium found in the throat and on the skin** and in most people does not cause any symptoms - known as being "colonised".
- It can be spread through coughs, sneezes and skin-to-skin contact.
- Those carrying the bacteria may have no symptoms, but are just as likely to pass on Strep A as those who have fallen ill.
- Strep A is **treated with antibiotics**. After at least 24 hours of antibiotics, it is generally thought to no longer be contagious.

LEGACY LANDFILL SITES

In News: Five states account for more than half of the 1,080 "legacy landfill sites" for which authorities are yet to propose remediation plans under the Swachh Bharat Mission-Urban 2.0.

CPCB guidelines for disposal of Legacy waste

- Guidelines published by CPCB in February 2019
- Treatment & disposal can be done by-
 - Bio-remediation
 - Bio-mining
- Excavation of old dumped waste and make windrow of legacy waste, thereafter stabilization of waste through bio-remediation
- Screening of stabilized waste to recover valuable resources (organic fines, bricks, plastic, metal, cloth etc.)

More on the Topic:

- Swachh Bharat Mission-Urban 2.0, which aims to clear all legacy dump sites by 2026.
- Old waste at landfill sites that has **remained dumped for more than three months** is considered "legacy" dump sites.
- More than 3,000 dumpsites in India need to be reclaimed or closed permanently.
- Unscientifically constructed landfills generate leachates, emit greenhouse gases like methane, pollute groundwater, etc.
- Under the SB mission, municipalities are required to submit action plans for **bio-remediation of legacy landfills**.

Categories of Legacy waste:

- Depending on the composition, the waste is divided into **refused derived fuel (RDF)** for waste-to-energy plants, **construction and demolition (C&D) waste** for recycling by C&D plants and **bio-soil** that can be used to fill gaps in road construction.
- After clearing the dump sites, municipalities are required to firm up plans for alternative use of the land, which, according to the dashboard, is over 47,000 acres of urban land.

About Bioremediation:

- Bioremediation is a process that uses mainly microorganisms, plants, or microbial or plant enzymes to detoxify contaminants in the soil and other environments.
- The process of bioremediation can be undertaken **on-site without causing a major disturbance to human activities and environment**.
- Bioremediation is known as a costs effective process compared to conventional treatment methods.
- Bioremediation can take place **anaerobically or aerobically** with the assistance of micro-organisms.

ENVIRONMENTAL IMPACT

In News: The Global Sustainability Standards Board (GSSB), an independent global organisation, has approved revised draft of standards for firms to self-report environmental impact.



More on the Topic:

- The exposure draft will be a response from the companies to its multiple stakeholders who demand to assess more, disclose and curb their biodiversity impacts.
- GRI is a global entity that helps businesses take responsibility for their impacts on biodiversity.
- GRI disclosures on biodiversity were last revised in 2006.
- The exercise will review the GRI 304, a biodiversity-related topic. It defines reporting requirements on the topic of biodiversity by an organisation.
- The standards will play major role in post 2020 Global Biodiversity Framework which has been adopted by United Nations Convention on Biological Diversity.

The revised proposal of GRI 304 suggested to:

- Reflect reporting throughout the supply chain, given many biodiversity impacts are found beyond the scope of a company's own operations.
- Help organisations prioritise attention on their most significant impacts, recognising the challenge of scale in addressing biodiversity impacts.
- Add new disclosures to connect with the drivers of biodiversity loss, including climate change, pollution and overexploitation of resources.
- Introduce requirements for biodiversity-related human rights impacts, such as those on indigenous peoples, local communities and workers.
- Emphasise location-specific data to ensure businesses are transparent about the sites where their biodiversity impacts take place.

About Biodiversity:

- Biodiversity is all the different kinds of life you'll find in one area—the variety of animals, plants, fungi, and even microorganisms like bacteria that make up our natural world.
- Each of these species and organisms work together in ecosystems, like an intricate web, to maintain balance and support life.

Human Pressure on the Bio Diversity:

- As humans put increasing pressure on the planet, using and consuming more resources than ever before, we risk upsetting the balance of ecosystems and losing biodiversity.
- WWF's 2022 Living Planet Report found an average 69% decline in global populations of mammals, fish, birds, reptiles, and amphibians since 1970.
- The 2019 landmark Global Assessment Report by the Intergovernmental Platform on Biodiversity and Ecosystem Services reported 1 million animal and plant species are now threatened with extinction the highest number in human history.

SPONGE BLEACHING EVENT

In News: In 2022, New Zealand recorded the largest-ever sponge bleaching event off its southern coastline.



More on the Topic:

- While only one species, the cup sponge *Cymbastella lamellata*, was affected, a prolonged marine heatwave turned millions of the normally dark brown sponges' bright white.
- Sponges are among the most ancient and abundant animals on rocky reefs across the world.
- They serve a number of important ecological functions. They filter large quantities of water, capturing small food particles and moving carbon from the water column to the seafloor where it can be eaten by bottom-dwelling invertebrates.
- These invertebrates in turn are consumed by organisms further up the food chain, including commercially and culturally important fish species.
- Sponges also add three-dimensional complexity to the sea floor, which provides habitat for a range of other species such as crabs, shrimps and starfish.

Sponge Bleaching:

- Like corals, sponges contain symbiotic organisms thought to be critical to their survival.
- *Cymbastella lamellata* is unusual in that it hosts dense populations of diatoms, small single-celled photosynthetic plants that give the sponge its brown colour.
- These diatoms live within the sponge tissue, exchanging food for protection. When the sponge bleaches, it expels the diatoms, leaving the sponge skeleton exposed.
- Tissue loss occurs when sponges are stressed and either have to **invest more energy into cell repair** or when their food

source is depleted and they reabsorb their own tissue to reduce body volume and reallocate resources.

- Tissue decay or necrosis on the other hand is generally associated with changes in the microbial communities living within sponges and growth of pathogenic bacteria.

UN GROUND WATER SUMMIT 2022

In News: United Nations-Water Summit on Groundwater 2022 was held in Paris, France.



UN-Water Summit on Groundwater

More on the Topic:

- The two-day conference will be organised by UN-Water, UNESCO and the International Groundwater Resources Assessment Centre.
- The summit will mark end of "Groundwater: Making the invisible visible" campaign run by UN-Water throughout 2022.
- The campaign highlighted the role of groundwater in alleviating poverty, food and water insecurity and other socio-economic development hurdles.

Ground Water Statistics:

- Groundwater is a vital resource that provides almost half of all drinking water worldwide, about 40% of water for irrigated agriculture and about a third of water required for industry.
- The role of groundwater in human development becomes bigger in the face of heightened water scarcity that is "already affecting about 2.7 billion people around the world for at least one month per year".
- The unmanaged groundwater and increasing population may result in seasonal water shortages by 2050 for an estimated 3.1 billion people and perpetual water shortage for almost a billion.

- Further, water and food security will also be compromised and lead to poverty in the cities despite having good infrastructure development.

India- Ground Water Statistics:

- India is the largest user of groundwater with a fourth of the total global withdrawal. Indian cities cater to about 48% of its water supply from groundwater.
- 89% of ground water extracted is used in the irrigation sector, making it the highest category user in the country.
- This is followed by ground water for domestic use which is 9% of the extracted groundwater. Industrial use of ground water is 2%. 50% of urban water requirements and 85% of rural domestic water requirements are also fulfilled by ground water.
- According to the CGWB, with 230 billion metre cubes of groundwater drawn out each year for irrigating agriculture lands in India, many parts of the country are experiencing rapid depletion of groundwater.

Government Initiatives:

- **Atal Bhujal Yojana (Atal Jal):** Sustainable management of ground water resources with community participation.
- **Jal Shakti Abhiyan (JSA):** It was launched in 2019 in 256 water stressed districts in the country to improve water availability including ground water conditions in these areas.
- **Aquifer Mapping and Management Programme:** The CGWB has taken up Aquifer Mapping and Management Programme.
- **Atal Mission for Rejuvenation and Urban Transformation (AMRUT):** Development of basic urban infrastructure in the AMRUT cities, such as water supply, sewerage and septage management, storm water drainage, green spaces & parks, and non-motorized urban transport.

BADRI COW

In News: To increase the productivity of its indigenous Badri cow Uttarakhand is now planning for its genetic enhancement.



More on the Topic:

- Sex-sorted semen and embryo transfer technology will be harnessed to improve production of indigenous Badri cattle as part of ten-year State plan.
- They also proposed to opt for the embryo transfer method in order to produce more cattle of high genetic stock.
- Badri/Pahari desi cow is a native cow of Uttarakhand. They graze in the Himalayas on native herbs and shrubs.
- Hence its milk has high medicinal value. This breed has strong immunity as well.
- This breed is comparatively more resistant to diseases, mostly due to its eating habits.
- The petite Badri cow is found only in the hill districts and was earlier known as the pahadi cow.
- Its milk has rich medicinal content and high organic value.

ENERGY CONSERVATION AMENDMENT BILL

In News: Parliament has passed the Energy Conservation (Amendment) Bill, 2022.



More on the Topic:

- The Bill seeks to amend the Energy Conservation Act, of 2001.
- It promotes energy efficiency and conservation. The Bill empowers the Centre to specify a carbon credit trading scheme.
- The legislation also stipulates that designated consumers may be required to meet a proportion of their energy needs from non-fossil sources.
- The Energy Conservation Code for buildings will apply to office and residential buildings with a connected load of 100 kilowatt or above.

About Carbon Credit Trading Scheme:

- Carbon credit implies a tradeable permit to produce a specified amount of carbon dioxide or other greenhouse emissions.
- The central government or any authorised agency may issue carbon credit certificates to entities registered and compliant with the scheme.
- The entities will be entitled to trade the certificates. Any other person may also purchase a carbon credit certificate on a voluntary basis.

About Designated Consumers:

- Designated consumers include:
 - (i) industries such as mining, steel, cement, textile, chemicals, and petrochemicals,
 - (ii) transport sector including Railways, and
 - (iii) commercial buildings, as specified in the schedule. Failure to meet this obligation will be punishable with a penalty of up to Rs 10 lakh. It will also attract an additional penalty of up to twice the price of oil equivalent of energy consumed above the prescribed norm.

The Energy Conservation Code for buildings:

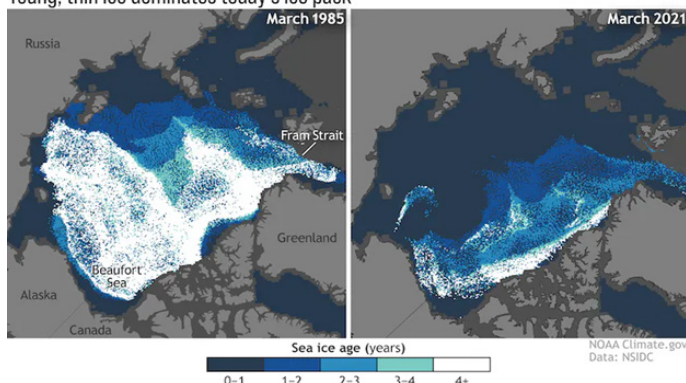
- Under the Act, the energy conservation code applies to commercial buildings:
 - (i) erected after the notification of the Code, and
 - (ii) having a minimum connected load of 100 kilowatt (kW) or contract load of 120 kilo volt ampere (kVA).
- Under the Bill, the new Energy Conservation and Sustainable Building Code will also apply to the office and residential buildings meeting the above criteria.

- The Bill empowers the state governments to lower the load thresholds.
- The Act empowers the central government to specify Energy Conservation Code for buildings.
- The code prescribes energy consumption standards in terms of area. The Bill amends this to provide for an 'Energy Conservation and Sustainable Building Code'.

ARCTIC REPORT CARD

In News: The Arctic report card has been published by US National Oceanic and Atmospheric Administration (NOAA).

Young, thin ice dominates today's ice pack



More on the Topic:

- The Arctic is now seeing more rainfall when historically it would be snowing.
- Arctic precipitation is on the rise across all seasons, and these seasons are shifting.
- Sea ice that once protected coastlines from erosion during fall storms is forming later. And thinner river and lake ice is making travel by snow mobile increasingly life-threatening.
- Much of this new precipitation is now falling as rain, sometimes during winter and traditionally frozen times of the year. This disrupts daily life for humans, wildlife and plants.
- Roads become dangerously icy more often, and communities face greater risk of river flooding events.
- For Indigenous reindeer herding communities, winter rain can create an impenetrable ice layer that prevents their reindeer from accessing vegetation beneath the snow.
- Arctic-wide, this shift toward wetter conditions can disrupt the lives of animals and plants that have evolved for dry and cold conditions, potentially altering Arctic peoples' local foods.

Reasons for Increased Arctic Precipitation:

- There are multiple reasons for this increase in Arctic precipitation.
- As sea ice rapidly declines, more open water is exposed, which feeds increased moisture into the atmosphere. The entire Arctic region has seen a more than 40% loss in summer sea ice extent over the 44-year satellite record.
- The Arctic atmosphere is also warming more than twice as fast as the rest of the globe, and this warmer air can hold more moisture.

After effects of melting Arctic Ice:

- Under the ground, the wetter, rainier Arctic is accelerating the thaw of permafrost, upon which most Arctic communities and infrastructure are built.
- The result is crumbling buildings, sagging and cracked roads, the emergence of sinkholes and the collapse of community coastlines along rivers and ocean.
- Wetter weather also disrupts the building of a reliable winter snowpack and safe, reliable river ice, and often challenges Indigenous communities' efforts to harvest and secure their food.

RESTORATION BAROMETER REPORT

In News: The International Union for Conservation of Nature (IUCN) has published its first Restoration Barometer report.

More on the Topic:

- The report details how 18 countries are using the Restoration Barometer tool to track progress on their restoration commitments under global agreements, which total 48 million hectare by 2030.
- It shows that restoration activities are currently ongoing in a total of 14 million hectare. This comes from a cumulative investment of \$26 billion from public and private sources.
- It also highlights the various benefits these restoration efforts bring for conservation and sustainable development.

About Restoration Barometer Tool:

- Endorsed by more than 50 governments, the Restoration Barometer was developed by IUCN with the support of the German Federal Ministry for the Environment, Nature

Conservation, Nuclear Safety and Consumer Protection.

- It is the only tool that is already being used by governments to track restoration and its benefits across all terrestrial ecosystems, including coastal and inland waters, and report on their commitments against global frameworks such as the UN Decade on Ecosystem Restoration, Bonn Challenge, Paris Agreement or It.org.
- It will also allow countries to track progress against restoration commitments under the forthcoming post-2020 Global Biodiversity Framework targets leaders will set at COP15.
- Using the Restoration Barometer tool, countries record their restoration policies, modes of planning, monitoring systems and funding structures that make their efforts possible and ensure they will continue.
- They can then track the sizes of the areas under restoration, plus the corresponding climate, biodiversity and socio-economic benefits that result from the restoration programmes being implemented.

COALITION FOR NATURE

In News: A number of Small Island Developing States (SIDS) have agreed to form a 'Coalition for Nature' for the implementation and adoption of the Global Biodiversity Framework (GBF) at the 15th Conference of Parties (COP15) to the Convention on Biological Diversity.



More on the Topic:

- The goal of the coalition is to advocate for agreed common SIDS priorities and needs such as greater means of implementing biodiversity objectives in these places by putting up a unified front.
- SIDS host 19% of the world's coral reefs and their geographic isolation safeguards an array of endemic plants and animals found nowhere else on earth.
- Belize, Cabo Verde, Comoros, Dominican Republic, Guinea Bissau, Kiribati, Samoa, Saint Lucia, Sao Tome and Principe, Seychelles, Solomon Islands, Tuvalu and Vanuatu are the current members of the coalition with Germany, France, Italy, Luxembourg, Monaco, Netherlands, Portugal, Spain and United Kingdom as Friends of the SIDS Coalition.

The disproportionate risk faced by SIDS:

- Small land mass, small population, geographic isolation, limited resource base, and the vulnerability of low-lying areas puts small island states at a disproportionate risk to external shocks, as illustrated by the COVID-19 pandemic.

TAL CHHAPAR BLACKBUCK SANCTUARY

In News: Rajasthan's Tal Chhapar sanctuary has received protection from the plan to reduce its size.



More on the Topic:

- The Rajasthan High Court has intervened through a suo motu public interest litigation to protect the sanctuary, taking cognizance of WWF reports that its area was going to be reduced to three sq. km. under pressure from mine owners and stone crusher operators.
- The court recently ordered a "complete prohibition" on any action to reduce the wildlife sanctuary's area.
- The sanctuary is host to about 4,000 blackbucks and other wild animals, over 40 species of raptors and more than 300 species of resident and migratory birds.
- The raptors, which include predators and

scavengers, are on top of the food chain and control the populations of small mammals, birds and reptiles as well as insects.

Challenges Faced by the Sanctuary:

- The sanctuary earlier had a large population of desert foxes and similar burrowing animals.
- The issues confronting the sanctuary include hyper-aridity, grazing pressure, the invasive weed *Prosopis juliflora*, and salt mines in the vicinity.
- The sanctuary's area is insufficient for its large blackbuck population.

GLOBAL ANTIMICROBIAL RESISTANCE AND USE SURVEILLANCE SYSTEM (GLASS) REPORT 2022

In News: Asia WHO has released GLASS report.



More on the Topic:

- The WHO Global Antimicrobial Resistance and Use Surveillance System (GLASS) was launched in 2015 to foster AMR surveillance and inform strategies to contain AMR.
- 2022 report summarises global AMR and Antimicrobial Consumption (AMC) data to date.
- It builds an evidence-based case to address ongoing limitations and gaps through strategic and concrete actions in next phase of GLASS.

About Anti-microbial Resistance:

- Antimicrobial resistance occurs when microbes evolve mechanisms that protect them from the effects of antimicrobials drugs. This makes infections harder to treat. All classes of microbes can evolve resistance. Fungi evolve antifungal Viruses evolve antiviral resistance.

UN CONVENTION ON BIOLOGICAL DIVERSITY

In News: The 15th Conference of Parties (COP15) to the UN Convention on Biological Diversity (CBD) adopted the Kunming-Montreal Global Biodiversity Framework (GBF).



Convention on Biological Diversity

More on the Topic:

- The framework has 23 targets that the world needs to achieve by 2030.
- COP15 had representatives of 188 governments on site and agreed on the framework that hopes to arrest the ongoing loss of terrestrial and marine biodiversity.
- Clear indicators to measure progress have been set to avoid the failure as seen in the Aichi Targets.
- The countries will monitor and report every five years or less on a large set of indicators related to progress.
- The CBD will combine national information submitted by late February 2026 and late June 2029 into global trend and progress reports.
- The Global Environment Facility has been requested to establish a Special Trust Fund to support the implementation of the Global Biodiversity Framework (GBF Fund). This is to ensure successful implementation.
- Delegates have agreed to establish within the GBF a multilateral fund for the equitable sharing of benefits between providers and users of digital sequence information on genetic resources (DSI), to be finalised at COP16 in Türkiye in 2024.

The framework's four overarching global goals:

- **Goal A-** The integrity, connectivity and resilience of all ecosystems are maintained, enhanced, or restored, substantially increasing the area of natural ecosystems by 2050.
- **Goal B-** Biodiversity is sustainably used and managed, and nature's contributions to people, including ecosystem functions and services, are valued, maintained and enhanced.

Restore the biodiversity which is declining.

- **Goal C-** Ensuring traditional knowledge associated with genetic resources is protected.
- **Goal D-** Adequate means of implementation, including financial resources, progressively closing the biodiversity finance gap of \$700 billion per year.

UN Convention on Biological Diversity:

- It is also known as Biodiversity Convention. It is a multilateral treaty which is opened for signature on 5 June 1992 in Rio De Janeiro. Entered into force in 1993.
- It is legally binding.
- India plays an active part in this treaty. India is a party to convention. USA has signed but not ratified.
- **Secretariat:** The CBD Secretariat is based in Montreal, Canada, and it operates under the United Nations Environment Programme.

Convention has 3 main goals:

- Conservation of biological diversity
- Sustainable use of its components; and
- Fair and equitable sharing of benefits arising from genetic resources

BIO-INSECTICIDE FROM 'RAMPHAL' LEAVES

In News: International Crops Research Institute for the Semi-Arid Tropics intern has awarded for developing bio-insecticide from 'ramphal' leaves.



More on the Topic:

- Extracts from its leaves may be useful against three destructive pests such as Pod borer, green peach aphid and fall armyworm with a mortality rate of 78-88%.

- Pod borer (*Helicoverpa armigera*) alone may cause losses worth more than \$300 million (over Rs 24 billion) annually.
- Green peach aphid (*Myzus persicae*) causes 38-42% yield loss in various crops and fall armyworm (*Spodoptera frugiperda*) causes 21-53% losses in the absence of pest management.
- The fall armyworm impact on Indian agriculture was considerable so much so that the country had to import maize to meet the poultry and animal feed industry's demand after the pest destroyed its maize crop in 2018.

Ramphal:

- Ramphal is a seasonal fruit which is also known as the as bullock's heart. It usually grows in the regions of Assam, Maharashtra, Gujarat, and West Bengal.
- Apart from the great taste, it has many medicinal and therapeutic benefits.

PERENNIAL VARIETY OF RICE

In News: Farmers in China are now growing a perennial variety of rice which does not need to be planted every year.

More on the Topic:

- Researchers at the Yunnan University have developed a variety of perennial rice named PR23 by cross-breeding regular annual rice *Oryza sativa* with a wild perennial variety from Africa.
- Unlike regular rice which is planted every season, PR23 can yield eight consecutive harvests across four years (as these plants with stronger roots grow back vigorously after each harvest).
- PR23 yields, reported at 6.8 tons per hectare, are comparable to regular irrigated rice.
- But growing it is much cheaper since it requires less labour, seeds and chemical inputs.
- The invention could transform rice farming by making it climate-friendly, besides using less of labour and other inputs.
- Needs one to two more herbicide treatments than regular rice,
- More work to resow the perennial rice when its yield falters.

New Indian Rice Varieties:

- The Indian Agricultural Research Institute (IARI) has developed the country's first- ever non-GM (genetically modified) herbicide - tolerant rice varieties (Pusa Basmati 1979 and Pusa Basmati 1985).
- These varieties can be directly seeded and significantly save water and labour compared to conventional transplanting.

Paddy Cultivation:

- Paddy cultivation takes place across a wider geography, unlike wheat which is grown only in a few states north of the Vindhyas.
- Also, rice is both a Kharif (monsoon) and rabi (winter-spring) season crop.
- Rice grows best in areas of warm, humid climate; rice requires temperatures between 20°C and 35°C and a well-distributed rainfall of about 100 cm or irrigation facilities.
- Fertile soil is most preferred. Delta and valley soils are the most suitable. Soils with higher clay content are preferred for its cultivation due to their better moisture retention capacity.

ORAN LAND

In News: Residents from around 40 villages of Jaisalmer, Rajasthan have walked 225 kilometres to protect community-conserved sacred spaces known as 'orans'.



More on the Topic:

- The orans are sacred spaces among the last natural habitats of the great Indian bustard.
- The open stretch of land, which receives long hours of sunlight and brisk winds, has become a hub of green energy with windmills and solar photovoltaic dotting it.

- These orans are hotspots of biodiversity with trees and flowers like rohida, bordi, kumbhat, and desi babool in large numbers, the latter added.
- They are making these grasslands home to more than 250 species of birds and animals, including the great Indian bustard, McQueen bustard, chinkara, Indian desert cat, desert fox, etc.

ENVIRONMENT EDUCATION, AWARENESS AND TRAINING (EEAT)

In News: Environment Education, Awareness and Training (EEAT) is a Central Sector scheme implemented by Ministry of Environment, Forest and Climate Change with the objective, inter alia, to promote environmental awareness and mobilize students' participation for environment conservation.

More on the Topic:

- Grants-in-aid were sanctioned under this Scheme for two major programmes, namely, **National Green Corps (NGC) Programme** and **National Nature Camping Programme (NNCP)**.
- Under the NGC programme, more than 1 lakh Eco-clubs have been formed in schools and colleges to educate students and to spread awareness on environmental issues.
- A financial assistance of Rs 5,000/- per Eco-club used to be provided under this programme with a ceiling of 500 school Eco-clubs per district and 100 college Eco-clubs per State.
- Activities undertaken by Eco-clubs included plantation drives, cleanliness drives, celebration of important environmental days, awareness and capacity building on solid waste management through waste segregation, green pledges, etc.

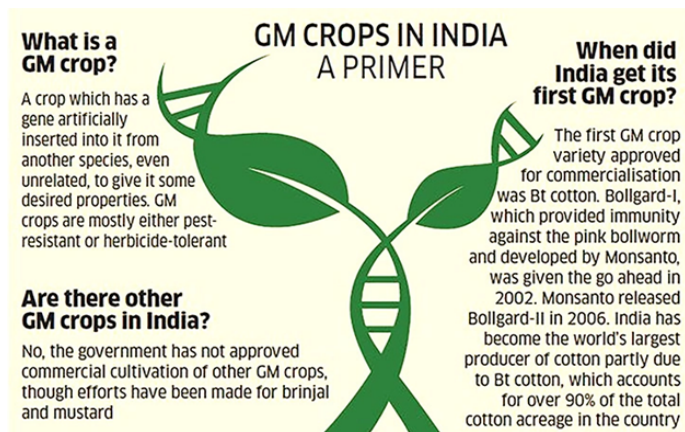
National Nature Camping Programme (NNCP)

- Further, under NNCP, organization of field visits/ nature camps in different Protected Areas/ Nature Parks/ Tiger Reserves of the country for students were supported and activities like preparing checklist of flora and fauna spotted in the nature trail, bird watching, trekking, green pledges, group discussions, sharing of experiences, etc. were undertaken during these camps.
- These camps provided 'nature experience' to students and had huge potential to trigger their sensitivity towards nature and its conservation.

- A financial assistance not exceeding Rs. 2,000/- per student for a camp of 2 nights and 3 days used to be provided under this programme, with a ceiling of 20 camps per State/ Union Territory.

GM MUSTARD TO PAVE WAY

In News: Self-reliance in edible oils is the need of the hour for India and it is in the public interest for the welfare of farmers and consumers that the decision to approve Genetically Modified mustard is taken to a logical conclusion.



More on the Topic:

- Self-sufficiency in edible oil is essentially required to reduce the forex drain on agri-import.
- With the formal approval of GM mustard for mass-scale cultivation in India, it is expected to reduce dependence on imported edible oils.

About GM Mustard:

- GM crops are derived from plants whose genes are artificially modified, usually by inserting genetic material from another organism, in order to give it new properties, such as increased yield, tolerance to a herbicide, resistance to disease or drought, or improved nutritional value.
- India's GM Mustard variety, Dhara Mustard Hybrid (DMH-11) is an indigenously developed transgenic mustard.
- It is a genetically modified variant of Herbicide Tolerant (HT) mustard.
- It contains two alien genes ('barnase' and 'barstar') isolated from a soil bacterium called *Bacillus amyloliquefaciens* that enable breeding of high-yielding commercial mustard hybrids.
- It has been developed by the Centre for Genetic

Manipulation of Crop Plants (CGMCP) at Delhi University.

Significance of GM Mustard:

- Mustard varieties in India have a narrow genetic base.
- The barnase-barstar system enables breeding of hybrids from a wider range of mustards, including those of East European origin such as 'Heera' and 'Donskaja'.
- The GM mustard variety that is being approved, was tested for three years against national check Varuna in confined field trials which showed approximately 28% more yield.

GREAT LAKES

In News: Scientists are building a sensor network to detect the trends in the water chemistry of Lake Huron, one of the five Great Lakes of North America.

More on the Topic:

- It is the first step towards developing a system that would be capable of measuring the carbon dioxide and pH levels of the Great Lakes over several years.
- It is known that the increase in atmospheric carbon dioxide has caused the world's oceans to turn more acidic.
- Recently, it has been observed that by 2100, even the Great Lakes – Superior, Michigan, Huron, Erie, and Ontario – might approach acidity at around the same rate as the oceans.



About the Great Lakes:

- The Great Lakes, five interconnected bodies of water straddling the US-Canada border that drain into the Gulf of St Lawrence in the North Atlantic through the St Lawrence River, are the largest group of freshwater lakes in the world.

- The US-Canada border passes through Lakes Superior, Huron, Erie, and Ontario; Lake Michigan lies entirely in the US. Lakes Michigan and Huron are sometimes considered as a single water body; taken together, they are the world's largest freshwater lake by surface area.
- By itself, Lake Huron is the world's third largest freshwater lake, after Lake Superior and Lake Victoria.

Acidification of water bodies:

- Acidification of oceans or freshwater bodies takes place when excess carbon dioxide in the atmosphere gets rapidly absorbed into them.
- Scientists initially believed this might be a good thing, as it leaves less carbon dioxide in the atmosphere.
- But in the past decade or so, it has been established that absorption of carbon dioxide leads to a lowering of the pH, which makes the water bodies more acidic.

ASEAN-INDIA GRASSROOTS INNOVATION FORUM 2022

In News: The 3rd ASEAN-India Grassroots Innovation Forum 2022 has begun.



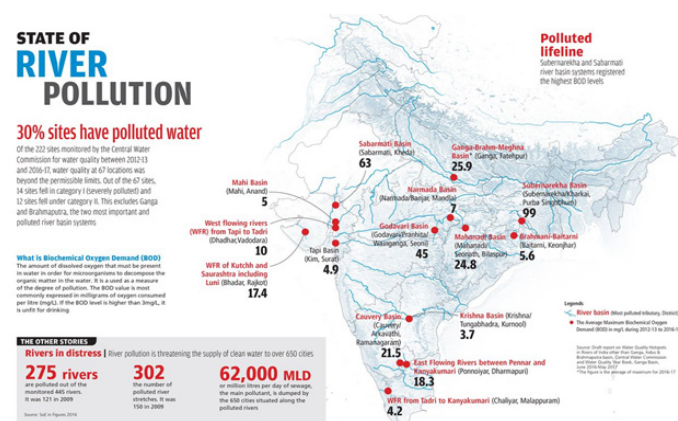
More on the Topic:

- It has been launched by The ASEAN Committee on Science, Technology and Innovation (COSTI) in partnership with the Government of India's Department of Science and Technology (DST) and the National Innovation Foundation (NIF).

- The three-day forum provides a platform for participants to share experiences and best practices in grassroots innovation among ASEAN and Indian communities.
- The event comprises seminar sessions, innovation competitions, and an exhibition. By bringing together key players, namely government officials, grassroots innovators, student innovators, academics, business actors, and the wider community, this forum provides a platform to promote and strengthen the development of the grassroots innovation ecosystem.

CENTRAL POLLUTION CONTROL BOARD REPORT ON RIVERS

In News: A report by the Central Pollution Control Board released recently shows little to no improvement in the river water quality over the last two years.



More on the Topic:

- The number of Polluted River Stretches (PRS) in 323 rivers has fallen from 351 in 2018 to 311 in 2022.
- Improvement in water quality has been observed in 180 out of 351 stretches, the most polluted stretches continue to remain the same.
- Gujarat and Uttar Pradesh had maximum number of Priority I stretches-each at six, Maharashtra had the overall highest number of polluted stretches at 55.

Categories of River Pollution:

- The CPCB monitors water quality at 4,484 locations in 28 states and seven UTs including rivers, lakes, creeks, drains and canals.
- It classifies rivers based on Biological Oxygen Demand (BOD) - into five categories, namely Priority I to V.

- BOD levels above 3 mg/L are called **polluted locations**. Two or more polluted locations identified on a river in a sequence are considered a "polluted river stretch".
- Moreover, stretches with BOD above 30 mg/L are considered **Priority I** and need the most urgent remediation.

Biochemical Oxygen Demand

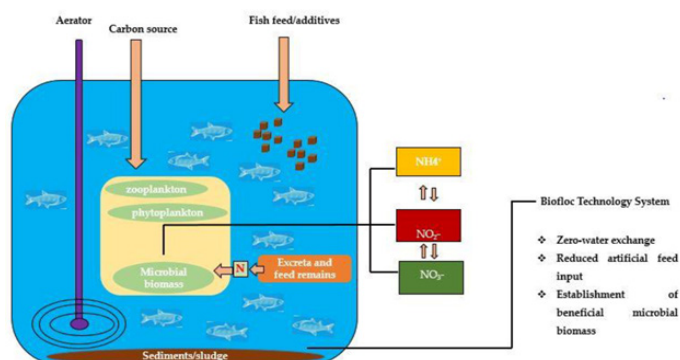
- Biochemical oxygen demand (BOD) is the amount of dissolved oxygen (DO) needed (i.e. demanded) by aerobic biological organisms to break down organic material present in a given water sample at a certain temperature over a specific time period.
- The BOD value is most commonly expressed in milligrams of oxygen consumed per litre of sample during 5 days of incubation at 20 °C and is often used as a surrogate of the degree of organic pollution of water.

Administrative Jurisdiction over Water :

- As per the Indian Constitution, 'Water' is a state subject.
- Water quality management is performed under provision of Water (Prevention and Control of Pollution) Act, 1974.
- However, the union government carries out various programmes such as National Water Monitoring Programme and Atal Mission on Rejuvenation and Urban Transformation in collaboration with state governments, and provides funds with technical support.

BIOFLOC FARM

In News: The recent success of a Biofloc farm in Kerala is likely to give a fillip to homestead aquaculture and promote nutritional security.



More on the Topic:

- Biofloc is the suspended growth in ponds/tanks which is the aggregates of living and

dead particulate organic matter, phytoplankton, bacteria and grazers of the bacteria.

- It is the utilization of microbial processes within the pond/tank itself to provide food resources for cultured organism while at the same time acts as a water treatment remedy.
- Thus, this system is also called as active suspension ponds or heterotrophic ponds or even green soup ponds.
- The water quality is improved through the production of high quality single cell microbial protein.
- The Biofloc technology effectively treats the waste and also grants nutrition to the aquatic animal.
- This technology has been implemented in shrimp farming due to its bottom dwelling habit (benthic species) and resistance to environmental changes.

How Biofloc Technology (BFT) works?

- Biofloc system is a wastewater treatment which has gained vital importance as an approach in aquaculture.
- The principle of the technique is to maintain the higher C-N ratio by adding carbohydrate source and the water quality is improved through the production of high quality single cell microbial protein
- In such condition, heterotrophic microbial growth occurs which assimilates the nitrogenous waste that can be exploited by the cultured species as a feed and also works as bioreactor controlling of water quality.
- Immobilization of toxic nitrogen species occurs more rapidly in Biofloc because of the growth rate and microbial production per unit substrate of heterotrophs are ten-times greater than that of the autotrophic nitrifying bacteria.
- This technology is based on the principle of flocculation within the system.

GEOGRAPHY

COASTAL RED SAND DUNES

In News: Scientists have urged Andhra Pradesh government to protect glacial-period coastal red sand dunes of Vizag.



More on the Topic:

- This site needs to be protected to study the impact of climate change as Erra Matti Dibbalu (Red Sand Dunes) has seen both the glacial and the warm periods.
- The dunes are about 18,500 years old and are a lively scientific evolution site, which depicts the real-time effects of climate change.
- It represents the late quaternary geologic age.
- The dunes are home to prehistoric man with three distinctive periods of stone implements.
- They are fragile and vulnerable to natural degradation.
- As such sand deposits do not occur in equatorial regions or temperate region. It is a rare occurrence.
- Red sand dunes have been reported only from three places in the tropical regions in south Asia such as Teri Sands in Tamil Nadu, Visakhapatnam and one more site in Sri Lanka.

About Erramatti Dibbalu:

- Erra Matti Dibbalu also called as Red Sand Hills is situated at the outskirts of Visakhapatnam City.
- It was declared a geo-heritage site (National Geological Monuments) by the Geological Survey of India (GSI) in 2014.
- National Geological Monuments are geological areas of scientific, cultural and educational value.

FUJIWHARA EFFECT

In News: Recently two cyclones, namely Hinnamnor and Gardo interacted showcasing Fujiwhara Effect.

More on the Topic:

- The Fujiwhara Effect is any interaction between tropical storms formed around the same time in the same ocean region with their centres or eyes at a distance of less than 1,400 km, with intensity that could vary between a depression (wind speed under 63km per hour) and a super typhoon (wind speed over 209 km per hour)
- Outcome of Fujiwhara effect may include Changes in track and intensity of either or both systems.
- In rare cases, two systems could merge to form a bigger storm.

INTERNATIONAL RELATIONS

UNITED NATIONS SECURITY COUNCIL

In News: India has assumed Presidency of UN Security Council for the month of December 2022.



More on the Topic:

- **Countering terrorism and reformed multi-lateralism** will be among the key priorities for India during its UNSC presidency that will culminate in the completion of its two-year tenure as non-permanent member of the 15-nation UNSC.

About United Nations Security Council:

- The Security Council is the United Nations' principal crisis-management body.
- It is empowered to impose binding obligations on the 193 UN member states to maintain peace.
- The UN Security Council is composed of 15 members, including **five permanent member states** – China, France, Russian Federation, the United States, and the United Kingdom – and **10 non-permanent member states**, which are elected by the United Nations General Assembly (UNGA)
- Ten non-permanent members are elected to the UNSC every year for a **two-year term**
- The 10 non-permanent seats are distributed among the regions of the world: five seats for African and Asian countries (three are for Africa and two for Asia), one for Eastern European countries, two for Latin American and Caribbean countries, and the remaining two for Western European and other countries.
- The Africa and Asia Pacific group takes turns every two years to put up an Arab candidate.

GULF COOPERATION COUNCIL (GCC)

In News: India and Gulf Cooperation Council (GCC) has decide to pursue resumption of Free Trade Agreement (FTA) Negotiations.

More on the Topic:

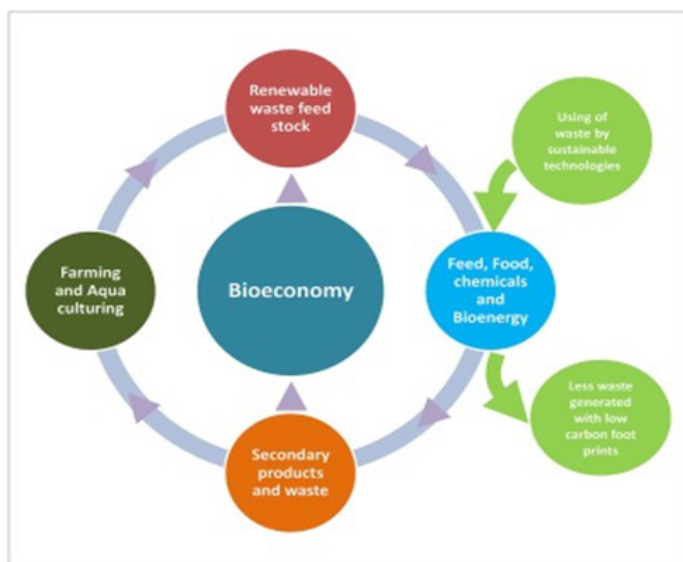
- Both sides agreed to expedite conclusion of the requisite legal and technical requirements for formal resumption of the FTA negotiations.
- The FTA is envisaged to be a modern, comprehensive Agreement with substantial coverage of goods and services.
- Both sides emphasized that the FTA will create new jobs, raise living standards, and provide wider social and economic opportunities in India and all the GCC countries.
- It will significantly expand and diversify the trade basket in line with the enormous potential that exists on account of the complementary business and economic ecosystems of India and the GCC.

About Gulf Cooperation Council:

- The Gulf Cooperation Council (GCC) was established by an agreement concluded on 25 May 1981 in Riyadh, Saudi Arabia.
- The agreement was among **Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and UAE** in view of their special relations, geographic proximity, similar political systems based on Islamic beliefs, joint destiny, and common objectives.
- The official language is Arabic.
- The GCC members and Yemen are also members of the **Greater Arab Free Trade Area (GAFTA)**.
- The GCC states are among India's **key suppliers of energy, and annual remittances** from Indians in these countries are worth an estimated USD 4.8 billion.
- Both India and the GCC are members of the **Financial Action Task For**

INDIA'S BIOECONOMY

In News: Union minister Jitendra Singh has highlighted that India's bio-economy has grown eight times between 2014 and 2022.



More on the Topic:

- Biotech industry crossed **one-billion-dollar R&D spend**. India will soon enter the league of top-5 countries in biotech's global ecosystem.
- The number of **biotech incubators has increased from six in 2014 to 75 now**, while biotech products have increased from ten to more than 700.
- India would soon enter the league of top-5 countries in biotech's global ecosystem.

Why India is Conducive for Bio Economy?

- Diverse population and diverse climatic zones.
- India's talented human capital pool.
- Increasing efforts for ease of doing business.
- The demand for bio-products increasing continuously in India
- India's biotech sector and its track record of success.

About Bio Economy:

- Biobased economy, bioeconomy or biotechnonomy is economic activity involving the use of biotechnology and biomass in the production of goods, services, or energy.

ENGAGING LUSOPHONE WORLD

In News: In a novel diplomatic step, India is moving in to strategically engage with a new geopolitical grouping: the Lusophone (Portuguese-speaking countries) as Delhi wants to leverage the untapped potential and the historical connect.



More on the Topic:

- The Lusophone world is spread in nine countries across four continents, and Portuguese is the most widely-spoken language in the Southern Hemisphere.
- From Vasco da Gama onwards, India's Portuguese connection has not been diplomatically leveraged.
- With this realisation, to further India's engagement with the Lusophone world, India is hosting a four-day cultural extravaganza in Goa.
- More than 265-million speakers worldwide; most widely spoken language in the Southern Hemisphere; regarded as the language of the first globalisation in the modern era.

Possible Cooperation Avenues:

- India's engagement could be a substantial force multiplier for expanded cooperation in **cutting-edge fields of technology**, such as nanotechnology, biotechnology, and materials science for post-Covid recovery and resilience.
- The future of Community of Portuguese Language Countries (CPLP) cooperation lies in **strategic areas like the blue economy, renewable energy, defence, connectivity, mobility and trade**, which are also focus areas for the Indian economy.
- Other areas for possible cooperation include food security, infrastructure and energy (including bio-energy, solar and other renewable).

INTERNATIONAL LABOUR ORGANISATION

In News: 17th Asia and the Pacific Regional Meeting (APRM) of the International Labour Organisation (ILO) is organised recently.

More on the Topic:

- "Integrated policy agenda for a human-centred recovery that is inclusive, sustainable and resilient" is the theme.
- On the theme, ILO Director- General Gilbert F. Houngbo has called for strengthening tripartism and social dialogue to address issues in employment in the region.
- He has also pitched for strong and effective gender-responsive policies and institutions of work that are oriented towards a human-centred recovery after the pandemic and the ongoing conflict between Russia and Ukraine.
- The report also mentioned "the Russian aggression" against Ukraine has led to "major new disruptions to energy and food supply chains as well as inflation, with impacts that are filtering down to the Asia and the Pacific and the Arab States regions, adversely impacting the prospects for labour market recovery."

International Labour Organisation:

- The International Labour Organisation is a United Nations agency whose mandate is to advance social and economic justice by setting international labour standards.
- Founded in October 1919 under the League of Nations, it is the first and oldest specialised agency of the UN.
- It is the only tripartite U.N. agency, since 1919. It brings together governments, employers and workers of 187 member States, to set labour standards, develop policies and devise programmes promoting decent work for all women and men.

What is the ILO Declaration on Fundamental Principles and Rights at Work?

- It was adopted in 1998, the Declaration commits member states to respect and promote **eight fundamental principles and rights** in four categories, whether or not they have ratified the relevant conventions.

They are:

- Freedom of Association and The Right to collective bargaining (Conventions 87 and 98)
- Elimination of forced or compulsory labour (Conventions No. 29 and No. 105)
- Abolition of child labour (Conventions No. 138 and No. 182)

- Elimination of discrimination in respect of employment and occupation (Conventions No. 100 and No. 111)

The eight-core conventions of the ILO are:

- Forced Labour Convention (No. 29)
- Abolition of Forced Labour Convention (No.105)
- Equal Remuneration Convention (No.100)
- Discrimination (Employment Occupation) Convention (No.111)
- Minimum Age Convention (No.138)
- Worst forms of Child Labour Convention (No.182)
- Freedom of Association and Protection of Right to Organised Convention (No.87)
- Right to Organise and Collective Bargaining Convention (No.98)

KAZIRANGA, INDO-FRENCH PARTNERSHIP

In News: Kaziranga National Park in Assam will form the cornerstone of an Indo-French initiative -Indo-Pacific Parks Partnership.



More on the Topic:

- The Indo-Pacific Parks Partnership will **facilitate partnership activities** for interested natural parks of the Indo-Pacific region.
- These activities include biodiversity conservation, wildlife management and engagement with local communities.

The Kaziranga project:

- The Kaziranga project is a part of a larger Assam Project on Forest and Biodiversity Conservation (APFBC) for which the Agence Française de Développement (AFD) has committed funding of €80.2 million for a 10-year period, between 2014-2024.

- The project conceptualised the reforestation of 33,500 hectares of land and the training of 10,000 community members in alternate livelihoods by 2024.
- With the aid of AFD funding, conservation has been ramped up with few poaching cases recorded in the past five years.
- AFD programme has been most effective in its skilling of communities in the area, particularly forest-dwelling communities.
- The illegal timber trade is one of the main reasons for the degradation of forests around the reserve. The community members are no longer involved in it.

Flood Mitigation and Early Warning System:

- There are 35 six-seven foot tall embankments or highlands that have been constructed in various areas around the park that animals can climb on to and seek refuge during the annual flooding.
- The project has also developed infrared-based early warning systems, triggered by elephant footfall, to either scare off herds from human habitat or to warn villagers.

About Kaziranga National Park:

- It is located in the State of Assam and covers 42,996 Hectare (ha).
- It is the single largest undisturbed and representative area in the Brahmaputra Valley floodplain.
- It was declared a UNESCO World Heritage Site in 1985.
- It is recognized as an Important Bird Area by Birdlife International.
- It is the home of the world's most one-horned rhinos.

CONNECTIVITY WITH CENTRAL ASIAN COUNTRIES

In News: National Security Adviser (NSA) Ajit Doval said that the connectivity with Central Asian countries remains India's "key priority".

More on the Topic:

- India's proximity and convergence on issues of mutual concern with the five Central Asian countries comprising Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan is growing.



- It has been reflected in heightened cooperation in addressing emerging geostrategic challenges in the wake of the COVID-19 pandemic and the changing world order.
- Concurrently, the two sides have enhanced deliberations and cooperation on areas such as trade and connectivity, economic development, development partnership, energy security, regional issues of mutual interests.
- There are also emerging mutual geopolitical concerns of each side on emerging challenges in Afghanistan.
- Earlier in January 2022, Prime Minister hosted the first India-Central Asia Summit in a virtual format.

Significance of Central Asian Countries to India:

- **Connectivity:** Central Asia is strategically positioned as an access point between Europe and Asia and offers extensive potential for trade, investment, and growth.
- Central Asia does not have any direct border with India; hence it is imminent to have access to connectivity to this region.
- **Resource Richness:** All these states are rich in minerals and well-endowed with hydroelectric resources. Kazakhstan has the world's second largest reserves of uranium and is the world's largest producer;
- Uzbekistan has large reserves of gas, uranium and gold; Turkmenistan has fourth largest reserves of natural gas; Tajikistan has huge hydroelectric potential; Kyrgyzstan is rich in gold and hydroelectric power.

- **Security Challenges:** Religious extremism, fundamentalism, drug trafficking pose challenges to these societies and to regional stability.
- Issues relating to water, security, environment, migration have become acute. The region faces **newer threats of narco-terrorism emanating from Afghanistan.**
- The region is said to be an 'arena of great game' being played out between Russia, China, US, Turkey, Iran, Europe, EU, Japan, Pakistan, India, and Afghanistan, all of whom have **substantial security and economic stakes in the region.**
- **The China and Pakistan factor:** India does not share a common land border with any of these states has been a major bottleneck in promoting and expanding ties.
- **Pakistan does not allow direct routes to either Afghanistan or to Central Asia.**
- **China is, therefore, the transit land route for trade which is time consuming and costly.**

India's Initiatives in the Region:

- To improve connectivity, India has registered considerable progress in concluding a trilateral agreement for renovation of Chabahar port, development of the International North South Transport Corridor (INSTC) and becoming a member of the Ashgabat Agreement.
- India's membership of Shanghai Cooperation Organization (SCO) as also the Eurasian Economic Union (EEU) promises to bridge this gap.
- India is part of the Turkmenistan-Afghanistan-Pakistan-India (TAPI) pipeline.

G20 FINANCE TRACK

In News: The first meeting of the Finance Track of the Group of Twenty (G-20) under India's leadership will start in Bengaluru.



More on the Topic:

- This meeting will be hosted jointly by the Ministry of Finance and the Reserve Bank of India.
- The G20 Finance Track provides an effective forum for global economic discourse and policy coordination.
- It provides an effective forum for global economic discourse and policy coordination.
- The topics discussed will include reorienting international financial institutions to meet the shared global challenges of the 21st century, financing cities of tomorrow, managing global debt vulnerabilities.
- It will also focus on advancing financial inclusion and productivity gains, financing for climate action and Sustainable Development Goals (SDG), a globally coordinated approach to unbacked crypto assets and advancing the international taxation agenda.

GROUP OF FRIENDS INITIATIVE

In News: India has launched 'Group of Friends' to promote accountability for crimes against peacekeepers.



**THANK YOU
INDIA**
FOR YOUR SERVICE AND SACRIFICE

More on the Topic:

- India, Bangladesh, Egypt, France, Morocco and Nepal are co-chairs of the Group of Friends launched during India's current presidency of the U.N. Security Council.
- This Group of Friends will act as a **platform to promote accountability** for all acts of violence against the United Nations peacekeepers by facilitating support to the host state, creating awareness, exchanging information, sharing best practices, supporting

initiatives, and mobilizing resources.

- On the day of launching, 36 member-states joined the newly formed Group of Friends.

FRONTIER HIGHWAY

In News: Lok Sabha passes Anti-Maritime Piracy Bill to make special provisions for repression of piracy on high seas.



More on the Topic:

- The Bill enables Indian authorities to take action against piracy in the high seas. It applies to the sea beyond the Exclusive Economic Zone (EEZ), which is beyond 200 nautical miles from India's coastline.
- The highway will be designated as NH-913 and is the longest such highway to be notified by the Centre in the recent past.
- It will help defence forces and equipment travel to the border with ease and also aims to stop the entry of immigrants from border areas.
- The clash between Indian and Chinese troops along the Line of Actual Control in northeastern India's Arunachal Pradesh's Tawang Sector has evoked strong political reactions in India.
- Bomdila will serve as the starting point of the highway. It will then pass through Nafra, Huri and Monigong, the closest point on the India-Tibet border.
- Jido and Chenquenty, the points closest to the China border, will also be covered by the highway. It will terminate at Vijaynagar, near India-Myanmar border.
- Nearly 800km of the corridor will be greenfield as there is no existing road on these stretches.
- There will be some bridges and tunnels as well.

SCIENCE & TECHNOLOGY

UNCONTROLLED RE-ENTRIES

In News: More than 140 experts and dignitaries have signed an open letter published by the Outer Space Institute (OSI) calling for both national and multilateral efforts to restrict uncontrolled re-entries.

More on the Topic:

- The phenomenon of rocket parts falling back to earth in unguided fashion once their missions are complete is known as uncontrolled re-entry.
- The Soviet Union launched the first artificial satellite in 1957.
- Today, there are more than 6,000 satellites in orbit, most of them in low-earth (100-2,000 km) and geostationary (35,786 km) orbits, placed there in more than 5,000 launches.
- The number of rocket launches have been surging with the advent of reusable rocket stages.

The Concerns Associated:

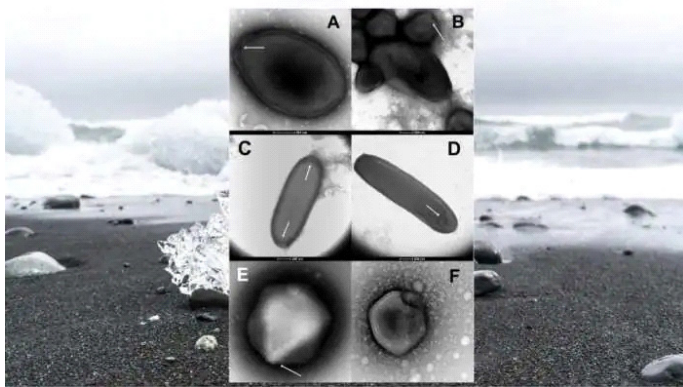
- In a rocket launch Some pieces burn up entirely while others don't. But because of speed of traveling, debris can be deadly.
- As per a 2021 report of the International Space Safety Foundation, an impact anywhere on an airliner with debris of mass above 300 grams would produce a catastrophic failure, meaning all people on board would be killed.
- Most rocket parts have landed in oceans principally because earth's surface has more water than land. But many have dropped on land as well.

Present Governance System Related with Rocket Launch:

- There is no international binding agreement to ensure rocket stages always perform controlled re-entries nor on technologies with which to do so.
- The Liability Convention 1972 requires countries to pay for damages, not prevent them.

ZOMBIE VIRUS

In News: 48,500-year-old zombie virus has been revived by scientists in Russia.



More on the Topic:

- It was buried under a frozen lake in Russia.
- The oldest, **Pandoravirus yedoma**, was 48,500-year-old, a record age for a frozen virus returning to a form where it may infect other creatures.
- The new strain is **one of 13 viruses described in the study**, each with its own genome.
- While the Pandoravirus was discovered at the bottom of a lake in Yukechi Alas, Yakutia, Russia, others have been discovered everywhere from mammoth fur to Siberian wolf intestines.

Reasons for Concern:

- The French scientists have sparked fears of yet another pandemic after the revival of the zombie virus.
- The situation would be much more disastrous in the case of plant, animal, or human diseases caused by the revival of an ancient unknown virus.
- According to the preliminary report, **global warming is irrevocably thawing enormous swathes of permafrost** -- permanently frozen ground that covers a quarter of the Northern Hemisphere.
- This has had the unsettling effect of **"releasing organic materials frozen for up to a million years"** - possibly deadly germs included.
- Part of this organic matter also consists of **revived cellular microbes (prokaryotes, unicellular eukaryotes)** as well as viruses that remained dormant since prehistorically times.

INCOVACC VACCINE

In News: iNCOVACC, the world's first intranasal vaccine by Bharat Biotech has received both primary series and Heterologous booster approval.



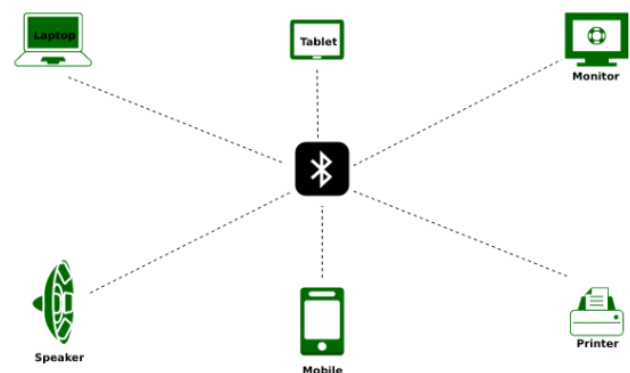
More on the Topic:

- The iNCOVACC is a **recombinant replication-deficient adenovirus vectored vaccine** with a pre-fusion stabilized spike protein.
- Adenovirus is a nuclear-replicating DNA virus with a linear double-stranded genome.
- This vaccine candidate was evaluated in phase I, II and III clinical trials with successful results.
- This vaccine has been specifically formulated to allow **intranasal delivery through nasal drops**.
- The nasal delivery system has been designed and developed to be **cost-effective in low and middle-income countries**.

BLUEBUGGING

In News: Cyber security experts noted that blue bugging is an emerging concern.

Bluebugging in Ethical Hacking



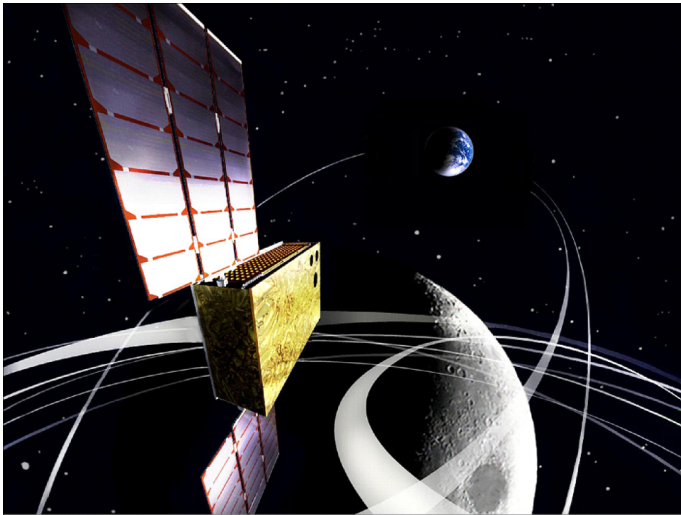
More on the Topic:

- Blue bugging is a form of hacking that lets attackers access a device through its discoverable Bluetooth connection.
- The apps that let users connect smart phones or laptops to wireless earplugs can record conversations, and are vulnerable to hacks.

- A hacker can gain unauthorised access to these apps and devices and control them as per their wish.

EQUILIBRIUM LUNAR-EARTH POINT 6U (EQUULEUS) SPACECRAFT

In News: As a world first, Japan's space agency successfully launched a spacecraft towards the moon using steam. It is named EQUULEUS.



More on the Topic:

- Japan Aerospace Exploration Agency's (JAXA) water-powered CubeSat spacecraft, EQUilibriUm Lunar-Earth point 6U (EQUULEUS), was launched on its way by NASA's Orion spacecraft, which recently broke a record for the **farthest distance traveled** by a human-rated spacecraft.
- The EQUULEUS spacecraft performed a maneuver that moved it toward its planned orbital path on the **second Earth-Moon Lagrange point (EML2)**, located beyond the Moon.
- Lagrangian points are locations in space where the gravity of large objects, such as planets, are balanced out by the centrifugal force of a spacecraft, allowing for a very stable orbit.
- NASA's **James Webb Space Telescope**, for example, is located out in Lagrange Point 2 (LP2).

Purpose of the Mission:

- Much like NASA's CAPSTONE mission, which is testing a lunar orbit for the U.S. space agency's lunar Gateway orbital station project, the EQUULEUS spacecraft will allow scientists to test the stability of EML2 for a potential construction of a deep spaceport that will enable deep space exploration.

- The mission will carry out a number of investigations, including **testing of the radiation environment** to help determine what precautions future astronauts would have to take out in the deep space location.
- The EQUULEUS mission's primary goal is to **demonstrate low-energy trajectory control technologies for reaching deep space locations** such as EML2 using less fuel.

INDIA'S FIRST PRIVATE LAUNCHPAD

In News: Chennai-based space tech startup Agnikul Cosmos has announced the inauguration of its own private launchpad at Sriharikota.

More on the Topic:

- The facility has two parts—the Agnikul launchpad and the Agnikul mission control centre—which are four kilometres apart.
- The launchpad was designed to accommodate and support **liquid stage-controlled launches**.
- The startup plans to launch its Agnibaan rocket from this launchpad.
- Agnibaan is a two-stage launch vehicle that is **capable of taking payloads of up to 100 kilograms** to a low-earth orbit around 700 kilometres from the surface of the Earth.
- The Agnibaan rocket will be powered by the company's 3D-printed Agnilet engines.
- The Agnilet rocket is a "**semi-cryogenic**" engine that uses a mixture of liquid kerosene and supercold liquid oxygen to propel itself.
- Agnikul test-fired the Agnilet engine at ISRO's facilities earlier this year.

HYDROGEN POWERED JET ENGINE

In News: Rolls-Royce has successfully run an aircraft engine on hydrogen.

More on the Topic:

- Tested aircraft engine, used green hydrogen created by wind and tidal power.
- The test is intended to prove that hydrogen can safely and efficiently deliver power for civil aero engines.
- Hydrogen is one of a number of competing technologies that could help the aviation industry achieve its goal of becoming net zero by 2050.

About Hydrogen Internal Combustion Engine:

- A hydrogen internal combustion engine (ICE) works on the same principles as a traditional ICE, except that it uses hydrogen in place of a petroleum-based fuel.
- Burning the hydrogen fuel produces the energy needed to drive the engine.

Significance of Hydrogen Fuel to the Aviation Industry:

- Hydrogen combustion engines can leverage existing technologies and provide a **zero-emissions option for specific use cases** while supporting the growth of hydrogen infrastructure.
- Hydrogen is a clean fuel, no emission of carbon monoxide, hydrocarbons and particulate matter is there.
- Wider flammability range (temperature band within which hydrogen can be combusted) allows for a wider range of fuel-air mixtures.
- Hydrogen ICE can be operated with lower grade hydrogen.

PSLV-C54 LAUNCH VEHICLE

In News: In one of its longest missions, the Indian Space Research Organisation (ISRO) successfully placed nine satellites, including an Earth Observation Satellite (EOS-06) in multiple orbits with the help of the space agency's Polar Satellite Launch Vehicle (PSLV-C54).

More on the Topic:

- **Earth Observation Satellite (EOS-06) or Oceansat** is the primary payload. It is envisaged to observe ocean colour data, sea surface temperature and wind vector data to use in oceanography, climatic and meteorological applications.
- The satellite also supports value added products such as potential fishing zone using chlorophyll, SST and wind speed, and land based geophysical parameter. In PSLV is known as the 'workhorse' of ISRO.

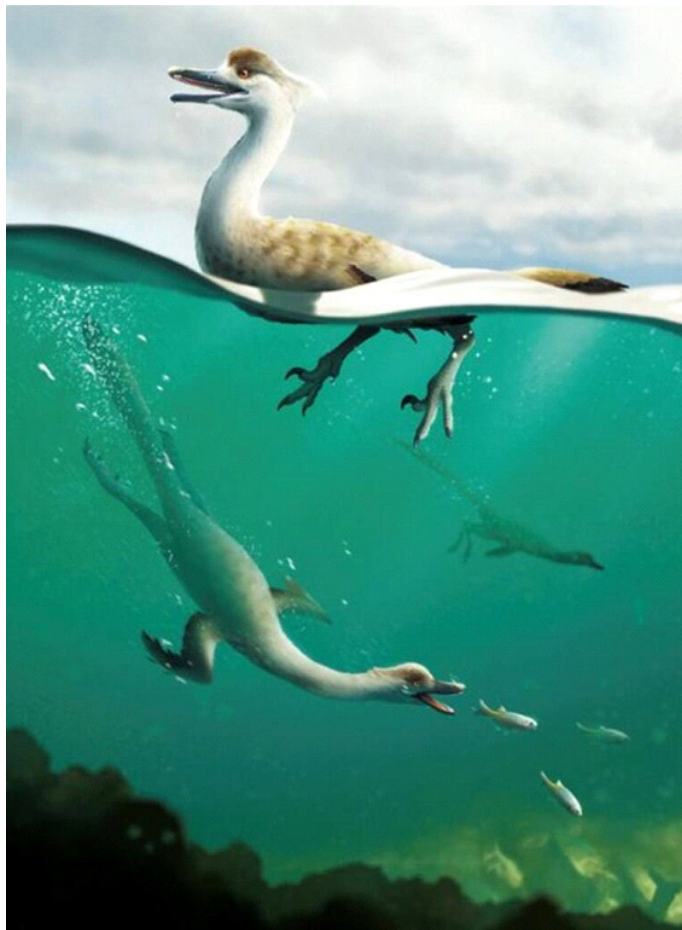
About PSLV C-54:

- It is the **third generation** launch vehicle of India.
- It is a **four-staged** launch vehicle with **first and third stages using solid rocket motors** and **second and fourth stages using liquid rocket engines**.

- It is the first Indian launch vehicle to be equipped with **liquid stages**.

NATOVENATOR POLYDONTUS – DINOSAUR

In News: Paleontologists have published new research on *Natovenator polydontus*.



More on the Topic:

- The dinosaur, called *Natovenator polydontus*, lived about 72 million years ago during the **Cretaceous Period** and was built like a diving bird with a streamlined body while possessing a **goose-like elongated neck** and a **long flattened snout** with a mouth bearing more than 100 small teeth. It almost surely was covered in feathers.
- While it was a cousin of speedy little predator *Velociraptor*, **Natovenator was adapted to a semi-aquatic lifestyle in a freshwater ecosystem**.
- It was floating on rivers and lakes, paddling with its front limbs, and using its flexible neck to catch fish and insects or diving underwater to capture its prey.

AKASH WEAPON SYSTEM

In News: Defence Research and Development Organization (DRDO) handed over Authority Holding Sealed Particulars (AHSP) of Akash Weapon System (Indian Army Version) to Missile Systems Quality Assurance Agency (MSQAA) recently.

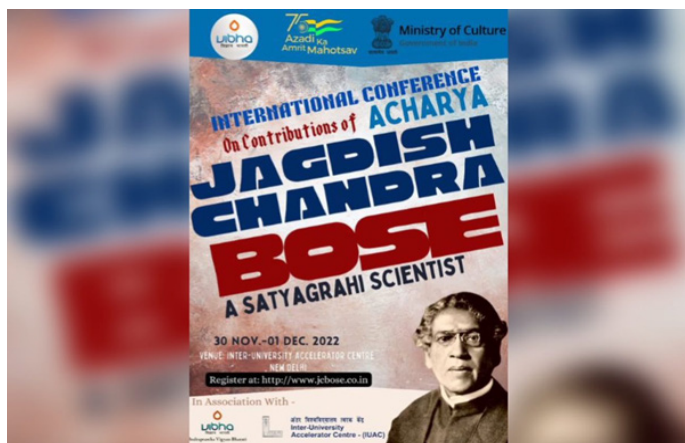


More on the Topic:

- Akash is the first state-of-the-art indigenous surface-to-air missile system which has been with Armed Forces for nearly a decade.
- It is a Short-Range Surface to Air Missile System to protect vulnerable areas and points from air attacks.
- Akash Weapon System (AWS) can simultaneously engage Multiple Targets in Group Mode or Autonomous Mode.
- It has built-in Electronic Counter-Counter Measures (ECCM) features.

INTERNATIONAL CONFERENCE ON THE CONTRIBUTIONS OF "J C BOSE"

In News: Ministry of Culture organizes International conference on the contributions of "J C Bose: A Satyagrahi Scientist" as part of Azadi Ka Amrit Mahotsav.



More on the Topic:

- The aim of the conference was to provide a voice to the unheard contributions of Acharya Jagadish Chandra Bose in the walks of the pre-independence era as a scientist and a freedom fighter.
- J C Bose discovered wireless communication and was named the Father of Radio Science by the Institute of Electrical and Electronics Engineering. He was responsible for the expansion of experimental science in India.
- From his contribution to biophysics to his contribution to the freedom struggle, there are numerous facets of his life that are undiscovered.
- He invented the crescograph, a device for measuring the growth of plants. A crater on the moon was named in his honour.
- He authored two illustrious books; 'Response in the Living and Non-living' (1902) and 'The Nervous Mechanism of Plants' (1926). He also extensively researched the behaviour of radio waves.
- He was popularly known as a plant physiologist, he was actually a physicist. Bose devised another instrument called 'Coherer', for detecting the radio waves.

POWERLESS HEATING SYSTEM

In News: IIT Delhi has innovated powerless heating system.



More on the Topic:

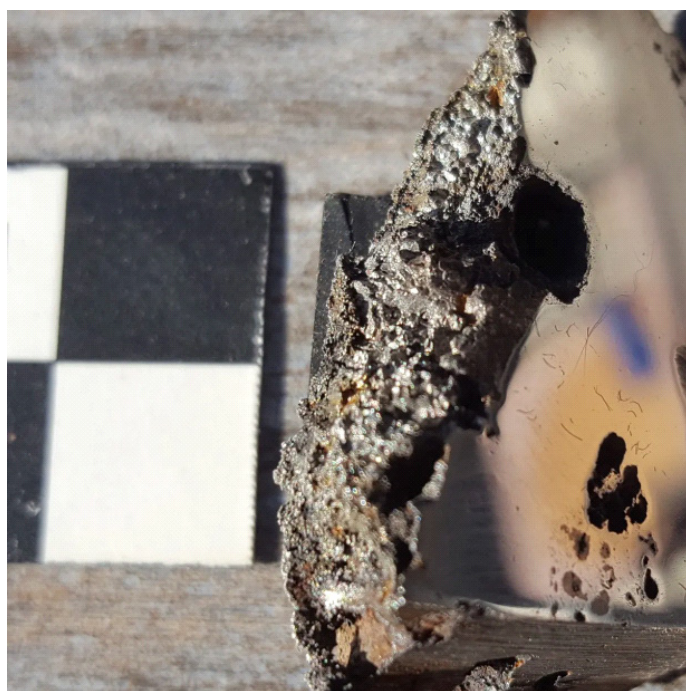
- The new low-cost heating system can be activated by plain water anytime anywhere

and does not require any fuel or electricity to heat or power. It can act as a heating solution in any location.

- Lack of heating sources at remote places with no access or uncertain access to power sources is an inconvenience faced by many, especially in remote areas like the North East.
- The active heating element consists of a mixture of eco friendly minerals and salts, which generates exothermic energy resulting in heat on contact with water.
- This provides enough energy to raise the temperature of any food or beverage by 60 to 70 degree Celsius.
- The weight of the heater is only 50 grams, and after every heating, the by-product (natural mineral rock) inside the heating pad can be disposed of. T
- he rock helps in improving the fertility of the soil and is 100% biodegradable.
- With this technology, users can heat ready-to-eat food, make instant noodles, and any beverage like tea, coffee, etc.
- The by-product of the heating process is a natural mineral that easily integrates into the soil without any toxic effects.

ELALIITE AND ELKINSTANTONITE

In News: A team of researchers have discovered at least two new minerals that have never before been seen on Earth in a 15 tonne meteorite found in Somalia.



More on the Topic:

- A meteorite is a solid piece of debris from an object, such as a comet, asteroid, or meteoroid, that originates in outer space and survives its passage through the atmosphere to reach the surface of a planet or moon.
- The study of meteorites has helped us understand the beginnings of our solar system, how planets and asteroids formed and how impacts of large meteorites have altered Earth's history and life on our planet.

THE SQUARE KILOMETRE ARRAY (SKA)

In News: The Square Kilometre Array (SKA) will be the largest radio telescope in the world when completed in 2028.



More on the Topic:

- Split across South Africa and Australia, with a headquarters in the UK, the facility will address the biggest questions in astrophysics.
- It will perform the most precise tests of Einstein's theories, and even search for extra-terrestrials.
- The initial architecture of the telescope will incorporate just under 200 parabolic antennas, or "dishes", as well as 131,000 dipole antennas, which look a little like Christmas trees.
- The aim is to construct an effective collecting area measuring hundreds of thousands of square metres.

Significance:

- This will give the SKA unparalleled sensitivity and resolution as it probes targets on the sky.
- The system will operate across a frequency range from roughly 50 megahertz to, ultimately, 25 gigahertz. In wavelength terms, this is in the centimetres to metres range.

- This should enable the telescope to detect very faint radio signals coming from cosmic sources billions of light-years from Earth, including those signals emitted in the first few hundred million years after the Big Bang.
- One of the SKA's great quests will be to trace the full history of hydrogen, the most abundant element in the Universe.
- The telescope should be able to detect hydrogen's presence even before great clouds of it collapsed to form the first stars.

2AFRICA PEARLS

In News: Bharti Airtel would partner Facebook parent Meta to jointly invest in global connectivity infrastructure that would extend a subsea cable the 2Africa Pearls to India.



More on the Topic:

- The landing of 2Africa will improve the connectivity of fixed-line broadband internet in India.
- The 2Africa cable will significantly boost India's cable capacity and empower global hyper-scalers and businesses to build new integrated solutions. They will also provide a high-quality seamless experience to customers.
- It is one of the world's longest subsea cable systems that will ultimately interconnect countries in Africa, Asia, and Europe.
- Once completed the system will provide connectivity to a total of 3 billion people and improve connectivity of fixed-line broadband internet in India.

L1 FREQUENCY GLOBAL POSITIONING SYSTEM (GPS)

In News: Indian Space Research Organisation (ISRO) is introducing the L1 frequency in all its future satellites.



More on the Topic:

- It is aimed to promote the civilian use of NAVigation with the Indian Constellation (NavIC).
- It is the regional navigation satellite system developed by the Indian Space Research Organisation (ISRO).
- The L1 frequency, one of the most commonly used frequencies in the Global Positioning System (GPS), will increase the use of the regional navigation system (NavIC) in wearable devices and personal trackers that use low-power, single-frequency chips.
- At present, the satellites operate on two frequencies — L5 and S bands.
- The new satellites NVS-01 onwards, meant to replace these satellites will also have L1 frequency that can be used by devices that run on low power, single-frequency chips such as smart watches and security systems.

About NavIC:

- NavIC or the Indian Regional Navigation Satellite System (IRNSS) is designed with a constellation of 7 satellites and a network of ground stations operating 24x7.
- There are a total of eight satellites however only seven remain active.
- Three satellites in geostationary orbit and four satellites in geosynchronous orbit.

Usage of NavIC:

- The usage of NavIC system has increased in India. NavIC finds utilisation in national projects like public vehicle safety, power grid synchronisation, real-time train information system and fishermen safety.
- Other upcoming initiatives (such as) common alert protocol-based emergency warning, time dissemination, geodetic network and unmanned aerial vehicles are in the process of adopting NavIC system
- Other than that, many mobile phones available in the country already use chipsets capable of receiving NavIC signals.

NASA'S ARTEMIS 1 MISSION

In News: The Orion's landing in the Pacific Ocean marked the end of the inaugural Artemis 1 lunar mission exactly 50 years after Apollo's final moon landing.



More on the Topic:

- Artemis 1 was essentially an experimental mission, to check if the capsule can be trusted to ferry humans to the moon and back in future missions.
- Thus, safe re-entry was critical to the success of the whole initiative.
- In its 35-day mission, the Orion passed about 127 km above the moon in a fly-by. Orion entered Earth's atmosphere at a speed of over 40,000 kilometres per hour – more than 30 times the speed of sound – for a “fiery, 20-minute plunge to the ocean”.
- It has demonstrated Orion's heat shield can withstand high speed and high heat

conditions when returning through Earth's atmosphere.

- Orion performed a new landing technique called 'skip entry', designed to help spacecraft accurately splash down at landing site and reduce the force of gravity.
- After its success, a crewed Artemis II will go around the moon and back by 2024, followed in a few years by Artemis III, which will see astronauts, including a woman, land on the moon.

Significance of Artemis 1:

- It is the first in a series of missions that are planned to not only take humans back to the Moon, but to also explore the possibilities of extended stay there, and to investigate the potential to use the Moon as a launch pad for deep space explorations.
- The Artemis missions will build on the existing achievements of space technologies over the past few decades and lay the foundations for more complex and ambitious missions in the future.
- It will work towards extracting the resources found on the Moon, building from the materials available there, and harnessing hydrogen or helium as energy sources.

SPACETECH INNOVATION NETWORK (SPIN)

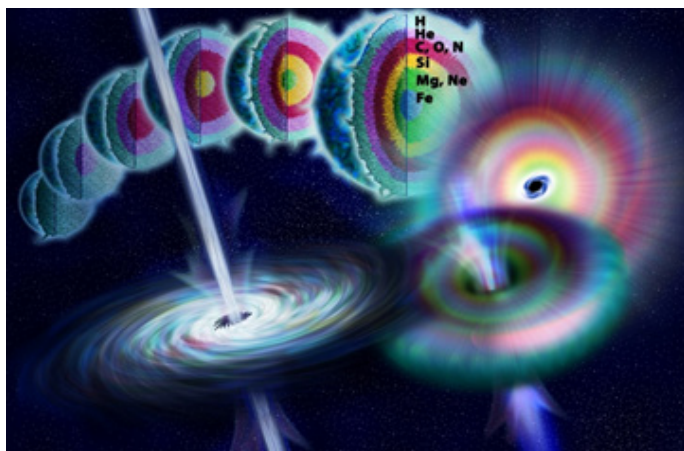
In News: The Indian Space Research Organisation (ISRO) has signed an MoU with Social Alpha, a multistage innovation curation and venture development platform to launch SpaceTech Innovation Network (SpIN).

More on the Topic:

- SpIN is India's first dedicated platform for innovation, curation and venture development for the blooming space entrepreneurial ecosystem.
- It is a one-of-a-kind Public Private Partnership for start-ups and SMEs in the space industry.
- Provide a level playing field for all stakeholders to contribute and collaborate.
- Also, the 1st SpIN innovation challenge was launched to develop solutions in areas like urbanisation, mapping, natural resources management etc. Selected start-ups can access ISRO and Social Alpha's infrastructure and resources

GAMMA RAY BURSTS

In News: Photometric observations taken with the 3.6m Devasthal Optical Telescope have provided vital information on the earliest phase of a kilonova ever detected, radically changing the understanding of scientists about the origin of GRBs.



More on the Topic:

- GRBs are powerful astronomical cosmic bursts of high-energy gamma-ray.
- GRB emits more energy in a few seconds than our Sun will emit in its lifetime and has two distinct emission phases: the short-lived prompt emission (the initial burst phase that emits gamma-rays), followed by a long-lived multi-wavelength after glow phase.
- The prompt emission (initial gamma-ray emission) of GRBs is automatically discovered by space-based gamma-ray missions such as NASA's Fermi Gamma-ray Space Telescope, Neil Gehrels Swift Observatory, and India's AstroSat.

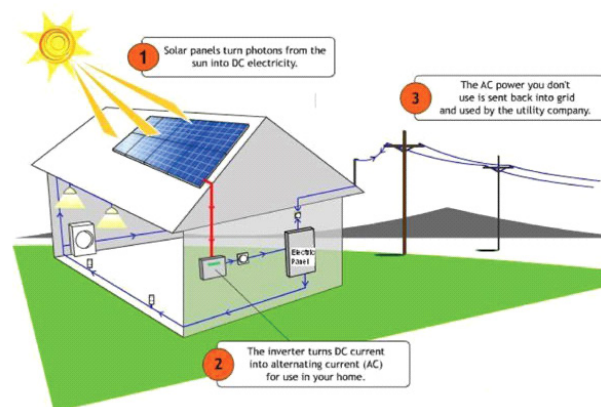
Kilonova of visible and infrared light with short-period GRBs:

- In recent years, scientists have discovered a special phenomenon called a kilonova of visible and infrared light with short-period GRBs, also known as a potential source of gravitational waves.
- It has been hypothesized that the heat produced by the radioactive decay of heavier elements may emit kilonova.
- This process also produces heavier elements, such as gold and platinum.
- However, observing kilonovas at near-infrared wavelengths is technically challenging, and only a few telescopes on Earth, including the 3.6-meter Devasthal Optical Telescope of the Aryabhata Research Institute of Observational Sciences

(ARIES), can detect kilonova and gravitational wave objects at these wavelengths up to faint limits.

ROOFTOP SOLAR PROGRAMME

In News: The Rooftop Solar Programme has been extended till 31.03.2026 and therefore, subsidy under the programme will be available until the target under the Programme is achieved.



More on the Topic:

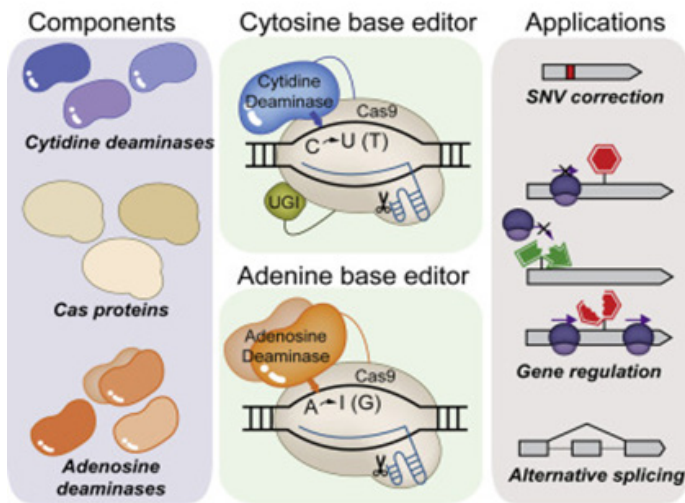
- Solar technologies convert sunlight into electrical energy either through photovoltaic (PV) panels or through mirrors that concentrate solar radiation.
- This energy can be used to generate electricity or be stored in batteries or thermal storage.
- A rooftop solar plant refers to one where the solar panels are mounted on top of a residential or commercial building.

Solar rooftop subsidy scheme:

- Solar rooftop subsidy scheme is an initiative by Ministry of New and Renewable Energy.
- The central government through the solar rooftop subsidy yojana encourages use of renewable energy and provides subsidies on solar rooftop installations to consumers.
- The central government pays a 30% subsidy for installation of rooftop solar plants to states in general categories.
- For special states such as Himachal Pradesh, Uttarakhand, Sikkim, Jammu & Kashmir and Lakshadweep, the central government gives subsidies of up to 70%.
- The process for installation of rooftop solar plants will start from registering applications and then releasing the subsidy in residential consumers' (beneficiaries') bank accounts after installation and inspection of the plant which can be tracked online at the national portal.

BASE EDITING

In News: Base editing might help to cure T-cell acutelymphoblastic leukaemia.



More on the Topic:

- The human genome has four types of bases, which are found in DNA: **adenine (A)**, **cytosine (C)**, **guanine (G)**, and **thymine (T)**. These bases are the “letters” that spell the genetic code that holds the instructions of life.
- The genome comprises more than 3 billion of these base pairs in 2 intertwining double strands of DNA; the sequence of these bases encodes genes. Misspellings of even a single letter of a gene, known as a point mutation, can result in disease.
- T-cells had become cancerous because of a mis-arrangement in the sequence of bases.
- Scientists used **base-editing** to create a new type of T-cell from a healthy donor that would not attack other cells, not kill each other, survive chemotherapy and finally, hunt down all other T-cells in patient's body.
- When T-cells become cancerous there will be mis-arrangement in the sequence of bases.
- The scientists have create a new type of T-cell from a healthy donor that would not attack other cells, not kill each other, survive chemotherapy and finally, hunt down all other T-cells in patient's body.

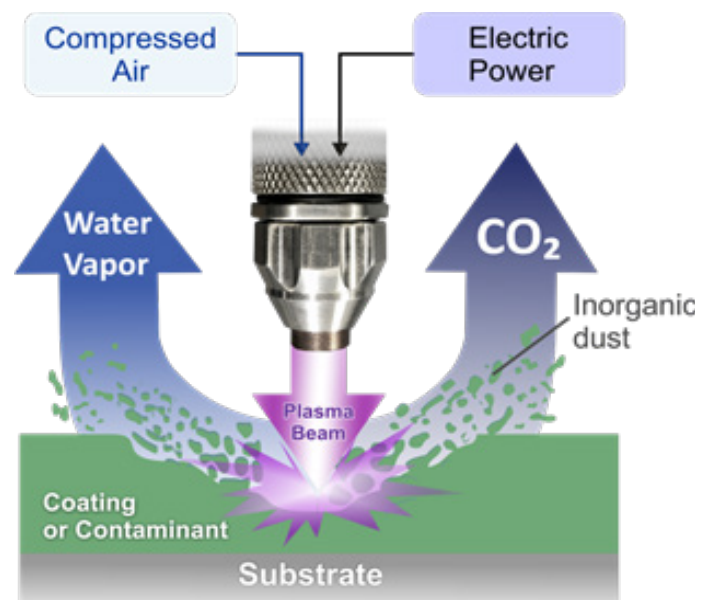
About Base Editing:

- With advances in genetic technology, scientists have been able to zoom into a precise part of the genetic code to alter the molecular structure of just one base, effectively changing its genetic instructions.

- Base editors have two principal components:
- A **CRISPR protein**, bound to a guide RNA that leverages the established DNA-targeting ability of CRISPR, but modified to not cause a double-stranded break.
- A **base editing enzyme**, such as a deaminase, which carries out the desired chemical modification of the target DNA base.
- This proprietary combination is designed to enable the precise targeting and editing of a single base pair of DNA or multiple bases at the same time.
- When introduced into a cell, the CRISPR protein targets the desired genomic location by recognising a complementary section on the DNA to the section encoded in the guide RNA.
- The base editor binds the target DNA and exposes a narrow editing window. The deaminase then makes the desired edit to a target base.

PLASMA WATERS' CONTINUOUS-FLOW COLD PLASMA TECHNOLOGY

In News: Plasma Waters' continuous-flow cold plasma technology turns water into Plasma Activated Water (PAW), a natural microbicide and growth enhancer.



More on the Topic:

- PAW provides a natural alternative that can replace the damaging impact from pesticides and can boost plant growth, disease resistance and stress tolerance levels.
- It also enhances freshness and longevity after harvest resulting in reduction in food wastages from farm to plate value chain.

AGNI-5 NUCLEAR CAPABLE MISSILE

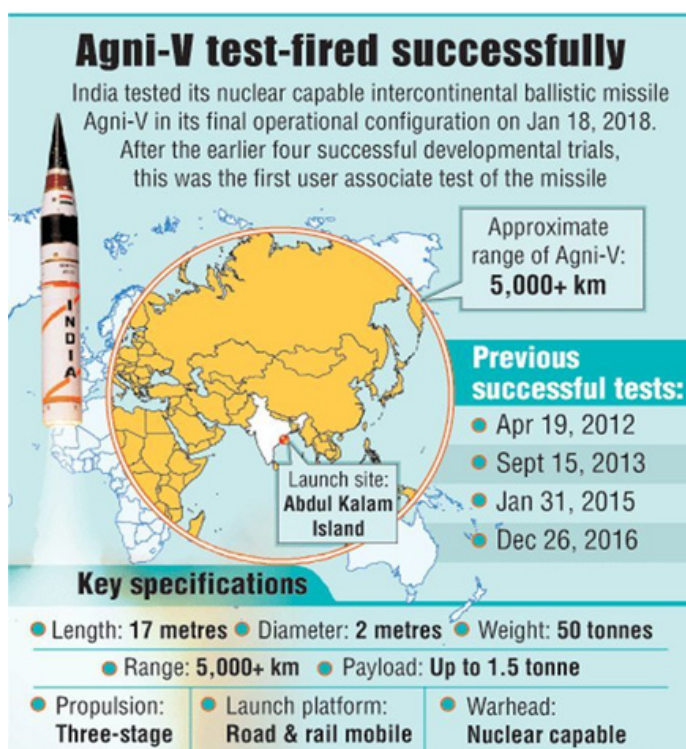
In News: A successful flight test of India's long-range surface-to-surface nuclear capable ballistic missile, Agni-5, was undertaken recently.

More on the Topic:

- The latest test comes a few days after Chinese and Indian troops clashed at the Line of Actual Control in Tawang, Arunachal Pradesh.
- Agni-5 can strike targets at ranges of 5,000 to 5,500 km, which puts major cities in China, including the capital Beijing, within its range.

About Agni 5 Missile:

- The nuclear-capable missile, which uses a three-stage solid-fuelled engine, has been developed by India's Defence Research and Development organisation (DRDO).
- The development of Agni missiles started in early 1980 under the Integrated Guided Missile Development Programme.



- Medium to Intercontinental versions of Agni missile systems 1 to 5 have varying ranges starting from 700 km for Agni-1 to 5000 km and above for Agni-5.
- In June 2021, DRDO successfully tested Agni P, a canisterised missile with a range capability between 1,000 and 2,000 km.
- This means that the missile can be launched from road and rail platforms, making it easier for it to be deployed and launched at a quicker pace.

- Agni-6 is also said to be under development, with a range starting at 8000 km.

India's Nuclear Doctrine:

- India follows the doctrine of 'credible minimum deterrence' and 'No First Use' which are pivotal points of India's nuclear doctrine, first published in 2003.
- This basically means India would never use nuclear weapons first in a conflict situation but only as retaliation, and the arsenal maintained is to only deter the possibility of an attack on India.

DNA FINGERPRINTING

In News: Union Delhi Police has used DNA Fingerprinting to rule out one of the murder cases recently.



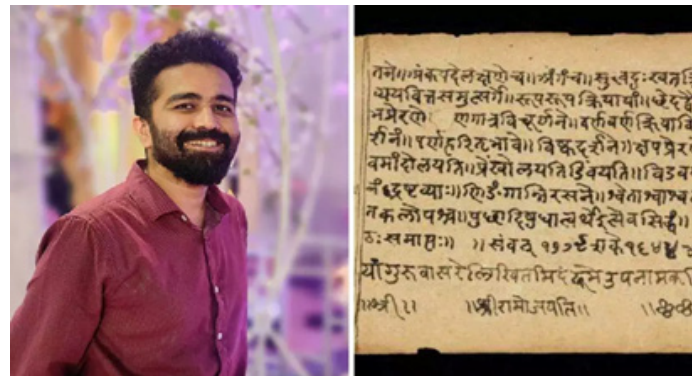
More on the Topic:

- DNA fingerprinting was first developed in 1984 by Alec Jeffreys in the UK, after Jeffreys discovered that no two people could have the same DNA sequence. Within three years of the discovery, the UK achieved the world's first conviction based on DNA evidence in a case of rape and murder.

How DNA Finger Printing is done?

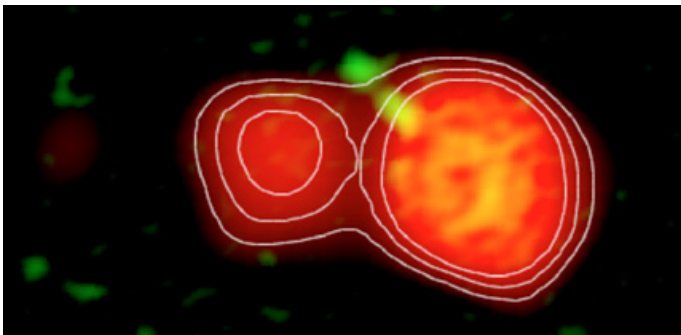
- Each person's DNA, except for identical twins, is unique.
- By analyzing selected DNA sequences (called loci), a crime laboratory can develop a profile to be used in identifying a suspect.
- DNA can be extracted from many sources, such as hair, bone, teeth, saliva, and blood.
- Because there is DNA in most cells in the human body, even a minuscule amount of bodily fluid or tissue can yield useful information. Samples may even be extracted from used clothes, linen, combs, or other frequently used items.

- Beyond its accuracy, DNA fingerprinting can also sift through crime scene evidence in different ways, previously unavailable to investigators.
- For instance, advanced DNA fingerprinting can make separate prints of various individuals even from a sample mixture found at the crime scene.



ODD RADIO CIRCLES

In News: A new research by an Indian scientist has offered explanations for mysterious hazy circles of radio emission deep in celestial space called Odd Radio Circles (ORCs).



More on the Topic:

- Astronomers recently identified these ORCs using the Square Kilometer Array (SKA) in Australia and South Africa, the Giant Metrewave Radio Telescope (GMRT) in India, and the Low-Frequency Array (LOFAR) in the Netherlands.
- Such objects are seen only in radio and not in any other form of radiation.
- Some of these objects could be 1 million light-years across, about 10 times larger than our Milky Way.
- The new research has proved that some of these ORCs could be remnants of thermonuclear supernovas triggered by the explosion of a white dwarf star in a binary system heavier than 1.4 times the mass of the Sun.

PANINI CODE

In News: Rajpopat, An Indian PhD student at the University of Cambridge has solved a grammatical problem known as Panini code that puzzled Sanskrit scholars since the 5th century BC.

More on the Topic:

- Panini was a highly revered Sanskrit scholar, philologist and grammarian who lived around the 5th Century BCE in India.
- He has been considered the "first descriptive linguist" and labeled by Western scholars as "the father of linguistics".
- Among his most important works is the *Astadhyayi* – a grammar that essentially defines the Sanskrit language.
- It is considered a prescriptive and generative grammar with algebraic rules governing every aspect of Sanskrit.
- Such is the intricacy of grammar that scholars over centuries haven't been able to work out the correct application of its rules and metarules.
- **The system of rules and metarules functions like an algorithm.** If one feeds in the base and suffix of a word, the algorithm will turn it into grammatically correct words, phrases and sentences.
- The conflict occurs when two or more of Panini's rules often apply simultaneously. They are applied simultaneously more often than you think – the *Astadhyayi* consists of 3,959 sutras (aphoristic threads) in eight chapters, which are each subdivided into four sections.
- In such events, Panini's metarule could come to aid. The metarule has been interpreted by scholars over generations as "in the event of a conflict between two rules of equal strength, the rule that comes later in the grammar's serial order wins."
- But this would often result in grammatically incorrect results.

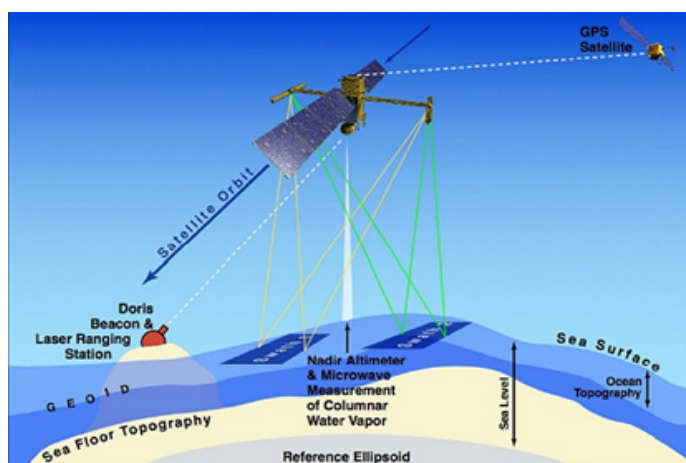
The Solution:

- Rajpopat reportedly rejected the traditional interpretation of the metarule. He instead went with the argument that Panini meant that between rules applicable to the left and

and reservoirs; and how communities can better prepare for disasters, such as floods.

- It will provide data on more than 95% of the world's lakes larger than 15 acres (62,500 square meters) and rivers wider than 330 feet (100 meters) across.
- Along the coast, SWOT will provide information on sea level, filling in observational gaps in areas that don't have tide gauges or other instruments that measure sea surface height.
- Over time, that data can help researchers' better track sea level rise, which will directly impact communities and coastal ecosystems.
- SWOT measurements will also help researchers, policymakers, and resource managers better assess and plan for things, including floods and droughts.

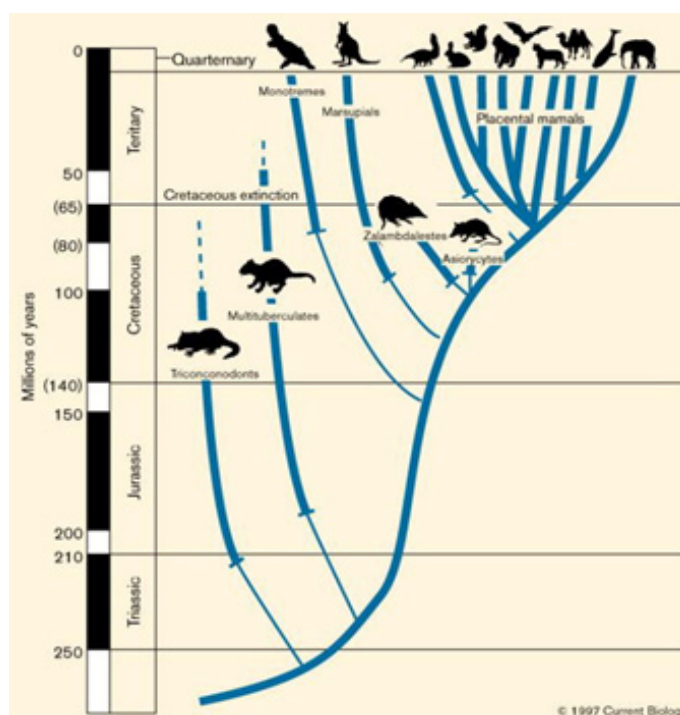
In News: A SpaceX Falcon 9 rocket has launched NASA's Surface Water and Ocean Topography (SWOT) spacecraft recently.



MAMMALIAN EVOLUTION

In News: According to a New research Mammals may have evolved in Gondwana, the southern landmass formed from the supercontinent Pangaea millions of years, rather than its northern counterpart Laurasia.

- SWOT will cover the entire Earth's surface between 78 degrees south and 78 degrees north latitude at least once every 21 days, sending back about one terabyte of unprocessed data per day.
- The scientific heart of the spacecraft is an innovative instrument called the Ka-band radar interferometer (KaRIn), which marks a major technological advance.
- KaRIn bounces radar pulses off the water's surface and receives the return signal using two antennas on either side of the spacecraft.
- This arrangement – one signal, two antennas – will enable engineers to precisely determine the height of the water's surface across two swaths at a time, each of them 30 miles (50 kilometers) wide.



More on the Topic:

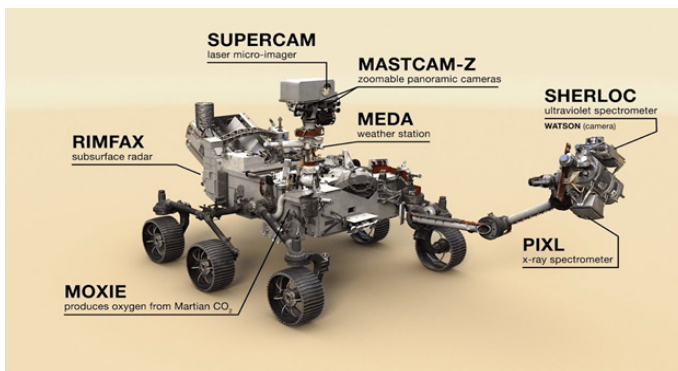
- The researchers studied the molars of fossils found in Madagascar, South America and India to come to this conclusion.
- Modern mammals consist of three sub groups: Montremes, marsupials and placentals.
- Montremes are primitive mammals that lay large eggs and have a common opening for

the urogenital and digestive systems.

- Marsupials are mammals whose young are born incompletely developed. They develop inside a pouch on the mother's belly.
- The third subgroup is placentals which carry the foetus until a late stage of development.
- to radiate enough heat back into outer space to reduce the Earth's rising temperature.

NASA PERSEVERANCE MISSION

In News: NASA's Perseverance mission dropped its first cache of precious rock samples on the sands of Mars.



More on the Topic:

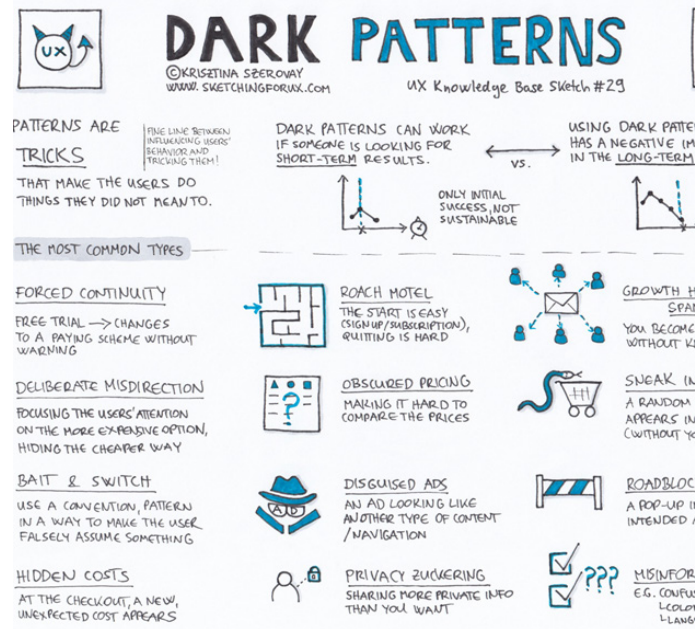
- Igneous rock sample was collected from Mars Jezero Crater called South Séítah.
- Samples are being placed at a location called "Three Forks," first such sample depot on another world.
- Depot will serve as a backup if Perseverance can't deliver its samples and subsequent NASA missions would return these samples to Earth

About Mars 2020 Mission:

- Mars 2020 is a Mars rover mission forming part of NASA's Mars Exploration Programme that includes the rover Perseverance, the small robotic, coaxial helicopter Ingenuity, and associated delivery vehicles.
- Perseverance will investigate an astrobiologically relevant ancient environment on Mars and investigate its surface geological processes and history, including the assessment of its past habitability, the possibility of past life on Mars, and the potential for preservation of biosignatures within accessible geological materials.
- It will cache sample containers along its route for retrieval by a potential future Mars sample- return mission.

DARK PATTERNS

In News: Some Internet-based firms have been tricking users into agreeing to certain conditions or clicking a few links. Such acceptances and clicks are flooding inboxes of the users with promotional emails they never wanted, making it hard to unsubscribe or request deletion.



More on the Topic:

- Such patterns are unethical user interface designs that deliberately make your Internet experience harder or even exploit you. In turn, they benefit the company or platform employing the designs.
- By using dark patterns, digital platforms take away a user's right to full information about the services they are using, and reduce their control over their browsing experience.

How do companies use dark patterns?

- Social media companies and Big Tech firms such as Apple, Amazon, Skype, Facebook, LinkedIn, Microsoft, and Google use dark or deceptive patterns to downgrade the user experience to their advantage.
- Example: Amazon came under fire in the EU for its confusing, multi-step cancellation process for the Amazon Prime subscription.
- After communicating with consumer regulators, Amazon this year made its cancellation process easier for online customers in European countries.
- Google-owned YouTube nudges users to sign up for YouTube Premium with pop-ups, obscuring the final seconds of a video with thumbnails of other videos – a way of disrupting what should have been an

otherwise smooth user experience.

Concerns Associated with Dark Patterns:

- Dark patterns endanger the experience of Internet users and make them more vulnerable to financial and data exploitation by Big Tech firms.
- Dark patterns confuse users, introduce online obstacles, make simple tasks time-consuming, have users signed up for unwanted services/products, and force them to pay more money or share more personal information than they intended.
- Internet users who are able to identify and recognize dark patterns in their daily lives can choose more user-friendly platforms that will respect their right to choice and privacy.

ORGANIC SOLAR CELLS

In News: IIT Kanpur scientists have developed organic solar cell gadgets.

More on the Topic:

- Solar cells can convert a steel roof into an energy-producing device more efficiently than currently.
- An organic solar cells consisting of a combination of an organic polymer and PCBM (an organic semiconductor) developed on steel substrates can potentially convert a steel roof into an energy producing device with greater efficiency than those currently available in the market.
- The potential of third-generation solar cell technologies lies in their integration with flexible and conformal surfaces.
- However, this integration requires developing new top transparent conducting electrodes as alternatives to indium tin oxide, an optoelectronic material currently in use and poses limitations because of its brittleness and as its optoelectronic efficiency varies with temperature.
- The new technology demonstrated the integration of multi-layered electrodes of configuration MoO₃/Au/MoO₃ with the organic solar cells.
- These electrodes offer higher optical transmission as compared to only metallic electrodes.

- The devices with multilayer electrodes showed a clear improvement in the photovoltaic performance by 1.5 times, as compared with those obtained with single-layer top metal electrodes of gold.

SCHEME FOR FACILITATING STARTUPS INTELLECTUAL PROPERTY PROTECTION (SIPP)

In News: There was huge jump in the number of patent filing by the Indian start ups mainly due to impetus provided by the SIPP scheme.



More on the Topic:

- Start-ups Intellectual Property Protection (SIPP) scheme launched by Government of India, facilitates the start-ups to file applications for patents, designs and trademarks through registered facilitators in appropriate IP offices by paying only the statutory fees.
- The scheme has been implemented by office of CGPDTM (Controller General of the Patents, Designs and Trade Marks).

The services provided include:

- Providing general advisory on different intellectual property on pro bono basis
- Providing information on protecting and promoting IPRs to startups in other countries on pro bono basis
- Providing assistance in filing and disposal of the IP applications related to patents, trademarks and Design under relevant Acts at the national IP offices under the CGPDTM
- Drafting provisional and complete patent specifications for inventions of start-ups
- Appearing on behalf of start-up at hearings, as may be scheduled etc.

NATIONAL COMMISSION FOR BACKWARD CLASSES

In News: Shri. Hansraj Gangaram Ahir assumed charge as Chairperson, National Commission for Backward Classes recently.



More on the Topic:

- National Commission for Backward Classes (NCBC) was initially constituted by the Central Government by the National Commission for Backward Classes Act, 1993.
- So far the Commission had been reconstituted 7 times up to 2016.
- The National Commission for Backward Classes Act, 1993 (27 of 1993) has been repealed through the National Commission for Backward Classes (Repeal) Act, 2018.
- The present Commission (8th) has been accorded Constitutional Status and constituted through "The Constitution (One Hundred and Second Amendment) Act, 2018" Act,
- Article 338B has been inserted, forming a Commission for the socially and educationally backward classes to be known as National Commission for Backward Classes.

Organisation Structure:

- The Commission consists of a Chairperson, Vice-Chairperson and three other Members in the rank & pay of Secretary to the Government of India and their condition of service and tenure of office has been notified vide Ministry of Social Justice and Empowerment.

PANDA TASK FORCE

In News: Opposition MPs question government's inaction on 2014 task force's recommendation of over 40 communities for inclusion.

More on the Topic:

- The Panda Task Force, constituted in February 2014 under the leadership of erstwhile Tribal Affairs Secretary Hrusikesh Panda, had compiled a comprehensive list of over 40 communities from across the country that it felt should be included in ST lists on a priority basis.
- Some of the tribes listed includes Pulayan (and synonyms) community in Tamil Nadu, Konda Kumari community (and its synonyms) in Andhra Pradesh, Kandha Kumbhar, Jodia (and synonyms), Chuktia Bhunjia, Mankidia, Porja (and synonyms) etc. in Odisha.
- The task force had noted that these communities continued to be excluded or were facing delays in inclusion due to the **current procedure and criteria for inclusion in ST lists** and had recommended changes to both.
- It had said the procedure "defeats the Constitutional agenda for affirmative action and inclusion" was "cumbersome" and "time-consuming" and that the criteria for defining communities as STs based on their characteristic traits (being followed since the 1960s) was "obsolete".

MATERNAL MORTALITY RATIO (MMR)

In News: In a new milestone, there has been a significant decline in the Maternal Mortality Ratio (MMR) in the country.

Maternal mortality ratio:
the number of maternal
deaths per *live births*

Numerator: Maternal deaths

Denominator: Live births



Population Research Institute: pop.org

More on the Topic:

- As per the Special Bulletin on MMR released by the Registrar General of India (RGI), the Maternal Mortality Ratio (MMR) of India has improved further by a spectacular 6 points and now stands at 97/ lakh live births.
- The Maternal Mortality Ratio (MMR) is defined as the number of maternal deaths during a given time period per 100,000 live births.
- Upon achieving this, India has accomplished the National Health Policy (NHP) target for MMR of less than 100/lakh live births and is on the right track to achieve the SDG target of MMR less than 70/ lakh live births by 2030.
- The outstanding progress made in terms of the number of states which have achieved Sustainable Development Goal (SDG) target, the number has now risen from six to eight leading with Kerala (19), followed by Maharashtra (33), then Telangana (43) and Andhra Pradesh (45), subsequently Tamil Nadu (54), Jharkhand (56), Gujarat (57) and lastly Karnataka (69).

Government Efforts to Tackle Maternal Mortality:

- Since 2014, under the National Health Mission (NHM), India has made a concerted effort to provide accessible quality maternal and newborn health services and minimize preventable maternal deaths.
- The National Health Mission has made significant investments to ensure provision of healthcare services, particularly for effective implementation of the maternal health programmes to accomplish the specified MMR targets.
- Government schemes such as "Janani Shishu Suraksha Karyakram" and "Janani Suraksha Yojana" have been modified and upgraded to more assured and respectful service delivery initiatives like Surakshit Matritva Aashwasan' (SUMAN).
- Pradhan Mantri Surakshit Matritva Abhiyan (PMSMA) is particularly lauded for its focus on identifying high-risk pregnancies and facilitating their appropriate management.
- This had a significant impact on mitigating preventable mortality. LaQshya and Midwifery initiatives concentrate on promoting quality care in a respectful and dignified manner ensuring choice of birthing to all pregnant women.

REPORTS AND INDICES

CLIMATE INVESTMENT OPPORTUNITIES IN INDIA'S COOLING SECTOR - WORLD BANK REPORT

In News: The World Bank has released Climate Investment Opportunities in India's Cooling Sector report recently.

More on the Topic:

- As temperatures steadily rise in India due to climate change, keeping spaces cool using alternative and innovative energy efficient technologies can open an investment opportunity of \$1.6 trillion by 2040.
- This also has the potential to reduce greenhouse gas emissions significantly and create nearly 3.7 million jobs.
- India's cooling strategy can help save lives and livelihoods, reduce carbon emissions and simultaneously position India as a global hub for green cooling manufacturing.
- India is experiencing higher temperatures every year. By 2030, over 160-200 million people across the country could be exposed to lethal heat waves annually.
- Around 34 million people in India will face job losses due to heat stress related productivity decline.
- By 2037, the demand for cooling is likely to be eight times more than current levels. This means there will be a demand for a new air-conditioner every 15 seconds, leading to an expected rise of 435% in annual greenhouse gas emissions over the next two decades.

Recommendations:

- There is need for private investments in district cooling technologies. These generate chilled water in a central plant which is then distributed to multiple buildings via underground insulated pipes.
- This brings down the cost for providing cooling to individual buildings and can reduce energy bills by 20-30% compared to the most efficient conventional cooling solution.
- To minimise rising food and pharmaceutical wastage during transport due to higher temperatures, the report recommended fixing gaps in cold chain distribution networks.
- Investing in pre-cooling and refrigerated transport can help decrease food loss by about 76% and reduce carbon emissions by 16%.

- Space cooling interventions across India will need to priorities “thermal comfort for all” while facilitating cooling access for 1.4 billion people and reducing the impact on an already overburdened electricity system.
- Improvements in servicing, maintenance and disposal of equipment that use hydrochlorofluorocarbons are needed.

COAL INDEX

In News: Ministry of Coal has released Coal Index.

More on the Topic:

- It is a price index which reflects the change of price level of coal in a particular month relative to the fixed base year.
- The base year for the NCI is Financial Year 2017-18.
- Prices of coal from all the sales channels of coal, including import, as existing today are taken into account for compiling the NCI.
- The amount of revenue share per tonne of coal produced from auctioned blocks would be arrived at using the NCI by means of defined formula.

About Coal:

- Coal is a combustible black or brownish-black sedimentary rock, formed as rock strata called coal seams.
- Coal is mostly carbon with variable amounts of other elements, chiefly hydrogen, sulfur, oxygen, and nitrogen.
- The coal mining sector accounts for more than 55% of India's energy needs even today.
- Coal is a major source of energy in the production of electrical power using steam generation.
- In addition, gasification and liquefaction of coal produce gaseous and liquid fuels that can be transported by pipeline and stored in tanks.

INDIA INEQUALITY REPORT: DIGITAL DIVIDE

In News: According to a new Oxfam India report, inequalities are now becoming increasingly visible in the digital space.

More on the Topic:

- **Gender Divide:** While 61% of men owned mobile phones in 2021, their access remained limited to just 31% women.
- The reach of digital technologies remains largely limited to male, urban, upper-caste, and upper-class individuals.

- **Caste Divide:** While 8% of the general caste has access to a computer or a laptop, less than 1% of the Scheduled Tribes (ST) and 2% of the Scheduled Castes (SC) afford it.
- **A digital divide based on employment status:** Where 95% of the salaried permanent workers have a phone whereas only 50% of the unemployed (willing and looking for a job) have a phone in 2021.
- **Rural Urban Divide:** The use of computer devices has decreased in rural areas.
- While 3% of the rural population used to own a computer before the pandemic, the number slipped to just 1% post-Covid.

Digital Divide in Essential services such as Education and Health:

- The use of digital technologies in delivering essential services such as education and health is also reflecting the country's digital divide and its consequences.
- During December 2020 lockdown, 82% of parents faced challenges in supporting their children's access digital education, with signal and internet speed becoming the biggest issues in private schools.
- In government schools, 80% of parents reported that education was not delivered during the lockdown.
- 84% of government school teachers also struggled with delivery through digital mediums due to a lack of devices and the internet.
- People without devices and the internet get further marginalised due to difficulties in accessing education, health, and public services.

Recommendations:

- Union and state governments have to ensure universal access to internet connectivity by investing in digital infrastructure.
- It will not only make the internet affordable but also push for greater accessibility to smart phones.

Digital Divide:

- The digital divide is a term that refers to the gap between demographics and regions that have access to modern information and communications technology (ICT), and those that don't or have restricted access.
- This technology can include the telephone, television, personal computers and internet connectivity.

ANCIENT, MODERN INDIA AND ART & CULTURE

7,200-YEARS-OLD FIBRES FROM INDUS VALLEY FOUND IN ISRAEL

In News: New archaeological finds from the Tel Tsaf site in Israel have shown the presence of cotton fibres originating in the Indus Valley and dating 5200 BCE, or 7,200 years ago.

More on the Topic:

- In the Indus Valley, the earliest cotton seeds have been dated to Mehrgarh in modern day Pakistan to 5000 BCE, or 7,000 years ago.
- Despite the presence of its seeds, cotton was believed to have been domesticated in the Indus Valley during the Harappan civilisation (2600-1900 BCE).
- The new findings predate any earliest known cotton cultivation in the Indus Valley region (ranging from northwestern modern day India, eastern Pakistan, southern Balochistan, the banks and basins of the now-dry Indus River and the Ghaggar Hakra river) by at least 2,000 years.
- The study also shows evidence of hemp and jute products in the region much earlier than previously believed.
- Additionally, all of the newly discovered fibres were also dyed in various colours, indicating a complex social life.

SAHITYA AKADEMI AWARDS

In News: Sahitya Akademi Awards 2022 has been announced.

More on the Topic:

- The award has been given by the central government for the best literature of every year.
- The awardee will be presented with a cash prize of one lakh rupees and a copper Shield.
- The award is given to the works belongs to 22 languages enumerated in Constitution, as well as English and Rajasthani.
- Sahitya Akademi functions as an autonomous organisation. It is registered as a society under Societies Registration Act, 1860.

BETTA-KURUBA COMMUNITY

In News: Lok Sabha has passed Bill to include Betta-Kuruba community in ST category.

More on the Topic:

- Once the Bill is approved by Parliament, the Betta-Kuruba community will be entitled to all benefits which are provided to the members of the Scheduled Tribes, especially reservation in educational institutions and government jobs.
- The Betta Kuruba tribe lives in the hilly regions of Karnataka and is one of the few indigenous communities of the Nilgiris.
- They are generally believed to be the descendants of the Pallavas.
- They belong to the Hindu caste native to the Indian states of Karnataka, Tamil Nadu, Andhra Pradesh and Telangana.
- Traditionally, the Kuruba people drew sustenance from hunting, gathering and collecting wild honey.
- They practised sheep/goat and cattle pastoralism, in that they either herded exclusively sheep, or a mixed herd of sheep and goats, or cattle.

JOYNAGAR MOA

In News: The Geographical Indication tag for Joynagar Moa gets a 10-year extension.

More on the Topic:

- A geographical indication (GI) is a sign used on products that have a specific geographical origin and possess qualities or a reputation that are due to that origin. In order to function as a GI, a sign must identify a product as originating in a given place.
- Joynagar Moa is a sweet delicacy belongs to the state of West Bengal.
- It is prepared from Kanakchur Khoi (fried aromatic paddy), nolen gur (molasses), ghee, khoya kheer, cardamom, raisins, and cashew nuts.

KUMBHALGARH FORT IN UDAIPUR

In News: The Sherpas of the G20 countries and invitees from countries and international organisations visited the famous Kumbhalgarh Fort in Udaipur.

More on the Topic:

- It is a UNESCO heritage site.
- The fort is situated amidst Aravali hills .The fort was built in the 15th century AD by Rana Kumbha.
- It is the **second-longest wall of the world after the Great Wall of China.**
- The fort contains seven fortified gateways and several Jain temples, as well as the Lakhola Tank, the most famous tank within the fort, which was built by Rana Lakha.
- It is the birthplace of Mewar's legendary king Maharana Pratap.

BANSILALPET STEP WELL

In News: The restored step well at Bansilalpet in Hyderabad won the prestigious Big 5 Construction Impact Award in Dubai.



More on the Topic:

- The seventeenth-century step well, which had turned into a dump yard over the last four decades, was unearthed after removing over 2,000 tonnes of debris and relocating families that lived on the site. Over the last year, it was restored to its original glory.
- The Big 5 construction impact awards by the UAE's ministry of energy and infrastructure recognise sustainable development and technological and digital achievements in the construction industry.

About Bansilalpet Step well:

- The 17th century well was **originally a part of the garden of tamarind and palmyra trees before.**
- A British Resident TH Keyes developed a well-planned model village around the step well in 1933.
- This was funded by Seth Bansilal, hence the village (Bansilalpet) was named after him.
- The boundary wall with arches was also built around the well's periphery.
- The step well can hold nearly 22 lakh litres of water.

JALLIKATTU

In News: SC is examining the case of Jallikattu.

More on the Topic:

- Jallikattu is a bull taming sport.
- Multiple human participants attempt to grab the large hump on the bull's back with both arms and hang on to it while the bull attempts to escape.
- It is typically practised in the state of Tamil Nadu as a part of Pongal celebrations in January.



- Supporters of the sport claim it to be part of cultural rights under Article 29(1) of the Constitution.
- Opposers of the game consider it as cruelty against animals.

KORKU TRIBE – JHAROKA

In News: Ministry of Culture in collaboration with Ministry of Textile organised Jharokha: A Compendium of Indian handicraft, handloom, art and culture.

More on the Topic:

- Jharoka is being organized at New Delhi (Dilli Haat- INA) in the form of an exhibition.
- The exhibition includes stalls from award winning artisans as part of DC Handicrafts Master Creation and artisanal clusters from different parts of the country.
- The Korku are a Munda ethnic group predominantly found in the Khandwa, Burhanpur, Betul and Chhindwara districts of Madhya Pradesh and adjoining areas near the Melghat Tiger Reserve of Maharashtra.
- They speak the Korku language, which is a member of the Munda languages and is written using Devanagari.

- The language is one among 196 endangered languages in India.

SANGEET NATAK AKADEMI

In News: Sangeet Natak Akademi has announced Sangeet Natak Akademi Awards (Akademi Puraskar) for the years 2019, 2020 & 2021.

More on the Topic:

- Sangeet Natak Akademi – India's national academy of music, dance and drama – is the first national academy of the arts set up by the Republic of India.
- The management of the Akademi vests in its **General Council**. The Chairman of the Akademi is appointed by the President of India for a term of five years.
- It was created by a resolution of the (then) **Ministry of Education, Government of India, dated 31 May 1952, which was notified in the Gazette of India of June 1952.**
- Sangeet Natak Akademi is now an **autonomous body of the Ministry of Culture, Government of India.**

Objectives:

- Since its inception, the Akademi has been functioning as the apex body in the field of **performing arts in the country**, preserving and promoting the vast intangible heritage of India's diverse culture expressed in forms of music, dance and drama.
- In furtherance of its objectives, the Akademi coordinates and collaborates with government and arts academies of different States and Union Territories of the Union of India, as also with major cultural institutions in the country.
- The Sangeet Natak Akademi confers classical status on nine Indian dance forms. They are,
- Bharatanatyam-Tamil Nadu; Kathak-Northern India; Kathakali-Kerala; Kuchipudi-Andhra Pradesh; Manipuri-Manipur; Mohiniaattam-Kerala; Odissi-Odisha; Sattriya-Assam.

UNESCO CONVENTION OF 1970

In News: Tamil Nadu has stopped auction of stolen Nataraja idol in France utilising UNESCO convention of 1970.



More on the Topic:

- The 1970 Convention on the Means of Prohibiting and Preventing the Illicit Import, Export and Transfer of Ownership of Cultural Property **urges States Parties to take measures to prohibit and prevent the illicit trafficking of cultural property.**
- Under the 1970 Convention, cultural property is under protection.
- Cultural property includes anything of scientific, historical, artistic, and or religious significance, as defined by Article I of the convention. However, every state can define its own cultural property, as long as it is an item of importance and within the categories defined in Article I.
- The Convention recommends the enforcement of the protection of cultural property in "three main pillars", each being preventive measures, restitution provisions, and international cooperation.

TEMPLES OF BILASPUR

In News: The reclamation and restoration of the submerged temples of Bilaspur will begin soon.

More on the Topic:

- The temples were built in Nagara style and dating back to the 8th and 19th centuries of Kahlur dynasty.
- In the first phase, three out of the five submerged temple - Rangnath, Khaneshwar and Nardehswar - will be lifted and placed in Dholara.



- The Sandu Maidan will be developed in the second phase, while in the third a barrage will be constructed to create an artificial lake around the temples.
- The temples had been submerged during the creation of the Gobind Sagar lake as a reservoir for the Bhakra Dam, which was lauded as the 'Modern Temple of Resurgent India' by the then PM Jawaharlal Nehru.

KANHERI CAVES

In News: Members of a G20 delegation visited the Kanheri Caves in Mumbai.



More on the Topic:

- The Kanheri Caves are a group of caves and rock-cut monuments cut into a massive basalt outcrop in the forests of the Sanjay Gandhi National Park, on the former island of Salsette in the western outskirts of Mumbai, India.
- They contain Buddhist sculptures and relief carvings, paintings and inscriptions, dating from the 1st century CE to the 10th century CE.
- Kanheri comes from the Sanskrit Krishnagiri, which means Black Mountain.

- Most of the caves were Buddhist viharas, meant for living, studying, and meditating. The larger caves, which functioned as chaityas, or halls for congregational worship, are lined with intricately carved Buddhist sculptures, reliefs, pillars and rock-cut stupas.
- Avalokiteshwara is the most distinctive figure. The large number of viharas demonstrates there was a well organized establishment of Buddhist monks.
- This establishment was also connected with many trade centers, such as the ports of Sopara, Kalyan, Nasik, Paithan and Ujjain.
- Kanheri was a University center by the time the area was under the rule of the Maurayan and Kushan empires.
- In the late 10th century, the Buddhist teacher Atisha (980–1054) came to the Krishnagiri Vihara to study Buddhist meditation under Rahulagupta.

LOSAR FESTIVAL

In News: Ladakh has celebrated Losar Festival on December 24, to mark the Ladakhi New Year.



More on the Topic:

- It marks the beginning of the Tibetan New Year in the traditional schedule of Tibetan Buddhism and is an important festival of Ladakh.
- It dates back to the pre-Buddhist era in Tibet when Tibetans used to follow the Bon religion.
- The Losar festivities continue for nine more days from the new year with the offering of prayers in the name of God and Goddess, dances and songs in honour of Ibex and the pilgrimage of Mount Kailash.

BURLANG YATRA FESTIVAL

In News: Odisha's Kutia Kondh tribe have exchanged millet seeds in a celebration during Burlang Yatra festival.

More on the Topic:

- Burlang Yatra is a traditional festival of Kutia Kondhs celebrated every year where the community especially women worship and exchange seeds through a celebratory mode of songs and dances at village level.
- "Millets are the identity of Kutia Kondhs". Millets have been the integral part of both their biodiverse farming and food practices. However there has been a significant decline in the millet diversity and also shift in their food practice in the community.
- Festivals like Burlang Yatra bring back the importance of millets and biodiversity to their lives.
- Seed sharing remains a highlight of the festival where women shared seeds with younger women thereby transferring their knowledge to next generation.

About Kutia Kondha Tribes:

- Kutia Kondha is one of the primitive sections of Kondha tribe.
- The Kondha's who live in hill top and valleys are known as Kutia Kondha.
- Whereas those who live in high land and near the streams are called Dongria Kondha and kondhas who are residing in plain area are known as Desia kondh.
- Kutia kondh are mostly dependent on shifting cultivation, cultivation of minor agriculture products and collection of Non-timber forest products (NTFPs).

Practice Questions



1) Which of the following statement/s is/are not correct?

1. Vibrant Villages Programme (VVP) has been announced in the Finance Minister's Budget Speech 2022.
 2. Through the scheme Infrastructure will be improved in all the states.
- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

2) Which of the following statement/s is/are correct?

1. A heat dome occurs when an area of high-pressure traps warm air over a region.
 2. The heat dome's formation is related to the behaviour of the jet stream.
- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2



3) Masilum is a small-sized but well-built and sturdy cattle. Which state does it belong to?

- (a) Meghalaya (b) Maharashtra
(c) Kerala (d) Odisha

4) Which of the following statement/s is/are true?

1. UAPA, passed in 1967, aims at effective prevention of unlawful activities of associations only, in India.
 2. Under UAPA only Indian nationals can be charged.
- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2



5) Which of the following statement/s is/are true?

1. The National Payments Corporation of India (NPCI) is an initiative taken by the Reserve Bank of India (RBI) and Indian Banks' Association (IBA).
 2. This organisation was founded in the year 2008 under the Payment and Settlement Systems Act, 2007.
- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

6) OneWeb has been seen in the news recently. What is it associated with?

- (a) Global network on Covid-19 resilience (b) Satellite internet services
(c) Cyber Security through Block chain (d) None of the above





7) Which of the following statement/s is/are true?

1. Mantle plumes are large blobs of molten rock that rise towards the surface from the interiors of a planet.
 2. This geological phenomenon can be witnessed on Earth only.
- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

8) REWARD Project is associated with?

- (a) Watershed Management (b) Organic Farming
(c) AYUSH Development (d) Environment Preservation



9) The term photocatalysis is associated with?

- (a) Creation of replica of Sun (b) Artificial photosynthesis
(c) Blue Hydrogen production (d) Catalytic reaction used by honey bees

10) Which of the following statement/s is/are true?

1. The Samudrayaan project is a part of the deep-sea ocean mission.
 2. Samudrayaan Mission is aimed to develop a self-propelled manned submersible to carry 3 human beings to a water depth of 6000 meters in the ocean.
- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2



Mains Questions

1. To realise the dream of India @2047, systemic reforms are needed in the working of bureaucracy. Comment.
2. In India, adolescent girls and women are more vulnerable to cancer. In this context discuss the significance of including Human Papillomavirus in India's Universal Immunisation Programme.

1. b 2. c 3. a 4. d 5. c
6. b 7. a 8. a 9. b 10. c



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