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1. SCIENCE AND TECHNOLOGY

▶ **1.1 WORLD FOOD SAFETY DAY AND STATE FOOD SAFETY INDEX**

Why in news?
1. Food Safety and Standards Authority of India (FSSAI)'s 4th **State Food Safety Index (SFSI)** was released on the occasion of **World Food Safety Day.**
2. Every Year, 7th June is observed as **World Food Safety Day.**

✎ About World Food Safety Day:
1. The World Health Organization (WHO) and the Food and Agriculture Organization of the United Nations (FAO) jointly facilitate the observance of World Food Safety Day, in collaboration with Member States and other relevant organizations.
2. It was **first celebrated in 2019** to strengthen the commitment to scale up food safety made by the **Addis Ababa Conference** and the **Geneva action in 2019** under the umbrella of **"The Future of Food Safety".**
3. 2022 theme: "Safer Food, Better Health".
Motive:
   1. To **draw attention and inspire action to help prevent, detect and manage foodborne risks,** contributing to **food security**, human health, economic prosperity, agriculture, market access, **tourism** and **sustainable development**.
Need:
   1. With an **estimated 600 million cases** of foodborne illnesses annually, contaminated food (referring to the presence of harmful chemicals and microorganisms in food) is a threat to human health and economies, disproportionally affecting vulnerable and marginalised people (particularly women and children).
   2. An **estimated 4,20,000 people around the world die every year** after eating contaminated food, and children under 5 years of age carry 40% of the **foodborne disease burden**, with 125 000 deaths every year.

✎ What is the State Food Safety Index (SFSI)?
1. The index was developed by **FSSAI** in 2018-19 to measure the performance of states on 5 significant parameters of Food Safety.
2. **The parameters include**
   a) Human Resources and Institutional Data.
   b) Compliance.
   c) Food Testing – Infrastructure and Surveillance.
   d) Training & Capacity Building.
   e) Consumer Empowerment.

Safety check | Tamil Nadu topped 20 large States in terms of food safety, according to the 4th State Food Safety Index. A look at the top 10 States

RANK	STATE	SCORE
1	TAMIL NADU	82
2	GUJARAT	77.5
3	MAHARASHTRA	70
4	HIMACHAL	65.5
5	WEST BENGAL*	58.5
5	MADHYA PRADESH*	58.5
6	KERALA	57
7	UTTARAKHAND	55
8	ODISHA*	54.5
8	UTTAR PRADESH*	54.5
9	KARNATAKA	52.5
10	RAJASTHAN	50.5

Ranks 5 and 8 were shared by two States each

3. The index will help in providing **safe and nutritious food to our citizens.**

✑ **Performance of various states:**

1. **Tamil Nadu**	1. Jammu & Kashmir	4. Goa
2. **Gujarat**	2. Delhi	5. Manipur
3. **Maharashtra**	3. Chandigarh	6. Sikkim

✑ **Concerns related with food safety**

1. **Inefficient food testing labs:**
    Currently, India has handful accredited labs about 28 in north, 25 in west, 24 in south and five in the eastern region, which are very less compared to food products and its demand. Also, these labs are lacking in required infrastructure and trained human resources.
2.   **Environmental and climate change:**
     Increased climate variability, increased frequency and intensity of extreme events, use of excessive fertilisers causing environmental pollution and climate change, which deteriorating the food quality and resulting to food safety issues.
3. **New and emerging variants and antibiotic resistance:**
     Due to multiple mutations there is emergence of new variants of plant disease causing germs. Also, developed antibiotic resistance are causing threat to food safety and security.
4. **Changes in consumer preferences and habits**:
    Lack of awareness regarding handling and storage of foods in the domestic environment and preference for processed food with additives and ready to eat food causing major issues of food safety.
5. **Burden of population and food security:**
     Population growth is an important driver of increased food demand and security, but such increased demand directly and indirectly affecting the food safety.

✑ **Various initiatives in regard to food safety**

1. **Eat Right India**:
    It is movement to ensure safe, healthy and sustainable food for all Indians with tagline 'Sahi Bhojan Behtar Jeevan' and following initiatives;
    a) Eat Right Research Awards and Grants
    b) Eat Right Creativity Challenge
    c) Eat Right Campus
2. **Blissful Hygienic Offering to God (BHOG):**
    Encourage places of worship to adopt and maintain food safety and hygiene in preparation, serving and sale of prasad.
3. **Hygiene Rating of Restaurants:**
    It is a universal system recognized all over India and provides a single benchmark to rate all fresh food businesses.

✑ **Levels of Food safety standards:**

1. **Company Standard**
    These are prepared by a Company for its own use. Normally, they are copies of National Standards.
2. **National Level**
    These are issued by the national standards body like Food Safety and Standards Authority of India (FSSAI)

3. **Regional Standards**
    Regional groups with similar geographical, climate etc. have legislation standardisation bodies for food safety.
4. **International Standards**
    The International Organisation for Standardisation (ISO), World Trade Organisation (WTO) and Codex Alimentarius Commission (CAC) publish international standards.

✎ **Ways to maintain food safety**

1. **Good Manufacturing Practices (GMP):**
    a) GMP is a good business tool that helps to refine compliance and performance by the manufacturers/producers.
    b) It is necessary to ensure that manufacturers/processors take proactive steps to ensure that their products are safe by eliminating contamination and false labelling, thereby protecting the consumer.
2. **Sanitation Standard Operating Procedure (SSOP):**
    a) SSOP are written procedures developed and implemented in a facility to prevent direct contamination or adulteration of the products.
    b) The facility is required to maintain these written procedures on file, and these must be available to regulating or government bodies upon request.
3. **Good Hygiene Practices (GHP):**
    a) GHP are generally called the prerequisite measures and include an exhaustive list of measures for staff personal hygiene and training.
    b) This ensures that safety practices are used and maintained in food preparation environment.
4. **Good Handling Practices:**
    It indicate a comprehensive approach from the farm to the store or consumer, in order to identify potential sources of risk and indicates what steps and procedures are taken to minimise the risk of contamination.
5. **Food irradiation:**
    It is the application of ionizing radiation to food that improves the safety and extends the shelf life of foods by reducing or eliminating microorganisms and insects.
6. **Hazard Analysis Critical Control Point (HACCP):**
    HACCP is a means of providing assurance about safety of food. In this each individual step in a specific process of food chain like raw material procurement, manufacturing, distribution, usage of food products are considered in detail and evaluated for its potential to contribute to the development of pathogenic microorganisms or other food hazards.

▶ **1.2 PRIVATE SECTOR IN SPACE PROGRAMME OF INDIA**

Why in news?
1. Prime Minister visited the inauguration event of the headquarters of **Indian National Space Promotion and Authorisation Centre (IN-SPACe)** in Ahmedabad.
2. He called for a greater cooperation of the private sector in the space programme of India.
    More about the topic:
1. With the launching of **IN-SPACE**, the space sector now welcomes the private sector and has received around 40 proposals from the private sector and academia.
2. The proposals include from manufacturing of launch vehicles and satellites to earth observation applications.
3. Five private satellites have been tested at ISRO facilities, and four student satellites were launched on the PSLV C-51.

a) **Hyderabad's Dhruva Space Pvt Ltd**.
b) **Bengaluru's Digantara** research & technologies Pvt Ltd.
   Both were authorised by IN-SPACe for launch of payloads onboard PSLV Orbital Experimental Module (POEM) of PSLV-C53.
c) **Tata Play** signed a MoU with NSIL for utilizing the capacity on board the communication satellite GSAT-24, built by ISRO and launched by Arianespace.

3. This helps in enhancing the capacity of India's space programme that will help India to march forwards in field of space and to become a crucial contributor to our economy.

4. Currently, India accounts for only about **two per cent** of the global space economy, which is about USD 447 billion and expected to touch $1 trillion by 2040.

5. As per **SpaceTech Analytics,** India is the **sixth-largest player** in the industry internationally having 3.6% of the world's space-tech companies (as of 2021).

✎ **What are the advantages of private sector in space?**

1. **Research and Development Activities:**
   It will allow ISRO to focus more on new technologies, exploration missions and human spaceflight programme.

2. **Level Playing Field for Private Companies:**
   IN-SPACe will provide a level playing field for private companies to use Indian space infrastructure.

3. **Economically viable:**
   Participation of private sector and start-ups in space sector will reduce the cost of operations. For eg. Agnikul and Skyroot from Chennai and Hyderabad are developing launch vehicles and it is believed that through this, the cost of space launching will come down significantly.

4. **Technology and innovation:**
   Participation of private sector will give rise to new innovations and technology. Eg. Hyderabad-based startup Dhruva Space is working on high-technology solar panels for satellites and Digantara, another space startup that is trying to map waste in space.

5. **Investment and capacity building:**
   Private sector facilitates investments in technology development and acquisition, capacity-development and space exploration, including planetary exploration.

6. **Transparency and accountability:**
   Expanding the number of stakeholders with participation of private entities will ensure more transparency and better accountability and regulatory practices.

7. **Competitiveness:**
   With low cost, innovation and better talent pool in India's space will make more competitive with respect to globally reputed, private space industry.

8. **Strengthen communication infrastructure:**
   The vast amount of potential and resources available with the private sector will help the space industry to grow and fill in the communication infrastructure deficit by looking beyond the traditional modes of internet delivery and look for space-based solutions.

9. **Global Technology Powerhouse:**
   It will enable Indian Industry to be an important player in the global space economy. With this, there is an opportunity for large-scale employment in the technology sector and India becoming a Global technology powerhouse.

✎ **Indian National Space Promotion and Authorisation**
Centre (IN-SPACe)

1. IN-SPACe is an autonomous nodal agency, approved by the Union Government and will be governed by the Department of Space. This organisation shall act as a medium between ISRO and the private space sector in India.
2. Under the IN-SPACe, the private parties will be allowed to perform space activities and use the equipment and facilities of the Department of Space (DoS) for launch purpose.
3. This will be the first time that the infrastructure and property under the control of the Indian Space Research Organisation (ISRO) will be used by the private sector.
4. The main roles and responsibilities which shall be handled by the IN-SPACe are as follows:
    a) It is established as a single-window nodal agency, which will have a cadre of its own.
    b) Private space agencies and parties will be allowed to use ISRO governed and managed equipment and use the space which is controlled by the Indian Space Organisation
    c) Establishment of temporary and permanent facilities, including infrastructure and safety measures will be taken up.
    d) Building, operation, and control of spacecraft for registration as an Indian Satellite will also be managed by this Organisation.
    e) Rolling out of space-based activities and usage of spacecraft data will be governed by this agency.
    f) Making sure that any space mission which is being performed as a combined effort by ISRO and any private space company, the launch initiation will also be performed as a single combined unit only.

✎ Other reforms to promote private players in space sector:

1. **New Space India Limited (NSIL)**:
    a) NSIL is a Central Public Sector Enterprise of the Government of India.It was established in 2019 under the administrative control of the Department of Space.
    b) It is the **commercial arm** of Indian Space Research Organisation (ISRO) with the primary responsibility of enabling Indian industries to take up high technology space related activities and is also responsible for promotion and commercial exploitation of the products and services emanating from the space industry.
    c) NSIL is incorporated to carry forward the industry production of space systems and the ISRO's efforts in realising Polar Satellite Launch Vehicles (PSLV) from industry.
    d) NSIL differs from ISRO's existing commercial arm **Antrix Corporation**:
        I.   Antrix will handle ISRO's commercial deals for satellites and launch vehicles with foreign customers.
        II. NSIL will deal with capacity building of local industry for space manufacturing.
2. **Draft Spacecom Policy 2020:**
    a) It aims at meeting the growing demands of spacebased communication requirements of the nation and advancements in the relevant technologies for self-sustenance in areas of commercial, secured and societal communications

✎ Concerns over participation of private entities in space sector:

1. **Chances of Monopolization:**
    Space technology is expensive and needs heavy investment and only few rich corporates are there to invest in such endeavor. Thus, it may lead to monopolization of the space sector by few rich corporates.
2. **Profit seeking:**
    Private companies will be more profit oriented than developing solutions that are necessary to the socio-economic progress of the country.
3. **Lack of robust Dispute Settlement Mechanism:**

This discourages private investment in the space sector. The void was seen in Antrix – Devas cancelled satellite deal. The Government of India owes nearly $1.2 billion to Devas Multimedia as per an order of a tribunal of the International Chamber of Commerce.

4. **Intellectual property matters**:

   The private sector is particularly concerned about issues such as sharing intellectual property for products developed by them. But currently such intellectual property centric policy in space sector is not in place.

5. **National security:**

   There are concerns that private players may leak critical national security information that could lead to disastrous consequences.

6. **Policy issues:**

   India lacks the policy and space law for private sector that can give openness and clarity about working framework.

Suggestions

1. The plan to set up an independent tribunal to adjudicate disputes among private space entities should be implemented promptly.
2. The passage of **the Space Activities Bill** should also be done in order to give private players greater clarity and protection. This should involve proper consultation and discussions with the concerned stakeholders.
3. Research and development of space technology is a long and costly process. Hence, setting up **incubators and grant programs** that support the sector during this initial R&D phase will greatly improve entrepreneurship and investor participation, as well as increase the success rate of these start-ups.
4. The focus should be on aiding space start-ups to penetrate rural India and encourage youth to build careers in space applications and sciences.
5. Space qualification refers to the testing and proof of concept demonstration of technologies while in space. But due to higher costs most start-ups cannot afford. So, with ISRO's help in launching payload, more start-ups may be able to afford space qualification tests multiple times.
6. There is need to create reforms where local industry can invest in building their own **Intellectual property** and/or products that can match global standards.
7. NSIL should function more than a marketer of ISRO's technologies. It should find newer business opportunities and expand the sector itself.
8. The country should also enhance spending towards the sector considering the huge future potential and robust returns on investment.

Way forward

1. Space sector can play a major catalytic role in the technological advancement and expansion of our Industrial base.
2. Therefore, the creation of IN-SPACe will work towards a greater involvement of private industry, academic institutions and research organisations in India's space sector.
3. India is among a handful of countries with advanced capabilities in the space sector. With these reforms, the sector will receive new energy and dynamism, to help the country leapfrog to the next stages of space activities.
4. There are areas of space utilization that will be best fulfilled by the private sector and there are areas that are and will continue to be best fulfilled by the public sector. Thus, the relationship between the two is of mutual co-ordination and not of mutual antagonism.

▶ **1.3 GREEN HYDROGEN**

Why in news?
1. NITI Aayog has released a report named '**Green Hydrogen: Opportunities for Deep Decarbonization in India**'.
2. It highlights that green hydrogen is critical to India's **net-zero ambitions by 2070.**

What is Green Hydrogen?
1. Green hydrogen is produced by renewable energy through electrolysis of water. **Electrolyser technology** is central to the green hydrogen production process. The production of green hydrogen involves electrolysis.
2. Electrolysis is the process of using electricity to split water into **hydrogen and oxygen.**
3. When this electricity used to split water into hydrogen and carbon atoms is generated by using renewable sources of energy such as solar or wind energy causing no greenhouse gas emissions, then green hydrogen is said to be produced.
4. Alkaline, polymer electrolyte membrane (PEM) and Solid Oxide Electrolysers are commercially available technologies for green hydrogen production.
   a) **Alkaline Electrolyzers:**
      Alkaline electrolyzers operate via transport of hydroxide ions (OH-) through the electrolyte from the cathode to the anode with hydrogen being generated on the cathode side.
   b) **Polymer Electrolyte Membrane Electrolysers**:
      In a polymer electrolyte membrane (PEM) electrolyser, the electrolyte is a solid specialty plastic material.
   c) **Solid Oxide Electrolyzers**:
      It uses a solid ceramic material as the electrolyte that selectively conducts negatively charged oxygen ions (O2-) at elevated temperatures (700°–800°C) to generate hydrogen.
5. **Applications**:
   1. **Industrial:**
      a) Hydrogen is used mainly in the chemical and petrochemical industry. In the last few years, it is also being used in the steel industry.
      b) Green hydrogen can prove to be a better alternative in these industrial sectors.
   2. **Domestic:**
      a) For domestic usage regarding heating and electricity, green hydrogen can replace natural gas and help in reducing greenhouse gas emissions.
      b) It can be also stored in existing pipelines to power various domestic appliances.
   3. **Fuel cells:**
      a) One of the most discussed areas for the usage of green hydrogen is its use in fuel cells. These fuel cells are well-known for their energy efficiency.
      b) Fuel cells can be used as an alternative fuel in electronic vehicles.
      c) Fuel cells may also help run electronic devices.

✎ **Advantages of green hydrogen energy:**
   1. **Sustainability:**
      Green hydrogen does not produce greenhouse gases during production and combustion and thus it is completely environment-friendly.
   2. **Versatility:**
      Green hydrogen can be transformed into electricity or synthetic gas and thus can be used for domestic, commercial, industrial or mobility purposes.

3. **Transportation:**
   It is easy to transport if blended with natural gas. It can be transported through existing gas pipelines and infrastructure.
4. **Storage:**
   It can be stored in large amounts for a long time. This can be beneficial in long run as energy produced by hydrogen has a high energy content per unit of weight.
5. Lastly, it is easy to produce green hydrogen since it just requires water and electricity to produce it.

✑ **Potential for India:**

1. **Reduce carbon footprint**:
   It can help abate 3.6 gigatons of cumulative CO_2 emissions by 2050.

2. **Enabler of energy security and reducing energy import:**
   Because green hydrogen can potentially provide a replacement of fossil fuels in industrial processes.

3. **Cost effective**:
   While hydrogen can be produced from multiple sources, India's special advantage in low-cost renewable electricity means that green hydrogen will emerge as the most cost-effective form.

4. **Growth in Demand:**
   It is expected that Hydrogen demand in India could grow more than **fourfold by 2050**, representing almost 10% of global demand of which majority of this demand could be met with green hydrogen.

5. **Global manufacturing hub**:
   The **Quadrilateral Security Dialogue (Quad)** group eyes India as a global manufacturing hub for green hydrogen outside the influence of China.
   a) A global green hydrogen market in India will be an apt alternative to maintain balance in the Indo-Pacific region.
   b) It is possible because of India's economical labour force and land for manufacturing, is an ideal location.

6. **Joint interests:**
   Countries such as the US and Japan ready to invest in India and countries including Germany and Japan, have evinced interest in importing green hydrogen from India.

✑ **What are other types of hydrogen?**

Hydrogen is a colourless gas. Its nomenclature based on various colors is fundamentally related to its process of production and the raw materials used in this production process. Based on this, hydrogen is classified into the following categories:

1. **Grey hydrogen**
   a) When hydrogen is produced using natural gas, or methane, through steam methane reformation technique but without capturing the greenhouse gases emitted in the process is called grey hydrogen.
   b) It is the most commonly used method of hydrogen production.

2. **Black and brown hydrogen**
   a) When hydrogen is produced using black coal or lignite (brown coal), it is known as black and brown hydrogen.
   b) Hydrogen produced by using fossil fuels through the process of 'gasification' is also sometimes known by the same name interchangeably.
   c) This hydrogen causes the highest damage to the environment.

3. **Blue hydrogen**
    a) When hydrogen is produced using natural gas through the process of steam reforming bringing together natural gas and heated water in the form of steam leaving carbon dioxide as its by-product and involves carbon capture and storage (CCS), it is known as blue hydrogen.
    b) As this process involves carbon capture and storage, it is often described as 'low-carbon hydrogen'.
    c) Although it halves the amount of emissions but is not completely emissions-free.

4. **Pink hydrogen**
    a) When hydrogen is produced using nuclear energy through the process of electrolysis it is known as pink hydrogen.
    b) It can also be referred to as purple or red hydrogen.

5. **Turquoise hydrogen**
    a) When hydrogen is produced using the process of methane pyrolysis, it is known as turquoise hydrogen.
    b) The process of methane pyrolysis breaks down methane into hydrogen and solid carbon.
    c) This carbon can either be buried or used for other purposes restricting it from escaping into the atmosphere. Thus, this process can have low carbon emissions.

6. **Yellow hydrogen**
    When hydrogen is produced using solar power through the process of electrolysis it is known as yellow hydrogen.

7. **White hydrogen**
    Naturally occurring geological hydrogen found in underground deposits and created through fracking is known as white hydrogen.

✎ **Various initiatives by India in green hydrogen:**

1. **National Hydrogen Mission**:
    National Hydrogen Mission launched on India's 75th Independence Day. The Mission aims to aid the government in meeting its climate targets and making India a green hydrogen hub to meet the target of production of 5 million tonnes of green hydrogen by 2030.

2. **India's Green Hydrogen Policy**:
    Government of India have framed the policy on Green Hydrogen which provides the following:
    a) Green Hydrogen shall be defined as Hydrogen produced by way of electrolysis of water using Renewable Energy.
    b) The waiver of inter-state transmission charges shall be granted for a period of 25 years to the producer of Green Hydrogen.
    c) Green Hydrogen can be manufactured by a developer by using Renewable Energy from a co-located Renewable Energy plant, or sourced from a remotely located Renewable Energy plants.
    d) Land in Renewable Energy Parks can be allotted for the manufacture of Green Hydrogen.
    e) The Government of India proposes to set up Manufacturing Zones and Green Hydrogen production plant can be set up in any of the Manufacturing Zones.
    f) Renewable Energy consumed for the production of Green Hydrogen shall count towards Renewable Purchase Obligation (RPO) compliance of the consuming entity.

✎ **Concerns of green hydrogen:**

1. **Production cost:**
   The production of green hydrogen requires renewable energy generated electricity. This adds to the cost of production making green hydrogen expensive.
2. **Safety:**
   Hydrogen is a highly volatile and inflammable gas. Thus, its storage requires high safety for preventing leakages or explosions.
3. **Transportation:**
   The transportation of green hydrogen is a challenge. As it is less dense than gasoline, it cannot be transported without blending it with some other liquids or gases.
   Transporting hydrogen through natural gas pipelines is also not plausible since it can make steel pipes and welds brittle, causing cracks.
4. **Fuel cell usage:**
   Where the usage of green hydrogen is so highly talked about, that is, in fuel cells, the technology required is costlier. Fuel cell technology requires platinum where it is used at the anode and cathode as a catalyst to split hydrogen. Thus, platinum being an expensive material adds to the cost of fuel cells.

✎ **Suggestions:**

1. **Capacity building and skill development:** Encourage capacity building and skill development across the ecosystem including government, industry, and academia addressing technologies.
2. **State level actions:** Encourage state-level action and policy making related to Green Hydrogen to complement efforts at the national-level.
3. **Financial pathways**: Adequate financial mechanisms such viability gap funding, production-linked incentive (PLI) schemes, reduction or exemption of tax and duties like the GST and custom duties to be encouraged to promote production of green hydrogen energy.
4. **Electrolyser Manufacturing:** Identify and invest in research, development, and commercialisation of low-cost electrolyser technologies that require minimum rare earth metals.
5. **Research and Development:** Early-stage R&D to enable technologies that reduces the cost of costs of manufacturing electrolyser components, using advanced techniques such as additive manufacturing.
6. **Near-term and medium-term targets:** This helps to bring down the current costs of green hydrogen to make it competitive with the existing form of hydrogen.

▶ **1.4 FIRST LIQUID MIRROR TELESCOPE OF INDIA**

Why in News?
The **Aryabhatta Research Institute of Observational Sciences (ARIES)** owned Devesthal observatory campus in Nainital, Uttarakhand has built the **International Liquid-Mirror Telescope (ILMT).**

What are liquid mirror telescopes?
Liquid-mirror telescopes are telescopes with mirrors made with a reflective liquid. The most common liquid used **is mercury**, but other liquids will work as well (for example, low-melting alloys of gallium).

✑ **Important highlights about ILMT:**

1. It became the world's first Liquid-Mirror Telescope (LMT) to be commissioned **for astronomy** and also one of its kind to be operational anywhere in the world.
2. Previously built telescopes either tracked satellites or were deployed for military purposes. ILMT on the other hand will observe **asteroids, supernovae, space debris** and all other celestial objects from an altitude of **2,450 meters** in the Himalayas.
3. It will be the 3rd telescope facility to come up at Devasthal. Devasthal is one of the world's original sites for obtaining astronomical observations.
4. Devasthal Optical Telescope (DOT) and Devasthal Fast Optical Telescope (DFOT) are the other two telescope facilities at Devasthal.
5. Full-scale scientific operations of ILMT will begin by October 2022.
6. It will be working along with India's largest operating **Devasthal Optical Telescope (DOT).**The countries involved in ILMT's development are **India, Belgium, Canada, Poland and Uzbekistan.**

✑ **Conventional telescope vs liquid mirror telescope:**

	CONVENTIONAL TELESCOPE	**LIQUID MIRROR TELESCOPE**
1.	Moves along the direction of object of interest in the sky	It is stationary.
2.	Uses highly polished glass mirrors.	Uses mercury as reflective liquid.
3.	Captures just a piece of sky at given point in time.	Stars, galaxies, supernovae, asteroids, space debris will be observed.
4.	Observe specific objects in sky for fixed hours.	Captures images of the sky on all nights.

✑ **Why LMT is important?**
1. Enormous amount of **data (10-15 GB/night)** will be generated. This will be significant for the global scientific communities.
2. Latest computational tools, like **Artificial Intelligence, Machine Learning and big data** analytics will be deployed for screening, procesing and analyzing the data.
3. Selected data can be used as a base data for carrying out further focused research using spectrographs, near-Infrared spectrograph mounted on the in-house DOT.

▶ **1.5 LANGUAGE MODEL FOR DAILOGUE APPLICATION (SOURCE- INDIAN EXPRESS)**
Why in news?
A senior engineer at Google claimed that the company's artificial intelligence-based Chatbot **Language Model for Dialogue Applications (LaMDA)** had become "sentient" (Able to perceive or feel)
What is LaMDA?
1. Google had first announced LaMDA at its flagship developer conference I/O (Input/Output) in 2021 as its **generative language model** for the dialogue applications which can assure that the application will be able to converse on any topic.
2. It can engage in a **free-flowing way** about a seemingly endless number of topics, an ability that the company thinks can unlock more natural ways of interacting with technology and the entirely new categories of helpful applications.

3. It can have a discussion on the basis of the user's inputs thanks completely to its language processing model which has been trained on large amounts of dialogue.

LaMDA 2.O:

1. Google at I/O 2022 announced **LaMDA 2.0** which will further build on these capabilities.
2. The new model will possibly take an idea and generate imaginative and relevant descriptions, can stay on a particular topic even if a user strays off-topic, and can also suggest a list of things that are needed for a specified activity.

✎ **What is the other language-based AI tool capable of?**

Generative Pre-trained Transformer 3:

   a) An autoregressive language model that uses **deep learning** to produce human-like text.
   b) In 2020, an article was published, claiming that it was written entirely by an AI text generator known as **Generative Pre-Trained Transformer 3 (GPT-3).**

✎ **Chatbox-Key Points:**

1.	What is it?	a) **It is a form of** Artificial Intelligence (AI) **used in messaging apps.**
		b) **This tool helps add convenience for customers—they are automated programs that interact with customers like a human would and cost little to nothing to engage with. Key examples are chatbots used by businesses in Facebook Messenger, or as virtual assistants, such as** Amazon's Alexa.
		c) **Chatbots tend to operate in one of two ways—either via machine learning or with set guidelines. However, due to advancements in AI technology, chatbots using set guidelines are less preferred.**
2.	Types	a) **Chatbot with Set Guidelines**:
		i. It can only respond to a set number of requests and vocabulary and is only as intelligent as its programming code.
		ii. An example of a limited bot is an automated banking bot that asks the caller some questions to understand what the caller wants to do.
		b) **Machine Learning Chatbot:**
		i. A chatbot that functions through machine learning has an **artificial neural network** inspired by the neural nodes of the human brain.
		ii. The bot is programmed to self-learn as it is introduced to new dialogues and words.
		iii. In effect, as a chatbot receives new voice or textual dialogues, the number of inquiries that it can reply to and the accuracy of each response it gives increases.
		iv. **Meta** (as Facebook's parent company is now known) has a machine learning chatbot that creates a platform for companies to interact with their consumers through the Messenger application.
3.	Advantages	a) Chatbots are convenient for providing customer service and support 24 hours a day, 7 days a week.
		b) They also free up phone lines and are far **less expensive** over the long run than hiring people to perform support.
		c) Using AI and natural language processing, chatbots are becoming better at understanding what customers want and providing the help they need.
		d) Companies also like chatbots because they can collect data about customer queries, response times, satisfaction, and so on.
4.	Disadvantages	a) Even with natural language processing, they may not fully comprehend a customer's input and **may provide incoherent (less continuous) answers.**

		b)	Many chatbots are also limited in the scope of queries that they are able to respond to.
		c)	**Chatbots can be expensive** to implement and maintain, especially if they must be customized and updated often.
		d)	The challenges of AI transforming into sentient are far in the future; however, unethical AI perpetuating historical bias and echoing hate speech are the real dangers to watch for.

✎ Important definitions to know:

1. **Artificial Intelligence:**
   Refers to systems or machines that mimic human intelligence to perform tasks and can constantly improve themselves based on the information they collect.

2. **Machine learning**:
   Machine learning is a branch of artificial intelligence (AI) and computer science which focuses on the use of data and algorithms to imitate the way that humans learn, gradually improving its accuracy.

3. **Deep learning:**
   a type of machine learning based on artificial neural networks in which multiple layers of processing are used to extract progressively higher level features from data**.**

4. **Artificial Neural Networks:**
   An Artificial neural network is usually a computational network based on biological neural networks that construct the structure of the human brain.

▶ 1.6 ULTRATHIN HETEROPROTEIN FILM:

Why in news?

1. Scientists have developed **Ultra-Thin Hetero Protein films** with excellent thermal, mechanical and pH stability.

2. It can open the chance for extending applications of thin films in **biomedical and food packaging industries.**

What is it composed of?

1. It consists of two globular proteins: **Bovine Serum Albumin (BSA**) and **Lysozyme (Lys).**

2. They used the technique called **using Langmuir-Blodgett (LB) technique** (It is a way of making **ultrathin nanostructured films** with a controlled layer structure and crystal parameter, which have many applications in technology for optical and molecular electronic devices as well as in signal processing and transformation.

3. Globular proteins or **Spheroproteins** are spherical proteins and are one of the common protein types. Globular proteins are somewhat water-soluble, unlike the fibrous or membrane proteins**.**

What would be it benefits?

1. Thinner as compared to the other protein or plastic films.

2. They are soft and thin and have the advantage of being more flexible than the other films.

3. In the past, numerous modifications of these protein films with the help of suitable **heteroprotein complexes** were reported by different research groups. These complexes were usually developed from **bulk solutions.**

4. Films of **BSA and Lys** can be useful for fabricating highly stable biodegradable thin films of different protein complexes for expanding its applications in the area of **thin-film technology.**

5. Diverse physicochemical methods such as **parameter alteration** or incorporation of different fatty acids or polyol moieties (glycerol, starch, gelatin, etc.) into this protein complex can make the film free standing for diverse applications.

✎ **Proteins-Key points:**

1. Proteins are composed of **amino acids**, arranged into different groups. These fundamental amino acid sequences are specific and its arrangements are controlled by **the DNA** (Deoxyribonucleic acid).
2. There are two types of protein molecules, fibrous proteins and globular proteins.
3. Fibrous proteins are insoluble and elongated. Globular proteins are soluble and compact.
4. Functions:
   a) **Enzymes:** Enzymes mostly carry out all numerous chemical reactions which take place within a cell. They also help in regenerating and creating DNA molecules and carry out complex processes.
   b) **Hormones:** Proteins are involved in the creation of various types of hormones which help in balancing the components of the body. For example hormones like insulin, which helps in regulating blood sugar and secretin. It is also involved in the digestion process and formation of digestive juices.
   c) **Antibody:** Antibody also known as an **immunoglobulin**. It is a type of protein which is majorly used by the immune system to repair and heal the body from foreign bacteria. They often work together with other immune cells to identify and separate the antigens from increasing until the white blood cells destroy them completely.

▶ **1.4 POLIO**

Why in news?

1. **Vaccine-Derived Poliovirus (VDPV)** was detected in the environmental surveillance of sewage samples from Kolkata, Bengal.
2. Most likely it has come from someone's gut who is immune deficient and has since multiplied. It is not a case of human-to-human polio transfer.
3. A VDPV is a strain of the weakened poliovirus that was initially included in **OPV (Oral poliovirus vaccines)** and that has changed over time and behaves more like the wild or naturally occurring virus.

Polio- Key Points

1.	**What is it?**	1.	**Polio is a crippling and potentially deadly** viral infectious disease **that affects the nervous system.**
		2.	**There are three individual and immunologically distinct wild poliovirus strains:** a) **Wild Poliovirus type 1 (WPV1)** b) **Wild Poliovirus type 2 (WPV2)** c) **Wild Poliovirus type 3 (WPV3)**
		3.	**Symptomatically, all three strains are identical, in that they cause irreversible paralysis or even death. However, there are genetic and virological differences, which make these three strains separate viruses which must each be eradicated individually.**
2.	What are the symptoms?	1.	Most people with polio do not feel sick. Some people have only minor symptoms, such as fever, tiredness, nausea, headache, pain in the arms and legs, etc.

		2.	In rare cases, polio infection causes permanent loss of muscle function (paralysis).
		3.	Polio can be fatal if the muscles used for breathing are paralysed or if there is an infection of the brain.
3.	Spread	1.	The virus is transmitted by person-to-person mainly through the **faecal-oral route** or, less frequently, by a common vehicle like contaminated food or water.
		2.	It largely affects children **under 5 years of age**. The virus multiplies in **the intestine**, from where it can invade the nervous system and can cause paralysis.
4.	Vaccination	1.	**Oral Polio Vaccine (OPV):** It is given orally as a birth dose for institutional deliveries, then primary three doses at 6, 10 and 14 weeks and one booster dose at 16-24 months of age.
		2.	**Injectable Polio Vaccine (IPV):** It is introduced as an additional dose along with the **3rd dose of DPT (Diphtheria, Pertussis and Tetanus)** under the Universal Immunisation Programme (UIP).
5.	Recent outbreaks	1.	In 2019, polio outbreaks were recorded in the **Philippines, Malaysia, Ghana, Myanmar, China, Cameroon, Indonesia and Iran,** which were mostly vaccine-derived in which a rare strain of the virus genetically mutated from the strain in the vaccine.
		2.	According to the WHO (World Health Organisation), if the oral vaccine-virus is excreted and allowed to circulate in an unimmunised or under-immunised population for **at least 12 months,** it can mutate to cause infections.
6.	India and Polio	1.	India received polio-free certification by the WHO in 2014, after three years of zero cases.
		2.	This achievement has been spurred by the successful Pulse Polio Campaign in which all children were administered polio drops.
		3.	The last case due to wild poliovirus in the country was detected on 13th January 2011.

Polio Eradication Programmes:

At word level:

1. **Global Polio Eradication Initiative**:
   It was launched in 1988 by the Global Polio Eradication Initiative (GPEI), by national governments and WHO. Presently, 80% of the world's population is now living in certified polio-free regions.
2. An estimated 1.5 million childhood deaths have been prevented, through the systemic administration of vitamin A during polio immunization activities.
3. **World Polio Day**:
   It is observed every year on **24th October** in order to call on countries to stay vigilant in their fight against the disease.

At National level:

▶ **1.7 RAMSAY HUNT SYNDROME**

Why in news?

Popular singer Justin Beiber announced that he is suffering from Ramsay Hunt syndrome.

What is it?

1. It is a viral disease that temporarily paralyses one side of the face.
2. It is neurological disease in which a virus named **Varicella Zoster** – causes swelling of the nerves involved in facial movements.

3. The **Varicella Zoster Virus** (VZV) is the same virus that causes chickenpox and shingles.
4. When the nerves get swollen, they lose their ability to function, leading to temporary paralysis.

Causes:
1. It is **caused by reactivation of the varicella zoster virus**.
2. This virus belongs to the **herpesvirus group (Large family of DNA virus group)** and can stay in the body as a latent infection (infection in the body).
3. The **Varicella Zoster Virus** can get regenerated due to weakening of the immune system.
4. The disease is **not infectious** but can lead to chickenpox in those not vaccinated for the disease.
5. **Symptoms:** The symptoms include painful, red rash and some bubbles in and around the ear, and facial paralysis on the same side.
6. **Antiviral medications, corticosteroid (anti-inflammatory drug) steroids, and physiotherapy** are used in treatment.

▶ 1.8 TYPE-1 DIABETES

Why in News?
1. On June 2022, **Indian Council of Medical Research (ICMR)** issued guidelines regarding diagnosis, treatment, and management for type-1 diabetes.
2. This is the **first time the ICMR has issued guidelines** specifically for type 1 diabetes, which is rarer than type 2.

About ICMR:

1. It is an apex body in India for the formulation, coordination and promotion of biomedical research.
2. It is one of the oldest and largest medical research bodies in the world.

About Diabetes:
1. It is a **Non-Communicable Disease (NCD)** that occurs either when the pancreas does not produce enough insulin.
2. Insulin is a hormone that regulates blood sugar, or glucose.

✎ Gestational Diabetes:

a. This type occurs in women during pregnancy when the body sometimes becomes less sensitive to insulin.
b. Gestational diabetes does not occur in all women and usually resolves after giving birth.

✎ Impacts of Diabetes:

It affects the **5 major organs namely,** Heart, Blood vessels, Kidney, Nervous System, and Eyes (retina).

Factors Responsible: an unhealthy diet, lack of physical activity, harmful use of alcohol, overweight/obesity, tobacco use, etc

How rare is Type-1 Diabetes?

1. Out of the **10 lakh children and adolescents living** with type 1 diabetes in the world, **India holds the highest numbers**.
2. **Out of the 2.5 lakh people living with type 1 diabetes in India**, 90,000 to 1 lakh are under the age of 14 years.
3. Type 1 diabetes accounts for **only 2% of all hospital cases** in the country, but it is being diagnosed more frequently.
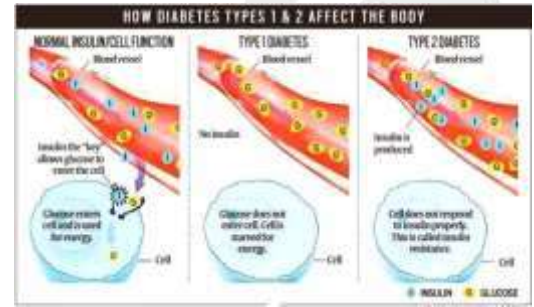
✎ Factors that worsen the condition:

1. Genetic Variables: It plays a role in determining whether a person will get type-1 diabetes. The risk of disease in a child is:
   a. 3% when the mother has it.
   b. 5% when the father has it.
   c. 8% when a sibling has it.

2.Presence of Certain Genes:
   a. It is also strongly associated with the disease.
   b. For example, the prevalence of genes called DR3-DQ2 and DR4-DQ8 is 30–40% in patients with type 1 diabetes as compared to 2.4% in the general population.
   Note: DR3-DQ2 and DR4-DQ8 mean the patient is permissive for **celiac disease** and is capable of developing or having the disease.

3.Treatments:
   a. Continuous glucose monitoring devices can help monitor blood glucose levels throughout the day with the help of a sensor.
   b. **An artificial pancreas** can automatically deliver insulin when required.

Related initiatives:
   1. **The National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases, and Stroke (NPCDCS) initiative was launched by India in 2010** in order to prevent and control major NCDs.
   2. **The NPCDCS** initiative has a focus on strengthening infrastructure, human resource development, health promotion, early diagnosis, management, and referral.

World Diabetes Day:
   a. It is observed on November **14th every year**.
   b. The 2022 campaign will focus on access to diabetes education. access to diabetes education.

The Global Diabetes Compact

WHO launch a Global Diabetes Compact to better fight the disease while marking the 100 years of the discovery of Insulin.

1.9 CISLUNAR AUTONOMOUS POSITIONING SYSTEM TECHNOLOGY OPERATIONS AND NAVIGATION EXPERIMENT (CAPSTONE)

Why in news?
NASA launched CAPSTONE, a **CubeSat** that will fly in **cislunar space**, the orbital space near and around the Moon.

What is CAPSTONE?
   1. CAPSTONE, short for Cislunar Autonomous Positioning System Technology Operations and Navigation Experiment.
   2. They were about to design to test a unique, elliptical lunar orbit.

3. It aims to help reduce risk for future spacecraft by validating innovative navigation technologies.
4. And by verifying the dynamics of the halo-shaped orbit.

Mission details:
1. CAPSTONE will enter NRHO, where it will fly within **1,600 km of the Moon's North Pole** on its near pass and 70,000 km from the South Pole at its farthest.
2. The spacecraft will repeat the cycle every **six-and-a-half days** and maintain this orbit for at least six months to study dynamics.
3. CAPSTONE will gain experience with small dedicated launches of **CubeSats** beyond low-Earth orbit, to the Moon, and beyond.
4. It is heading toward an orbit intended in the future for Gateway, a Moon-orbiting outpost that is part of NASA's **Artemis program.**
5. The orbit is known as a **near-rectilinear halo orbit (NRHO)**.
6. It is significantly elongate, and it locates at a precise balance point in the gravities of Earth and the Moon.
7. This offers stability for long-term missions like **Gateway**, as per NASA.

1.10 FIRST LIQUID NANO UREA PLANT

Why in news?
Prime Minister (PM) inaugurated India's first liquid nano urea plant at **Kalol (Gujarat)**.
What is liquid Nano Urea?
1. Liquid Nano Urea is a patented chemical nitrogen fertiliser developed by IFFCO's Nano Biotechnology Research Centre at Kalol with nano nitrogen particles (from 20-50 nm).
2. It is world's first nano urea (liquid) plant.
3. It is sprayed directly on the leaves of plants and gets absorbed by the stomata- pores found on the epidermis of leaves.

✑ Benefits of Nano urea:

1. Improved agricultural produce with reduced urea consumption as the efficiency of liquid nano urea is as high as 85-90% in comparison to 25% of conventional urea.
2. Significant reduction in urea imports, government subsidies and logistics cost.
3. Reduced soil, water and air pollution from urea, improving quality of underground water and reduction in global warming.
4. Higher shelf life as no issue of caking on coming into contact with moisture.
5. It is easy on the pocket of farmers and will be effective in increasing farmers' income.

1.11 FAST RADIO BURST

Why in news?
1. Astronomers have reported an FRB whose features are different from almost all other FRBs previously detected, except one.
2. The latest FRB, unlike many other FRBs, emits frequent, repeating bursts of radio waves.

What are FRBs?
1. The first FRB was discovered in 2007 by **Lorimer et al**. Since then, 140 more were discovered until **June 2021**.
2. They are bright flashes of light that appear for a few milliseconds and then vanish.
3. Durations are measured in milliseconds, making it difficult to detect and locate them in the sky.
4. Radio waves can be produced by astronomical objects with changing magnetic fields.
5. The origins of FRBs are unknown, and their appearance is unpredictable.

✎ **Some related terms:**

What are Neutron Stars?

1. They are one of the **possible evolutionary end-points of high mass stars**.
2. They are **very dense** (mass of three times the Sun can be fit in a sphere of just 20km in diameter).
3. If its mass is any greater, its gravity will be so strong that it will shrink further to become a black hole

What is Supernova?

1. A supernova is the explosion of a star.
2. It is the largest explosion that takes place in space.
3. The brightness of this started to increase suddenly.

What are Magnetars?

1. It is a type of **neutron star**.
2. They are the most powerful magnets in the cosmos.
3. Their magnetic fields (an area which are under influence of a magnetic charge) are 5,000 trillion times more powerful than that of the Earth.
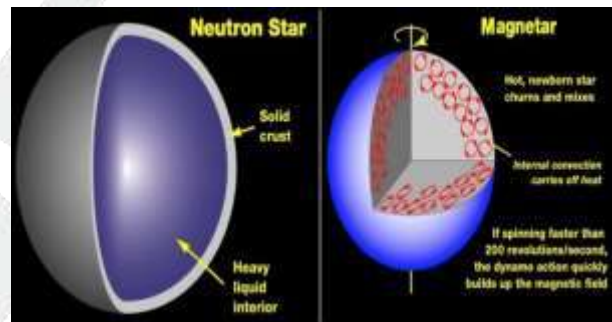
1.12 NIXTAMALISATION TECHNIQUE

Why in news?

A study has thrown light on how Maya people fortified their maize with chemical process known as 'nixtamalisation.

✎ **What is Nixtamalisation?**

1. It is a method by which the ancient people of Mesoamerica like the Maya used to soak and cook their maize in an alkaline solution and make it more palatable, nutritious and non-toxic.
2. Maize is the primary crop of the Americas and has been cultivated in the region for millennia.
3. The researchers noted that the key reason for the spread of maize in the Americas was Nixtamalisation.
4. The process ensures that the maize contains **amino acids, calcium and Vitamin B2,** which can be utilized by the human body. It also eliminates certain **mycotoxins** (toxins produced by certain moulds (fungi) and can be found in food) present in maize.
5. Without this treatment, maize-dependent populations were at elevated risk of pellagra (Vitamin B2 deficiency), calcium deficiency and mycotoxin poisoning.
6. **Nejayote,** wastewater from nixtamalisation, may have been used to lime the chultunes (bottle-shaped underground storage chamber) while they were used as latrines. This was done to control odours and inhibit insect and microorganism growth like it is done today.

1.13 WEB 5.0

Why in News?

Former Twitter CEO announced his vision for **a new web platform that will be called as Web 5.0.**

What do the terms Web 1.0, Web 2.0 and Web 3.0 mean?

1) **Web 1.0** enables only **Reading and getting information on the Internet.**
2) **Web 2.0** enables **Reading, writing and Creating Content on the Internet**. So, users joined social platforms, and these platforms got big because of this created content only.
3) **Web 3.0** enables **Reading, writing and owning some Content.** So, builders and creators can now own content through tokens etc.

✎ **Web 1.0 Vs Web 2.0 Vs Web 3.0:**

WEB 1.0
1. Static page - same content for all users.
2. Content owned by the creator of a website.
3. Websites were created only to display information.

WEB 2.0
    1. Dynamic page - content customised as per user's need.
    2. Interactive - helped people connect with each other.
    3. Also included video streaming features.

WEB 3.0
    1. No ownership of content; anyone can contribute.
    2. Utilises machine learning & artificial intelligence.
    3. Content can be accessed by multiple applications.

What is Web 5.0?

1) **Web 5.0 is Web 2.0 plus Web 3.0 that will allow users to 'own their identity' or getting a separate Identity** on the Internet and **'control their data'.**
2) **Both Web 3.0 and Web 5.0 focuses on an Internet where there is No threat of censorship (restrictions on content) –** from governments or big tech companies.

▶ **1.14 5G OPEN RADIO ACCESS NETWORK**

Why in news?
1. **Centre for Development of Telematics (C-DOT)**, WiSig Networks Private Limited and VVDN Technologies Private Limited have signed an agreement for developing 5G Open RAN and other products together.
2. Collaboration aims to gain advantage of the complementary strengths of Telecom R&D and industry to accelerate the indigenous design, development & deployment of end-to-end 5G solutions.

What does RAN provide?
1. RAN provides the critical technology to connect users to the mobile network over radio waves. It also acts as a bridge to access all the key applications on the web. Current RAN technology is provided as an integrated platform of both hardware and software.
2. Therefore, it is difficult to mix vendors for its different units, and in most cases, they come from the same supplier.
3. Idea of Open RAN is to enable operators to mix and match components from different vendors.
4. Open RAN will create a multi-supplier RAN solution that allows for the separation between hardware and software with open interfaces.

Benefits of open RAN:
1. Intelligent and programmable networks

2. Lower total cost of ownership (TCO)
3. Automation and manageability
4. Data center economics to radio network
5. Vendor diversity
6. Agility of innovation
7. Faster time to market

1.15 STEEL SLAG

Why in news?

Union Minister of Steel inaugurated the first six lane highway road made by using Steel Slag at Surat, Gujarat.

What is Steel slag?

1. It is a by-product of steel making, produced during the separation of the molten steel from impurities in steel-making furnaces.
2. Steel slags is also used in the agricultural sector due to its ability to correct soil acidity.
3. It contains some nutrients for the plants and also as silicate fertilizer that is capable of providing silicon to the plants.
4. **Other Applications:** Transportation industry, construction, cement production, waste water and water treatment etc.

2   POLITY AND GOVERNANCE

▶ **2.1. CENTRAL INFORMATION COMMISSION (CIC)**

Why in news?

In a report of **June 2022, CIC** claimed that there is a **regular decline in the pendency of RTI (Right to Information) cases** as the speed of handling RTI appeals has increased in recent times.

Historical Background

1. The RTI law's origins can be traced back to the **Mr. Kulwal v. Jaipur Municipal Corporation Case, 1986** in which the Supreme Court ruled that the **right to free speech and expression guaranteed by Article 19 automatically includes RTI** because these rights cannot be fully exercised by citizens in the absence of information.
2. **Freedom of Information Act, 2002 was brought by the government** by the efforts of Mazdoor Kisan Shakti Sangathan (MKSS), Rajasthan. But the main drawback of this act was that it did not recognise the right to information of the people. So, it provided for appeals only within the government bodies and denied the jurisdiction of the courts and did not ensure any appeal with any independent body.
3. So, from independence of India to 2005, the citizens of India were not having a proper organisation where they can file a case against any government organisation if it is not providing the information requested or delaying in providing such information.
4. But in **2005** a separate independent organisation with the name **Central Information Commission** was formed **under** the **Right to Information (RTI) Act, 2005 of Parliament.**
5. Now, the **CIC is bound under the law to listen to the complaints** of the citizens and take action within a given time frame.

Central Information Commission (CIC)

1. The **jurisdiction** (area of work) of the CIC is over all **Central Public Authorities** (it means all the bodies working under the central government)
2. **Composition:** It consists of **Chief Information Commissioner and not more than 10 Information Commissioners (ICs).**
3. They are **appointed** by the **President** on the **recommendation** (advice) of a **committee** which consists of:
   i.   **PM as Chairperson**
   ii. **Leader of Opposition in Lok Sabha**
   iii. **Union Cabinet Minister who is nominated by PM.**
4. CIC is not eligible for reappointment.
5. The **RTI (Amendment) Act, 2019 reduced the tenure of the Information Commissioners to 3 years from 5 years** (or a retirement at the age of 65 years, whichever is earlier).
6. This amendment was done to ensure that Information Commissioners can use their powers even with the senior-most officers of the administration without any fear of losing the job.

✎ **Functions of CIC:**

1. It has **equal powers as** a **civil court** has under **Code of Civil Procedure (CPC), 1908.**
2. It has above powers in the following matters:
   a) Summoning (ordering to come) and ensuring the attendance of persons and can compel them to give oral or written evidence and to produce the documents or things.

b) Enforcing the discovery and inspection of documents.
c) Receiving evidence on affidavit (it will have legal force).
d) Can request any public record or copies from any court or office.
e) Can issue summons for examination of witnesses or documents.

3. It can receive and inquire into a complaint from any person:

   a) who has been refused by any central government agency to provide the information requested.

   b) who has not been given a response by any central government agency for obtaining information within a given time limit.

What are the issues with the CIC?

1. 40% of the Public Information Officers (PIOs) has said that **poor record management system and delays in collecting information from field officers** are big reasons for delays in solving RTI requests.
   Note: PIOs are the officers in government departments or agencies who are responsible for providing information under the RTI Act.
2. The **pendency** of cases is almost **5 times higher than the cases solved** since April, 2022.
3. A total of around **36,000 appeals and complaints** are currently **pending** before CIC.
4. **RTI Rules, 2019** has given new powers to the government **to decide on allowances or service conditions** (like tenure, salary etc.) of the ICs and it will be "binding" on them. So, it can lead to **increase of government control** on CIC.
5. **PIOs lacks the required knowledge of the RTI Act, 2005** to deal with the RTI applications, so it creates delay in the process of information delivery.
6. RTI Act doesn't have the provisions regarding the training of PIOs.
7. Presently, only 7 ICs are working in the CIC and **3 posts are vacant**.
8. The position of Chief Information Commissioner had remained vacant for 4 years during the period of last 7 years.

Steps taken to improve functioning of CIC:

1. **Online portal:** A **24-hour portal** service was developed to allow RTI applications to be electronically filed at any time of day or night, from anywhere in the nation, or even from abroad.
2. **E-governance:** Technology has been used to create mobile-based applications, e-hearing, e-notification, etc., making it easier for those looking for information to access legal remedies.
3. The **National Federation of Information Commissions of India (NFICI)** was established in **2009** to promote coordination, consultations, information sharing between CIC and SICs (State Information Commissions) through research, education, and knowledge dissemination.

What can be the way ahead?

1. All the **disclosable documents can be uploaded on the departmental websites** and it will reduce the burden on department to provide information and will also reduce the physical document storage and its movements.
2. PIOs should be provided **proper training** by experts.
3. **Awareness** can be spread through **radio, television, print media**, etc.
4. **Publication of RTI Act 2005 in regional languages** too will help in generating awareness and can also **add a chapter on RTI Act, 2005 in school and college syllabus**.
5. There is a need to **increase the number of ICs in CIC** so that cases can be handled speedily.

▶ 2.2 JUDICIAL ACCOUNTABILITY

Why in news?

In June 2022, the **High Court of Orissa** became the **1ˢᵗ High Court** in India to **publish an annual (yearly) report that gives information regarding the performance of the state's judiciary** and it will also provide a way to judicial accountability.

What is Accountability?

It means the **responsibility** of a person **towards** his **duty**.

What is Judicial Accountability?

It's the set of ways that aims at **making judges and courts personally responsible** for their behaviours and decisions while doing official duty.

What is the need of Judicial Accountability?

1. Under **Article 235**, Constitution provides for 'control' of High Court over the subordinate judiciary which shows that there is a provision of an effective mechanism to enforce accountability of judiciary.
2. To build trust of public in democratic institutions of the country.
3. To reduce the number of cases pending before judiciary.
4. To bring transparency and promote efficiency and quality of judgements given judges.

What restricts the accountability of the Judiciary?

1. Indian Constitution follows the **principle of separation of power** and also talks about the **checks and balances on every organ's (Legislature, Executive and Judiciary) working.** But as Supreme Court and the High Courts are the protector of the Fundamental Rights and interpreter of the Constitution, so, these courts are made independent from any outside influence. So, their accountability is not easy to fix.
2. **Lack of a proper system in the functioning of judiciary:** such as allocation of cases, judicial appointments, disciplinary actions etc. are done in an informal way and lacks clarity and transparency. So, accountability is not easy to fix in such a case.
3. **Judiciary has kept itself out of the provisions of RTI Act, 2005** thus restricting access to information to citizens and it further restricts from holding judges accountable.
4. The **conduct of judges can't be discussed in the Parliament or State legislatures** so making judges accountable is not easy.
5. **Removal process of the judges of higher judiciary is not easy** so judges have a sense of security and doesn't pay much attention towards accountability.
6. **Collegium System** (in which judges are chosen by judges) has led to concentration of huge powers in hands of judges and it promotes nepotism (supporting his or her family member) too.
7. Involvement of a lot of judges in the corruption can be seen these days.
8. A lot of judges are involved in post- retirement jobs.
9. Due to lack of accountability measures, **pendency across all courts grew by 3% annually between 2010 and 2020**. As of September 2021, over **4.5 crore cases were pending across all courts in India.**
10. Pendency has led to **reduction of public trust** in judges and judicial system.

What are the steps that has been taken to promote Judicial Accountability?

1. Few years ago, an **internal system under the Supreme Court was formed to inquire into any allegations of misbehaviour or misconduct against the judges**. It is headed by the Chief Justice of India and some of the senior judges.

2. **Memorandum of Procedure, 2016** is under the discussion **to bring in transparency (openness and clarity) in judicial appointments** and setting up a **permanent secretariat** in Supreme Court for maintaining records of high court judges.
3. **Judicial Standard and Accountability Bill, 2020** is under process of finalization. This bill requires the judges to declare their assets, lays down judicial standards, and establish processes for removal of judges of the Supreme Court and High Courts.
4. In 2009, the Supreme Court and the high courts agreed for the declaration of assets by their judges but it was not implemented properly.
5. **Online hearing** of cases was being done on a large scale during COVID.
6. **LIMBS (Legal Information Management & Briefing System),** a web-based app for monitoring cases involving the central government of India was started few years ago.

What is the way ahead?

1. A **more formal and well-defined Code of Conduct for the Judges should be made**, which is enforceable by law.
2. **Annual reports** on the functioning and efficiency should be published to increase accountability as recently done by Orissa High Court.
3. **Live telecast of hearing of cases can be started.**

2.3 HATE SPEECH AND BLASPHEMY

Why in News?
Presently, there has been a rise in cases related to hate speech and blasphemy in India. As per the **2021 data of National Crime Records Bureau (NCRB),** there has been a **500% rise in cases under hate speech laws in last 7 years.**

What is Blasphemy?
It is the **act of insulting God or anything which is considered sacred by the people.**

What is Hate Speech?
1. As per the **267th Report of the Law Commission of India,** hate speech is defined as giving 'encouragement or motivation to do hatred mostly against a group of persons on the basis of religion, region, race, caste etc.'
2. So, **hate speech is any word written or spoken, signs or anything within the hearing range of a person or visible to a person with the intention to cause fear in him or motivating him to do violence.**

What are the regulations related to hate speech in India?

1. **Article 19(2)** of the Constitution gives all citizens the **right to freedom of speech and expression** but it is subject to some **'reasonable restrictions'** for ensuring **'public order, decency and morality'.**
2. **Various Sections of the Indian Penal Code (IPC), 1860** like 153A, 153B, 298 etc. deals **with those speech or words that can create tensions** in the society, hurt someone's religious beliefs or cause danger to national security.
3. **Section 8 of the Representation of The People Act (RPA), 1951** disqualifies a person from contesting elections if he is found guilty of involving in acts that leads to misuse of freedom of speech and expression.
4. **Section 123(3A) and section 125 of the RPA,1951** prohibits from promoting the enmity on grounds of religion, race, caste, community, or language during the election process.
5. **Section 7 of the Protection of Civil Rights Act, 1955** punishes encouragement of untouchability through words, either spoken or written, or by signs or otherwise.

What are the Regulations Related to Blasphemy?

1. **Indian Penal Code under Section 295(A)** punishes any speech, writings or signs that are made with an intention to insult anyone's religion or religious beliefs with a fine and imprisonment for up to 3 years.
2. **Supreme court's Interpretation:**
   a) **In Ramji Lal Modi case (1957):** The legality of Section 295(A) was confirmed **by a 5 judge Bench of the Supreme Court (SC)** in this case. SC also said that **Article 19(2) allows reasonable limits** on freedom of speech and expression to maintain public order (peace and stability in the society).
   b) **In Superintendent (Central Prison of Fatehgarh) Vs Ram Manohar Lohia case (1960):** Here, SC said that if there is a link between the **words spoken and any public disorder caused** as a result of it then it can be registered under Section 295(A) of IPC.
   c) In **2011**, SC said that only those speech that leads to "**any kind of violence or any other unlawful action**" can be punished. So, the **government** has to fulfil few conditions before using public disturbance as a justification for suppressing freedom of speech expression of its citizens.

Why hate speech needs to be dealt seriously?

1. Hate speeches **can cause violence and can reduce tolerance** in the society.
2. With coming of **new technologies and social networking sites, its scale and impact has increased significantly.**
3. It **strengthens the personal identities of the people** based on religion, region, caste, race, gender etc.
4. It **impacts social harmony and peace** in the society.
5. It also **disturbs law and order in the society.**

What are the challenges in handling the issue of hate speech?

1. The **laws related to hate speech clash with the fundamental right of freedom of speech and expression.**
2. Any sudden attempt to regulate hate speech **can restrict the space for criticism and dissent (not agreeing with someone).**
3. There is **no legal definition of hate speech**. So, it is difficult to identify which speech can be said as hate speech.

What can be the way ahead?

1. Blasphemy, which generally restricts criticism of religion, **doesn't look relevant with the principles of democratic societies as** in a free and democratic society, there should be no restrictions on raising questions and objections.
2. But there can be some outdated or inhumane practices in religions which needs to be criticised.
3. To make a balance between the protection of faith and hate speech, one solution can be to **keep blasphemy in law but make it non-criminal.**
4. **Law Commission has recommended to add hate speech as a separate offence in the IPC** instead of mixing it with the existing sections.
5. Laws should be adopted to punish incitement to hatred that may result in violence, tensions or discrimination in the society but they should be implemented in a very transparent manner.
6. **Alternative dispute resolution** can be done in hate speech cases. It means that rather than taking each case to the court, settlement of the dispute between the parties can be done by way of consensus, compromise etc.

7. **Promote the involvement of religious leaders to build tolerance** across religious lines to reduce communal tensions.

2.4 PUBLIC INTEREST LITIGATION

Why in news?

Recently, **Supreme Court objected to the irrelevant Public Interest Litigations (PILs).** It has also imposed penalties on petitioners for filing irrelevant litigations.

What is PIL and its significance?

1. It's the **use of the law to promote human rights and equality or raise issues of general public at large.**
2. Concept of the PIL has been **borrowed from the American system**.
3. PIL is based upon **Article 39 A of the Indian Constitution** which deals with the provisions of **equal justice and free legal aid**.
4. PIL can be **filed in any High Court or directly in the Supreme Court** also.
5. Some of the matters which are **recently taken under PIL are bonded labour, atrocities on women, environmental pollution, food adulteration, maintenance of heritage and culture etc.**

Who can file a PIL in India?

1. **Any citizen of India**, the petitioner need not be a victim or directly related to the case.
2. An **organization with a condition that it is not filing with a personal agenda** but in the interest of the public.
3. **Court can take matter seriously if it is for the maximum public importance** and can also appoint an advocate to handle the case.

What are the issues with the PIL?

1. Over the years, **PILs have been used for publicity and private interests**. For e.g., PIL against increase in the price of onions or in railway fares etc.
2. **Wastage of the time of judiciary** due to rise in number of irrelevant PILs.
3. A lot of PILs have been used as a **tool to delay developmental activities**. For e.g., PIL filed against developmental activities at premises of Puri Jagannath Temple.
4. While hearing the PILs, **sometimes judiciary crosses the boundaries of its jurisdiction thus violating the principle of separation of power**. For e.g., ban on liquor sale on highways.

SC's important judgments on PIL

1. **SP Gupta v. Union of India, 1981**: Any member of public or NGO acting on behalf of others can request to use writ jurisdictions of HC or SC under Article 226 or 32 respectively for getting relief against violation of legal or constitutional rights of persons who due to social or economic or any other reason cannot approach the Court by himself.
2. **M.C Mehta v. Union of India, 1987**: PIL brought against Ganga water pollution, SC held that petitioner although is not directly related to the case but he has a personal interest in protecting the lives of the people using Ganga water.
3. **Vishaka vs the State of Rajasthan, 1997**: SC recognized sexual harassment as a violation of fundamental rights under Article 14, 15 and 21.
4. **Indian Banks' Association, Bombay & Ors. v. M/s Devkala Consultancy Service and Ors, 2004**: In this case, SC said that the petitioner might have moved the court in her private interest but a private interest case can also be treated as public interest case.

What is the way ahead?

1. To preserve the real meaning of the PILs, **SC in State of Uttaranchal v. Balwant Singh judgement issued** several **directions** to help the courts in **separating genuine PIL petitions from the irrelevant ones** which is as follows:
   a. Verify the background of the person filing the PIL before hearing the case.
   b. Check the correctness of the case.
   c. Ensure that the case involves ''issue of larger public interest which is urgent''.
   d. Ensure that there is no private/ indirect gain behind the PIL.
   e. Ensure that PIL addresses the genuine public harm/ injury.
2. **Doctrine of separation of power should be followed** and courts should not enter into the jurisdiction of other organs i.e., legislature and executive.
3. PILs **related to exploited and disadvantaged groups should be taken up in a time bound manner**, so that the early relief can be given to those people.
4. **PILs filed by lawyers, citizens without research and on false grounds should be penalized** so that it's misuse can be stopped.

2.5 ISSUE OF INTERNET SHUTDOWNS

Why in news?
United Nations (UN) has warned countries to stop imposing internet shutdowns in their countries.

Impacts of Internet Shutdown as per UN Report are:

1. Internet shutdowns **bring huge economic costs** for all the sectors as it **disrupts (stops) financial transactions, commerce and industry** etc.
2. It also **disrupts education, healthcare facilities.**
3. It **can also lead to mental trauma** by depriving people from connecting with their loved ones through internet.
4. It **can also lead to compromise of national security** as well.
5. It **can weaken women's and girls' access to necessary support and protection, thus widening the gender gap.**

Important Recommendations of the Report are:

1. **To countries**: They **should restrict themselves from doing full internet shutdowns** but if they are doing it, then it should be **based on some law** and **should be done to achieve some good aim.**
2. **To development agencies, regional organizations, and international organizations**: They should ensure that the **risks of internet shutdowns are taken into calculation while designing and implementing cooperation programmes relating to internet connectivity.**
3. **To companies**: They should **increase collaborations with all the parties** who are working to prevent communication disruption.
4. **To civil society**: They should **start awareness** to prevent, detect, study and respond to the internet shutdowns.

Legal Provisions related to Internet Shutdown in India are:

1. Currently, suspension of telecom services (including internet shutdowns) is governed by the **Temporary Suspension of Telecom Services (Public Emergency & Public Safety) Rules, 2017** which are issued **under the Indian Telegraph Act, 1885.**
2. The 2017 Rules provides for **temporary shutdown of telecom services in a region on grounds of public emergency (up to 15 days at once) and can be increased for any period of time.**

2.6 INTER-STATE COUNCIL (ISC) MEETINGS

Why in news?

Tamil Nadu CM wrote to Prime Minister that **ISC meetings should be held 3 times a year as also recommended by Punchhi Commission.**

1. He also suggested that bills of national importance should be placed before the Council before being presented in the Parliament.
2. It will help in strengthening the **"spirit of cooperative federalism".**
3. **''Cooperative federalism'' means a relation where the states and the centre try to cooperate with each other** for the smooth development of the country.

About ISC

1. It is **established under Article 263 of the Constitution**, which says that 'the President may constitute such a body if a need is felt for it'.
2. **1988: Sarkaria Commission recommended** to establish it as a **permanent body not temporary one.**
3. **1990:** ISC was established.

Composition of ISC:

1. **Chairman: PM** is the **Chairman**.
2. **Members:**
   i. **Chief Ministers** of all the states and union territories (UTs) having a legislative assembly (i.e., Delhi and Puducherry)
   ii. **Administrators of UTs** not having a Legislative Assembly
   iii. **6 Ministers of the Cabinet rank** in the Union Council of Ministers to be **nominated by the PM**
3. **Permanent invitees:** are 10 Union Ministers

Functions of the ISC:

1. It **inquires and also gives advice** on disputes between the states and between Centre and any state.
2. It also **discusses issues in which 2 or more states and the Union have a common interest.**
3. It **makes recommendations for the better coordination in policy and action at all levels.**

Issues with the ISC:

1. **Irregular meetings**: Council has **meet only once in the last 6 years** and there has been no meeting since July 2016. **Since its formation in 1990, the body has met only 11 times.**
2. **Recommendations are advisory in nature**: So, they are not taken that much seriously by the states.
3. **Lack of expertise**: No presence of technical and management experts.

What should be the way ahead?

1. **Frequent meeting:** In order to successfully address the issues and concerns relevant to the current times, it is crucial that the council meet on a regular basis and for a set amount of time.
2. **Additional power:** Appropriate changes must be made to Article 263 to give the council more authority so that it can act as more than just an advisory body.
3. **Adequate manpower:** A sufficient number of people are needed to staff the council and enable it to perform its duties more successfully.
4. **Engagement of civil society:** In order to be really participative, the council needs involve the civil society in its operations.

5. **Making it permanent:** It must be made a permanent body as recommended by the Sarkaria Commission.

2.7 RAJYA SABHA (RS) ELECTIONS

Why in news?

Rajya Sabha elections have been held for many states.

About Rajya Sabha (RS):

1. It's a **permanent House of the Indian Parliament as it cannot be dissolved.**
2. The **maximum strength of RS is fixed at 250 but at present 245 members** are there in it.
3. Out of 250 members, **238 (presently 233) are representatives of states and UTs and 12 are nominated by the President from the persons having knowledge or practical experience in field of arts, literature, science or social service.**
4. **Term** of the members of RS is **6 years**.
5. RS is **also known as the Council of States or the Upper House of Indian Parliament.**

Rajya Sabha Elections:

1. To ensure continuity, **only 1/3rd of its members retire after every 2 years.**
2. **Seats are allotted to the states and UTs** on the basis of its **population** and allocation of seats to the States and UTs in Rajya Sabha is mentioned in **Schedule 4** of the Indian Constitution.
3. Members in RS are **elected (under Article 80) by the elected members of state legislative assemblies.**
4.   RS elections are held as per the system of **proportional representation by means of single transferable vote**.
    Note: Proportional Representation is the system in which a party or a candidate gets the seats in proportion to the votes given to them.
    Single transferable vote means voters can vote for any number of candidates in order of their preference. A candidate requires a specified number of 1st preference votes to win.
5. RS elections are **conducted through open ballot**, but it is a limited form of openness. To check cross-voting, each party MLA shows his or her marked ballot to party's authorised agent, before they are put into the ballot box.
6. Showing a marked ballot to anyone other than one's own party's authorised agent will make that vote invalid.
7. **'None of the above (NOTA)'** option is not applicable in RS polls.
8. Not voting for the party candidate will not attract disqualification under the Anti-defection Act, 1985.

2.8 REGISTERED UNRECOGNISED POLITICAL PARTIES (RUPPs)

Why in news?
Election Commission (EC) has removed 111 'non-existent' parties from the list of registered political parties. These 111 RUPPs were found to be non-existent and violating the Representation of the People Act, 1951.

What are RUPPs?

These are **newly registered parties which have not secured enough percentage of votes in the assembly or general elections to the Lok Sabha** to become a state party, or those **which have never contested elections**.

1. Such parties **don't enjoy the benefits given to the recognised registered parties.**

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2. **Annual audit reports** of only about **8 % of RUPPs** are available in public domain for 2019-20.
3. **Annual donation reports** of only about **6 % of RUPPs** are available in the public domain for 2019-20.

Note: EC does not have the power to deregister a political party but it can inquire into the issue of financial irregularities and can also ask the parties about the sources and the manner of donations, details of bank accounts etc.

✎ Issues with the RUPPs are:

1. Many were **found to be existing only on papers**.
2. They are **misusing the provision of Income Tax exemptions on donations given to recognised registered parties.**
3. Few RUPPs are **found to be involved in other illegal activities too like money laundering etc.**

✎ National E-Vidhan Application (Neva):

1. This **system is developed to make all the data related to legislative bodies (Parliament and legislative assemblies) available online for the use of both citizens and the MPs/MLAs.**
2. Former platform **e-Vidhan is redesigned to make NeVA.**
3. **Ministry of Parliamentary Affairs is nodal ministry** responsible for NeVA.
4. **Aim** of the NeVA **is to bring all the legislatures of the country together**, in one platform thereby creating a massive data depository.
5. It will **also eliminate the use of paper in day-to-day functioning.**
6. It **will also strengthen Digital India Mission**.

2.9 CONTESTING ELECTIONS FROM MULTIPLE SEATS

Why in news?

Chief Election Commissioner (CEC) has recommended to amend the Representation of People's Act (RPA), 1951 to restrict people from contesting more than 1 seat in elections.

What is the present situation?

1. **As per Section 33(7) of the RPA 1951,** 1 candidate can contest from a maximum of 2 constituencies.

✎ Earlier Recommendations:

1. **1990: Dinesh Goswami Committee** was the 1st committee which had raised this issue of contesting from more than 1 seat.
2. **1999: 170th report of the Law Commission on Electoral Reforms** had also included recommendations for restricting 1 person to 1 seat.

✎ What are the issues with the present provisions?

1. There is a **contradiction in RPA 1951 as Section 70 of it prohibits candidates from representing 2 constituencies in the Lok Sabha/State Assembly**, meaning that if a candidate won both seats, he or she has to vacate 1 of those 2 seats.
2. It **leads to the wastage of public money** as in the other constituency in which the seat has been vacated, a by-election needs to be conducted.
3. It further causes **voter fatigue** (travelling, travel costs, time etc.) and leads to decrease in public trust.

2.10 ANTI-DEFECTION LAW

Why in news?

Recent political crisis in Maharashtra has raised discussions over the relevance of anti-defection law.

Historical background of this law

From the time of 1st Parliament in 1950 only, there used to be **regular incidents of MPs or MLAs changing political parties on regular basis for their self-interests and destabilising the governments**. There was no such law in those days to deal with this issue so that's why in **1985** this law was introduced.

What is Anti Defection Law?

1. This law **provides for the disqualification of MPs or MLAs who, after being elected on a ticket of a political party, "voluntarily give up his or her party membership".**
2. This law was formed by Parliament through **52nd Amendment Act of 1985**.
3. It was also included under the **10th Schedule of the Indian Constitution**.
4. Any decision regarding the disqualification on the ground of defection is to be decided by the presiding officer of the House (it means by Speaker in case of Lok Sabha or Chairman in case of Rajya Sabha).

What are the grounds of disqualification under this law?

1. If a member **votes or denies from voting in the House against any direction issued by his political party** without obtaining prior permission of such party and such act has not been approved by the party within 15 days.
2. If **nominated member joins any political party after the expiry of 6 months** from the date, he takes his seat in the House.
3. If an **independent member (not elected on any party ticket) joins any political party.**

What are the exceptions under this law?

1. This law **allows a party to merge with or into another party provided that at least 2/3rd of its legislators (MPs/MLAs) are in favour of merger.**
2. If a **person is elected as a speaker of Lok Sabha or Chairman of Rajya Sabha,** then he could resign from his party, and re-join the party once he leaves that post.

2.11 NATIONAL E-GOVERNANCE SERVICE DELIVERY ASSESSMENT (NeSDA)

Why in News?

NeSDA, 2021 has been published.

What is NeSDA?

1. It is a **periodic assessment** which aims to improve the effectiveness of States/Union Territories and the Central Government in **delivery of their online services** to citizens.
2. **Released by:** Ministry of Personnel, Public Grievances and Pensions
3. It is conducted **biennially (once in 2 years).**
4. In this assessment, the service portals were evaluated along with their parent Ministry/Department's website.
5. NeSDA was launched in 2109 and 2021 is the 2nd edition of it.

Parameters used in 2021 Assessment:

1. **Parameters:** There were **4 main parameters** of assessment: -
   a. **Accessibility**

b. **Content Availability**
c. **Ease of Use and Information Security**
d. **Privacy for Central Ministry Portals**

✍ **An additional 3 parameters** were used for the **Central Ministry Services Portals**:

a. **End Service Delivery**
b. **Integrated Service Delivery**
c. **Status and Request tracking**

2. In 2021, assessment was conducted by the **Department of Administrative Reforms and Public Grievances (DARPG)** in association with its knowledge partners **NASSCOM and KPMG**.

✍ **Recent evaluation of NeSDA 2021:**

1. There has been improvement in country's e-governance usage (from 2019) as noted by:
    i. Increase in e-Service Delivery
    ii. Increase in use of integrated/centralized portals for delivery of e-Services
    iii. Improvement across assessment parameter scores
2. **Most widely used e- services**- Finance and Local Governance & Utility Services
3. Among websites of **central government ministries**- website of the **Ministry of Home Affairs (MHA)** was ranked **1ˢᵗ** and the **Digital Police portal** was ranked **2ⁿᵈ**.
4. In the category of **State/UT portal:**
    a. **Overall,** in NeSDA 2021, **Keral**a had the highest overall compliance score amongst all the States and UTS.
    b. **Among group A states- Kerala** came 1ˢᵗ followed by Tamil Nadu and Punjab.
    c. **Among group B states- Odisha** being at top followed by Uttar Pradesh and Bihar.
    d. **Among North-Eastern states- Nagaland, Meghalaya and Assam** are at top.
    e. **Among UTs**- J&K was followed by A&N, Puducherry, Delhi and Chandigarh.
5. **Highest Improvements:**
    a. **Among North-East and Hill States**: **Meghalaya and Tripura** showed improvement across all sectors compared to NeSDA 2019.
    b. **Among Remaining State Category:** the overall score of **Tamil Nadu** increased the most in 2021 compared to 2019. Andhra Pradesh, Kerala, Punjab, Goa, and Odisha also improved the compliance of their services portals by 100%.
6. Recommendations to improve e- services:
    i. Sector-specific services are required to help in achieving SDGs
    ii. Adoption of uniform governance standards
    iii. Emphasise on security and privacy
    iv. Use of new technologies, etc.

✍ **About e- governance:**

1. Its full form is electronic governance.
2. It refers to the implementation of **Information and Communication Technology (ICT)** in all the processes, with the aim of enhancing government ability to address the needs of the general public.
3. The basic purpose of e-governance is to simplify processes for all, i.e., government, citizens, businesses, etc. at national, state and local levels.
4. Its main aim is to **promote good governance** i.e., **simple, moral, accountable and transparent governan**ce.

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3. INTERNATIONAL RELATION

▶ **3.1 WORLD TRADE ORGANIZATION (WTO)**

Why in news?
In June 2022, **12th Ministerial Conference of the WTO was held in Geneva (Switzerland).**

About WTO
1. It's the **only international organization that deals with the rules of trade between the countries.**
2. It was founded in the year **1995**.
3. It has a total of **164 members** and **all decisions are taken through consensus** and any member can exercise veto power.
4. WTO had replaced the **General Agreement on Tariffs and Trade (GATT), an organisation which was founded in 1948 whose rules created the modern trading system.**
5. The topmost decision-making body of the WTO is the **Ministerial Conference**, which usually **meets every 2 years**. It can take decisions on all matters under any of the multilateral trade agreements.

✑ **Key outcomes of the 12ᵗʰ Ministerial conference are:**

1. It is agreed that there **will be no limitation on subsidies granted by developing or least developed countries for fishing within their exclusive economic zones (EEZ).**
2. Also, **technical assistance and capacity building shall be provided** to such countries through the WTO Fisheries Funding Mechanism.
3. It is **also agreed to exempt the food purchased by the UN's World Food Programme (WFP) for humanitarian purposes**, from any export restrictions to handle the issue of food shortages.
4. Members also agreed **to continue the moratorium (a temporary restriction) of custom duties on e-commerce transactions** until the next Ministerial Conference or until March, 2024 whichever comes earlier.
5. **Temporary exemption for 5 years from certain requirements (related to patents) to produce Covid-19 vaccines.**

✑ **What are its implications for India?**

1. Experts are of the view that although exemptions are provided but, **4 years are not sufficient** and after that it can push small Indian fishers towards an uncertain future.
2. Also, there are **no benefits extended under Special and Differential Treatment** (given to developing countries under WTO agreements).
3. An **open exemption on food exports can put the domestic food security in danger** but India's demand for a permanent solution on public stockholdings (PDS system) of food grains has been pushed to next ministerial meeting of 2023.
4. Exemptions from getting patent permissions in case of Covid vaccines is a good step and **it can lead to increase in production of Covid vaccines in India.** But this current declaration of WTO is a lower version of the original proposal made by India and South Africa in 2020 which demanded a broader intellectual property exemption on vaccines as well as on treatments and tests.

5. India has requested the WTO to review its decision of extension of the moratorium on custom duties in case of e-commerce transactions as developing countries including India will face its financial consequences.

6. As per the report of the **UN Conference on Trade and Development (UNCTAD)**: Extending custom free market access due to the moratorium resulted in a loss of $10 billion per annum globally — 95% of which was borne by developing countries like India.

✍ What are the challenges that the WTO is facing these days?

1. **Ineffective against China's policies**: The WTO has not been able to handle the China's tariff manipulation policies and its unfair trade practices.

2. **No proper space to developing countries**: WTO is not able to give much space to developing countries like India which are playing a very big role in the trading system of the world today.

3. **Dysfunctional WTO appellate body**: The U.S. has blocked the appointment of new judges in WTO appellate body (where complaints can be filed by any country against the other). US believes that this body has given unfavourable rulings for the US in its trade disputes.

4. **Long decision-making process**: As the decision making in WTO is done through consensus, so it takes a long time and most of the time political and other differences comes in the way of reaching a consensus.

5. **Lack of Inclusiveness**: With an increasingly global trading system, exclusion of some countries makes it a less effective organization. Countries such as Iran, Iraq, Lebanon and Uzbekistan have not joined WTO yet.

6. **Countries focusing on bilateral/regional/trilateral trading systems**: As the speed of negotiations in the WTO are slow, so countries are increasingly moving towards other forms of trading regimes.

7. **Effect of COVID-19 Pandemic**: It has forced countries to impose many export bans and restrictions and this leads to barriers in the global supply chains.

▶ 3.2 ALTERNATIVES TO BELT AND ROAD INITIATIVE (BRI)

Why in news?

The United States (US) aims to raise almost $200 billion over the next 5 years to **counter China's Belt and Road Initiative (BRI)** and **to fund the infrastructure** in developing countries under the G7 Initiative.

✍ More about the News:

1. Aim is to raise an overall investment of almost **$ 600 Billion** in next 5 years and this will include the investments by G7 partner countries and private investors too.

2. This announcement by the US comes after an official launch of the "**Build Back Better World" (B3W) initiative**.

3. **B3W initiative** was launched in **2021 by G7 countries.**

4. This initiative is now called as the **Partnership for Global Infrastructure and Investment (PGII).**

✍ What do we need to know about G7?

1. It was formed in the year **1975**.

2. It's an **informal forum** (not bound by any agreement or treaty) **of leading industrialised nations.**

3. It has a total of **7 members** and these are:
   - i.   **US**
   - ii.   **UK**

   iii.   **France**
   iv.   **Germany**
    v.   **Canada**
   vi.   **Italy**
  vii.   **Japan**
4. It **meets annually to discuss** issues related to **economy, security, energy etc.**

✎ **About Partnership for Global Infrastructure and Investment (PGII):**

1. It aims to provide **an alternative to China's investment** of around $1 trillion in infrastructure around the world.
2. This initiative is **funding projects in 4 major categories:**
   i.   **Clean energy**
  ii.   **Health systems**
 iii.   **Gender equality**
  iv.   **Information and Communications technology**
3. PGII has a different approach to finance infrastructure projects as **it uses limited government funding and promote greater volumes of private capital (pension funds, private equity funds and insurance funds etc.) while BRI of China provides finances largely through State-to-State channels and thus creating huge debts for countries.**

✎ **About BRI (Belt and Road Initiative)**

1. It is a **transcontinental (passes through many continents) policy and investment program which aims at infrastructure development** and increase of the economic integration of countries along the route of the historic **Silk Route**.
2. **Silk route was an ancient land route that used to connect Europe with the inner parts of Asia** like China, India etc. Silk was the most traded commodity along this route that's why got the name Silk Route.
3. BRI was **launched in 2013 by China** and **until 2016**, was known as **OBOR (One Belt One Road).**
4. According to the Belt and Road Portal, currently **71 countries are taking part in this initiative**, which together represents more than 1/3rd of the world's GDP and 2/3rd of the world's population.
5. BRI includes **2 components**:
   i.   **The Silk Road Economic Belt (its land-based route)**
  ii.   **21st Century Maritime Silk Road (its water-based route).**

✎ **What are the other alternatives to BRI?**

1. **EU's Global Gateway Project**:
   i. The project **aims to raise up to €300 billion in investments between 2021 and 2027.**
   ii. It is a European strategy to boost smart and clean energy as well as strengthen health, education and research systems across the world.
2. **Asia-Africa Growth Corridor (AAGC)**:
   i. **India and Japan launched this in 2017**.
   ii. It **aims to create quality and sustainable (social and transport) infrastructure, development projects, and connectivity in Africa**.
   iii. Another aim is to promote a "**free and open**" **world order**, while also providing an alternative to China's increasing investments and influence in Africa.

Why alternatives to BRI are emerging?

1. BRI is **not based on a single plan but it's a collection of many plans.**

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2. The **loans given under the BRI is another major concern**. The Chinese government has never published detailed information about the size and terms of BRI loans.

3. Many countries are accusing China that BRI is a **tool of "Debt Trap Diplomacy "** which means on the name of funding major infrastructure projects in developing nations by giving them big loans and then using this debt to gain control over their governments.
For e.g., In case of **Hambantota Port**, Sri Lankan government was unable to pay the Chinese loans which funded the project, and the port was handed over to the China on a 99-year lease in 2017.

4. As per a report, **35% of the BRI infrastructure projects are facing major implementation problems**, such as corruption scandals, labour violations, public protests etc.

5. The BRI has been criticized for causing **severe and irreversible impacts on the environment.**

✍ India's concerns over BRI are:

1. **Geopolitical concerns:** India is particularly **concerned about the BRI in the smaller neighbouring countries and the Indian Ocean coastal states**, where it is possible that BRI projects can increase China's hold and undermine India's influence over these countries.

2. **Sovereignty and security concerns**: India is concerned about a part of BRI i.e. **China-Pakistan Economic Corridor (CPEC)** (connects China's Xinjiang autonomous region with Gwadar Port in Pakistan's Baluchistan Province). The **project runs through the Pakistan Occupied Kashmir (POK) and hence it violates India's sovereignty.**

3. **Border security concerns**: Deployment of security personnel by China and Pakistan for the CPEC is another cause of security concern for India. Further, since Gwadar is a deep-water port, it gives Pakistan and China a strategic advantage in the Indian Ocean Region and can be a threat to India.

✍ Some of India's initiatives to counter above concerns:

1. 2014: MAUSAM project came to improve relations with countries in the Indian Ocean region.

2. 2015: SAGAR (Security and Growth for all in the Region) concept was introduced with various objectives such as:
    a. protecting maritime interests,
    b. enhancing economic and security cooperation in the coastal states,
    c. promoting collective action to deal with maritime threats,
    d. building greater trust and promoting respect for maritime rules, norms and peaceful resolution of disputes.

3. Increased aid, investment and other economic engagements to counter Chinese influence in neighbours like Nepal, Sri Lanka and Maldives, etc.

▶ 3.3 NORTH ATLANTIC TREATY ORGANIZATION (NATO)

Why in news?

In June 2022, NATO Summit was held in **Madrid (Spain).** This summit holds importance as it was held when Russia-Ukraine war was going on.

About NATO

1. It was formed in **1949** with the **aim of keeping an eye on Soviet Union's** (it was a union of Russia and many of its neighbour countries) **expansion in Europe after World War 2.**

2. It's a **military alliance** that includes **30 countries which are mostly of North America and Europe.**

3. NATO **agreement says that if there is an attack on any of its member countries then it will be considered as an attack on NATO and a collective action can be taken by the NATO.**
4. Its **12 founding members** are:
   i. United States
   ii. United Kingdom
   iii. Belgium
   iv. Canada
   v. Denmark
   vi. France
   vii. Iceland
   viii. Italy
   ix. Luxembourg
   x. Netherlands
   xi. Norway
   xii. Portugal

While Finland and Sweden are in the process of joining NATO.

✎ NATO's Expansion:

1. The Soviet Union responded to NATO by creating its own military alliance with 7 other Eastern European countries in 1955 by signing the **Warsaw Pact.**
2. But after the collapse of the Soviet Union in 1991, many countries who were earlier the part of Warsaw Pact became NATO members. This includes **Hungary, Poland, Bulgaria, Estonia, Latvia and many others**.
3. The **most recently added members of NATO are Montenegro in 2017 and North Macedonia in 2020.**
4. NATO's **"Open-door policy''**(Article 10 of the Charter), allows any European country that can enhance and contribute "to the security of the North Atlantic area" to join the NATO.

✎ Major Non-NATO ally status:

1. It is a **status given by the US government to its close allies** that have a strategic relationship with the US Armed Forces but are not members of the NATO.
2. The US has designated **30** countries including **S. Korea, Japan, Israel etc. as major non-NATO allies.**
3. This **status provides a variety of military and financial advantages** such as participation in defence research projects and counter-terrorism initiatives, buy uranium ammunition etc. that otherwise are not obtainable by non-NATO countries.

✎ Some key outcomes of the recent summit are:

1. **'2022 Strategic Concept'** was released in summit which is the **NATO's guiding document** which reflects the emerging security reality of the world.
   For e.g.,
   a. It **identified Russia as the most significant** and **direct threat to NATO and its allies**.
   b. It **named China for the 1st time in any document of NATO.**
2. It has mentioned some other challenges too like **terrorism, cyber and hybrid threats, maritime security etc.**
3. **Full support to Ukraine** and other partners at risk has been declared in it. For e.g., **an assistance package for Ukraine** will be provided soon.

4. An **agreement to cut greenhouse gas emissions is also signed by NATO**. They **pledged to reduce it by at least 45 % by 2030** and to bring down to **net zero by 2050.**

5. **NATO Innovation Fund** was launched during summit, which will invest almost 1 billion Euros over the next 15 years in start-ups to develop technologies, such as artificial intelligence (AI).

6. Another key decision was **NATO's eastward focus from Europe to Asia-Pacific. It will focus on ensuring peace and stability in the Asian region.**

7. For the **1ˢᵗ time, 4 Indo-Pacific countries** named **Australia, Japan, New Zealand and South Korea joined a NATO summit** to deepen cooperation.

 Relevance of NATO in present times:

1. **Russia's invasion of Ukraine, terrorism, growing global uncertainty, cyber threats and immediate technological changes** continues to represent a global security challenge and a threat to the stability in the world.

2. NATO has **played an important role in the international security.**

3. For nearly 20 years, **NATO Allies and partner countries had military forces deployed to Afghanistan** to ensure that the country should not again became a **safe haven for international terrorists**.

4. NATO is a key pillar in the **fight against the Islamic State of Iraq and Syria (ISIS)**.

5. It is the **longest surviving inter-governmental security organisation of the world** and its membership has increased over the period of time.

6. NATO **responded to the COVID-19 crisis by protecting the military personnel**, helped in **distributing medical supplies** etc.

7. It is **shifting its focus on China** because of:
   a. **Chinese encroachment in European continent**, for e.g., major ports, such as the **Port of Piraeus in Greece**, one of the largest in Europe, are now owned by Chinese companies.
   b. Increased **Chinese naval patrols in the Atlantic Ocean region**.
   c. China's rising interest in the **Arctic Sea**.
   d. **Cyberattacks** on Western commercial and military targets by Chinese state.
   e. Claims of Chinese ownership over the resource-rich waters of **South China Sea**, an important waterway.

3.4 BRICS

Why in News?

1. In June 2022, **PM of India attended the 14ᵗʰ BRICS summit** which was **hosted by China.**

2. **Theme of the 14ᵗʰ BRICS Summit: "Foster High-quality BRICS Partnership, Usher in a New Era for Global Development".**

3. **BRICS PLUS (+) conference** was also held as part of the main meeting **with ministers coming from countries like the UAE, Saudi Arabia, Egypt, Kazakhstan, Indonesia, Argentina, Nigeria, Senegal, and Thailand.**

What is BRICS?

1. **BRICS** stands for **Brazil, Russia, India, China and South Africa.**

2. **In 2001**: The **British Economist Jim O'Neill** used the term **BRIC** to describe the 4 emerging economies like **Brazil, Russia, India, and China**.

3. **In 2006:** The grouping got "Formal Status" during the 1ˢᵗ meeting of BRIC's Foreign Ministers.

4. **In December 2010: South Africa was invited to join BRIC**, after which the **group become BRICS.**

5. The BRICS brings together some of the largest developing countries of the world, representing almost **40% of the global population, 25% of the global GDP and almost 15% of the global trade.**

6. The **Chairmanship of the forum is rotated annually** among the members.

7. Recently, Iran and Argentina have applied to join the BRICS mechanism. This could be the 1ˢᵗ expansion of the group since 2010.

✎ **Highlights of the 14ᵗʰ BRICS Summit:**

1. India gave a call to strengthen the **BRICS Identity** so that the world can start accepting its capability.

2. India also proposed **establishment of Online Database for BRICS documents, BRICS Railways Research Network, and strengthening cooperation between MSMEs of BRICS countries.**

3. India declared to **organize BRICS Startup event this year** to strengthen connection between the startups of BRICS countries.

4. All BRICS countries welcomed the initiative **"No to Corruption"** and agrees to work towards **strengthening anti- corruption capacity building through education and training programs.**

✎ **How much progress has been made by BRICS so far?**

1. **Increased trade and exports**: As per WTO Data, the **participation of BRICS in global exports has doubled between 2001 and 2011** and reaching **from 8% to 16%.**

2. **Establishment of the New Development Bank (NDB)**: Agreement to establish NDB was signed by BRICS countries at **6ᵗʰ BRICS summit of 2014 which was held at Fortaleza, Brazil**. The idea was proposed by India. NDB is headquartered at **Shanghai**. It was **established to provide funds for infrastructure development** in BRICS countries as well as other developing countries.

3. **Reforms at IMF**: BRICS has succeeded in bringing various changes in the International Monetary Fund (IMF) over the years. The joint efforts of BRICS led to coming of **2010 Reform Proposal on Quota and Governance**. After that, **the quota of the IMF was doubled, with a total 6% share transferred to the emerging and developing countries**. The **votes of China, Russia, Brazil, and India was increased and reached a total of 14%.**

4. **Establishment of multilevel communication platforms**: The BRICS' **focus has expanded from just economic relations to other areas too**. It has formed many communication platforms for the meetings of high-level delegates, foreign ministers, finance ministers, and Central Bank Governors.

✎ **What are the opportunities for India in BRICS?**

1. **Economic and trade interests**: BRICS **gives opportunities to India to enter into key markets** like China, which remains an important trade partner of India even after a lot of security related issues between the two.

2. **Managing relations with China**: Organisations like the **BRICS and the Shanghai Cooperation Organisation (SCO)** provides both India and China an opportunity to improve their relations.

3. **Balanced foreign policy**: India on the one side is a member of organisation like **Quad which is led by US** and on the other hand is also a member of **BRICS which is led by China and Russia**. So, this makes Indian Foreign Policy balanced.

4. **Increases India's international status**: BRICS membership increases India's global profile and presents an opportunity to project India as a truly international player.

5. India has also added the **Urbanization Forum to BRICS** for greater cooperation to learn from each other's experience in tackling challenges of rapid urbanization faced by all BRICS members.

6. India has formalized **BRICS Academic Forum** (which hosts preparatory meetings for the Summit agenda) by hosting the 1st such meeting in 2009.

✍ What are the issues that India is having with BRICS?

1. **Dominant role of China**: Presence of China and its greater role within the group poses a major challenge to India. China could use the group as a platform for **anti- U.S. propaganda** and this can go against India as it avoids being seen as part of an anti-U.S. group.

2. **Members of BRICS are working against the BRICS philosophy**: As **China is having border disputes** with almost all its neighbours including along its border with India and **Russia** has recently engaged in **aggression against Ukraine**. So, it is increasingly becoming difficult for the BRICS members to promote the principles that laid the foundation of BRICS.

3. **Bilateral differences**: Almost each country in BRICS has some bilateral differences with the other.

4. **Trade related challenges**:
   a. India's total trade with the BRICS countries in **2018-19** was almost **$ 115 billion** and a majority of this was because of its **bilateral trade with China** which was around **$ 87 billion**.
   b. **Low Trade**: The biggest reason for the low trade can be **geographical distance** between the BRICS countries which **increases the time and cost of trade**.
   c. **Restrictive trade environment:** It's another major reason for low trade between BRICS countries. China is continuously engaged in doing **unfair trade practices.**

5. **China working as barrier**: **China's dominance in terms of trade** within the BRICS is another issue for India and is a **big barrier for any opportunity** that India can get in BRICS.

6. **Slow progress on multilateral reforms**: BRICS **may have raised the issue of reforms in United Nations Security Council (UNSC) but this is more declaratory in nature** rather than a serious attempt to work towards it.

✍ What can be the way ahead?

1. BRICS countries **should work together to increase cooperation among them** and also to work towards areas of common interests.

2. It should also work towards **increasing the efficiency of BRICS institutions like NDB**. The rise of **NDB like platforms can increase the status of developing countries** on the international stage.

3. All **member countries should come together on the issue of terrorism** as the group openly declared terrorism as a serious threat to their national, regional and international security.

▶ 3.5 INDUS WATER TREATY

Why in news?

In June 2022, the 118th meeting of the Permanent Indus Commission (PIC), was held in New Delhi.

✎ About the Indus Water Treaty (IWT)

1. IWT was **signed in 1960** between **India and Pakistan** and it was witnessed **by the World Bank.**
2. The treaty fixed the **rights and duties of both countries regarding the use of the water of the Indus River system. Indus River system includes 6 major rivers** and these are:
   i. Indus
   ii. Sutlej
   iii. Jhelum
   iv. Chenab
   v. Beas
   vi. Ravi
3. Treaty says that **all the water of the east flowing rivers – Sutlej, Beas and Ravi which amounts to around 33 million acre-feet (MAF) annually — is allocated to India and is has complete right on it.**
4. The **water of west flowing rivers – Indus, Jhelum and Chenab which is around 135 million acre-feet (MAF) annually has been given mostly to Pakistan.**
5. India has the right under the Treaty **to generate hydroelectricity through run-of-the-river projects on the west flowing rivers**.
   [**Run-of-the-river** hydroelectricity project is a type of hydroelectric generation plant where little or no water storage is done and electricity is generated on natural flow of water.]
6. These projects of India can be done **by following certain criteria on design and operation** and **Pakistan has the right to raise objections on this design**.
7. This treaty also provided for the **funding and building of dams, link canals, barrages, and tube wells for e.g.,** Tarbela Dam on the Indus River and the Mangla Dam on the Jhelum River**.**
8. The treaty **also created a Permanent Indus Commission**, with a commissioner from each country, to maintain a platform for communication.

✎ Highlights of the recent meeting:

1. Pakistan has assured India of **all necessary actions to ensure the free flow of Fazilka drain** into the **Sutlej River**.
2. India has also **given the assurance that all of its on-going Hydro-electric** power (HEP) projects including Pakal Dul, Kiru and Lower Kalnai are **fully under the provisions of the Treaty.**

✎ What are the issues in the treaty?

1. **Tensions in diplomatic relations**: The Treaty gets affected by the overall changes in the India-Pakistan relationship. As the **diplomatic relations between India and Pakistan saw a down phase in recent times**.
2. **Pakistan's regular opposition to the Indian projects**: The opposition is majorly on the **issue that whether projects on Jhelum and Chenab confirms to the technological provisions of the Treaty**. The issue can be seen in several projects such **as Kishanganga Hydroelectric Project (Jhelum), Ratle Hydroelectric Project (Chenab)** etc.
3. **Conflict-resolution method through a 3rd party guarantor**: The **World Bank is the guarantor of IWT** and **relies on the data of lower side country** (Pakistan) in case of report of any issue related to illegal disturbance in the river flows.
4. **No regular data sharing as planned in the treaty**: The flow data sharing is very important to understand the dynamics of river basin in totality.

5. **Effect of climate change**: Melting of glaciers may increase water flow in the short term, but it will also deplete groundwater recharge in the long run. Similarly, sudden rainfall brings further challenges to address flood risks.

✎ What can be the way ahead?

1. **Utilising its entire share**: Over the years, India has been a humble upper riparian state as it has **utilized only about 93% of its authorised water** storage capacity.
2. **Can counter Pakistan**: India has used only around **25% of the total estimated capacity of electricity generation from the 3 western rivers** and by this data India **can counter Pakistan's attempts to internationalize the issue** by involving the World Bank.
3. Efforts could be made **to increase cooperation with Pakistan** in areas wherever it is possible. For example, Article 7 of the IWT talks about **"future cooperation"** and calls for taking up joint studies and engineering works on the rivers.
4. **From water sharing to benefit sharing**: To achieve a stronger Indus Water Treaty, both states must shift focus from Water sharing to Benefit sharing. **Joint Electricity Generation Projects is one such example of this.**
5. **Renegotiating the treaty**: A parliamentary panel has recommended to renegotiate the treaty with Pakistan **to address the impact of climate change on water availability in the Indus basin and other challenges which are not covered under the treaty.**
6. **Include principles of present international water laws in the Treaty such as Helsinki Rules**: The Helsinki Rules on the Uses of the Waters of International Rivers is **an international guideline document that maintains the rights of all bordering nations to an equitable share in the water resources and is applicable to all waterbodies that cross-national boundaries**, except where other agreement between bordering nations exists.

3.6 INDIA'S ENGAGEMENT WITH TALIBAN

✎ Why in news?

For the 1st time, since the Taliban came in power in **August 2021**, **India has sent an official delegation to Afghanistan. Recently, India has reopened its Embassy in Kabul.**
Points of discussion:
1. Restarting of infrastructure projects.
2. Activation of diplomatic ties.
3. Restarting the issuance of visa for Afghan students and patients.

✎ Background of Afghan-Taliban Issue:

1. Early **1990s:** Taliban emerged **as a student organisation** around the **Kandahar city of Afghanistan**. It was one of the groups **fighting a civil war to get control of the country** after the withdrawal of Soviet Union in 1989.
2. **In 1996:** Taliban **came to power for the 1st time** and ruled in Afghanistan from **1996 to 2001**. It ruled through the **strict Sharia Law** (Muslim personal law).
3. **2001:** After the **9/11 attack on US in 2001**, the **US led NATO forces entered the Afghanistan** and threw Taliban out of power.
4. With almost 15,000 soldiers, **US remained in Afghanistan for almost 20 years** to prevent emergence of any terrorist group there.
5. **After 2001**: An **elected government** in Afghanistan was formed.
6. **In February 2020:** The US and Taliban signed a deal in **Doha (Qatar) to end the war in Afghanistan** and allow US troops to leave Afghanistan.

7. **In July 2021:** With the **withdrawal of US troops, Taliban started an open war against the Central government of Afghanistan and captured almost entire Afghanistan within a Month.**

✎ **India's support for Afghanistan so far:**

1. India has sent humanitarian assistance like food, medical help etc.
2. This aid has been distributed through international organisations like the **United Nations**, the **World Health Organization**, the **World Food Programme**, and **UNICEF** as India do not have staff on Ground who can distribute this.

✎ **What is India's stand on Afghanistan after Taliban takeover?**

1. When **India** was the **President** of **UNSC (United Nations Security Council)** then it **adopted a Resolution 2593.** It mentions that the territory of Afghanistan should not to be used to threaten any country or to shelter terrorists.
2. **India** also **participated in the UN High-Level Meeting** on the Humanitarian Situation in Afghanistan held in September 2021 and appealed there to reopen Kabul airport so that it can send some more help.
3. India also conducted **the Delhi Regional Security Dialogue on Afghanistan in November 2021. National Security Advisors of 8 countries: India, Iran, Kazakhstan, Kyrgyz Republic, Russia, Tajikistan, Turkmenistan, Uzbekistan** had participated in this.

✎ **Importance of Afghan stability:**

1. It can affect the **neighbouring Central and South Asian countries** like Tajikistan, Uzbekistan, India, Pakistan etc.
2. Rise of Taliban can **revive extremism in the region** and the region can become a safe place for terrorist organisations like **Haqqani Network**, **Lashkar-e-Taiba (LET), ISIS** etc.
3. Afghanistan's stability will help the Central Asian countries with the shortest **access to the seaports of the Indian ocean.**

✎ **Why is it important now for India to talk with the Taliban?**

1. Taliban is now having a **big presence in Afghanistan.**
2. India is having a big **Investment** in Afghanistan and to secure assets worth **$3 billion**, India should engage with all parties in Afghanistan.
3. **Taliban engaging with Pakistan** will not be good for India.
4. **If India does not engage with Russia, Iran and Pakistan then China will emerge as the shaper of Afghanistan's political** and **geopolitical destiny,** which for sure will not be in India's interest.

✎ **What needs to be done now?**

1. The urgent **need is to collectively act** for the safety of Afghan people by checking violence.
2. **Afghanistan should be given enough space in Central and South Asian forums** and discussions like **SCO (Shanghai cooperation organisation), SAARC (South Asian Association for Regional Cooperation).**
3. Countries like **USA, Iran, China and Russia** should actively involve **India to maintain peace and stability in Afghanistan.**
4. A **collective action to solve the refugee crisis** needs to be taken.
5. **Indian engagement with Taliban to maintain peace** with immediate neighbours.

3.7 INDIA AND THE UNITED ARAB EMIRATES (UAE)

✎ Why in News?

In **June 2022**, PM Modi visited UAE and during PM's visit, **both countries reviewed the progress on the 'Joint Vision Statement (JVS)'** which was made during a **virtual (online) summit in February 2022.**

1. In the **JVS both countries agree to strengthen the 'Comprehensive Strategic Partnership'(CSP)**. CSP is the partnership between 2 countries that covers almost every sector and area for co-operation like trade, defence, investments etc.

✎ About UAE

1. It's a country located in **West Asia**. It is located at the eastern end of the **Arabian Peninsula** and shares borders with **Oman** and **Saudi Arabia.**
2. UAE is a **group of 7 cities** and **each of these 7 cities have their own rulers who are known as Emirs**. These Emirs are the part of UAE's central govt. too.
3. **7 cities of UAE** are: 1) **Abu Dhabi** 2) **Ajman** 3) **Dubai 4) Fujairah** 5) **Ras Al Khaimah** 6) **Sharjah** 7) **Umm Al Quwain**.
4. **Abu Dhabi** is the **capital of UAE**, while **Dubai** is its most **populated** city.

✎ India-UAE relations:

1. In 1972: India and the UAE **established diplomatic relations.**
2. In 2015: After the visit of Indian PM to UAE, both sides finalised **strategic partnership.**
3. Further, during the visit of the **Crown Prince of Abu Dhabi** to India as part of **India's Republic Day celebrations,** it was agreed that Bilateral relations (between 2) were to be **upgraded to Comprehensive Strategic Partnership (CSP).**
4. In **February 2022:** Both signed **Comprehensive Economic Partnership Agreement (CEPA),** during the **India-UAE Virtual Summit**. The Agreement came into force **on May 2022. Under CEPA, Taxes and Duties** will be **reduced to almost zero** on the goods and services traded between these 2 countries.
5. CEPA is expected to increase the trade in goods between the 2 countries to a total of almost **US$100 billion** and over **US$ 15 billion in services within the next 5years.**
6. It will also **help Indian exporters to export to other West Asian countries, Africa etc. through UAE.**
7. Both **sides agreed to work for peace and security in the Indian Ocean Region (IOR)** through regular military exercises like **Desert Eagle**.
8. Both countries agreed to **jointly fight all forms of terrorism**, including cross-border terrorism.
9. Both sides agreed to **further strengthen the people-to-people ties**. UAE has the **highest number of Indian origin people (3.5 million)** as compared to other countries of the world and **they send a very high amount of remittances** (part of their earnings in foreign countries) to India **($17.06 billion in 2019)**.
10. Both sides agreed **to increase the cooperation in the field of Space. ISRO launched UAE's 1st Nanosatellite Nayif-1.** Nanosatellites are those satellite's which are **very small in size**. Mostly they are less than **10 kgs of weight**.

3.8 ISRAEL SIGNED FREE TRADE AGREEMENT (FTA) WITH UAE

Why in News?
In May 2022, Israel signed an FTA with the United Arab Emirates (UAE) with the help of US. It is **Israel's 1st FTA** with an Arab country.

✎ **About Arab Nations:**
1. "**Arab countries**" are the group of **22 countries** whose citizens' primary **language is Arabic.**
2. These countries are located in **2 regions**:
   - Africa region (particularly in the north part of it)
   - Asia's Arabian Peninsula.
3. Other **2 Arab nations** having normal ties with **Israel are Egypt and Jordan**.

✎ **What is FTA?**

It is an **agreement between 2 or more countries to reduce barriers to imports and exports.** Under FTA, both tax barriers as well as non-tax barriers (like quota, sanctions etc) are reduced to minimum level.

✎ **What is the current level of trade between the both Countries?**
1. As compared to **2020**, **Israel recorded more than a 30% increase in import and export of goods (excluding diamonds) with UAE.**
2. 2- way trade in 2021 was around **USD 900 million**.
3. **Non- oil trade** reached **USD 1.06 billion in the first 3 months of 2022**, which is 5 times increase from the same period last year.

✎ **Significance of the FTA:**
1. **Further extension of Abraham Accord (2020)**: US has played an important role in normalisation of relations between these 2 countries. So, this trade deal shows the importance of a series of diplomatic deals that were signed in 2020 and popularly known as the **Abraham Accords** of **August 2020, which normalized relations between Israel and 4 Muslim countries**—the U.A.E., Bahrain, Morocco and Sudan with the help of US.
2. **Huge Economic Potential**: Because of the **geographic and cultural similarity between the people** of these 2 countries. Secondly, **UAE is the 2nd largest economy in the Arab world** (after Saudi Arabia), with great focus on technology, where Israel has a relative advantage.
3. **Faster Access to Markets and Lower Tariffs**: Businesses in both countries will possibly get benefits from this as these nations will work together **to increase trade, create jobs, promote new skills and deepen cooperation.**
   i. This **deal abolishes customs duties on 96% of the products** exchanged between the 2 sides.
   ii. The agreement also has **provisions related to collaborations, government procurement, e-commerce and intellectual property rights (IPR).**
4. **Boost up Trade**: It will **possibly push the value of non-oil bilateral trade between Israel and the UAE beyond $10 billion**. UAE-Israel trade will **exceed next almost 5 years** through collaboration in **renewables, consumer goods, tourism and the life sciences sectors**.
5. **Israeli companies can gain hold in international market**: By **setting up manufacturing facilities in the U.A.E.,** which serves as a hub for the Middle East Area and other parts of Asia and Africa.

✎ **What is the significance of this agreement for India?**
1. This agreement, has the potential for increased **trilateral cooperation (between India, Israel and UAE)**.
2. It has also **further created opportunities for collaborations in different fields with the US.**

3. Israel, India, UAE and the US are also part of a new grouping named **West Asian Quad**, which was established as a **forum for economic cooperation (especially infrastructure projects) in 2022 only**.

✑ What's the way ahead?

1. This trade agreement with Israel **will possibly create a new environment in the West Asian region** and will be beneficial for all.
2. This **will bring new ties between the countries in the near future and will possibly help in overcoming the long conflicts in the Middle East region** between Israel and many countries of West Asia.

3.9 INDIA- EUROPEAN UNION

✑ Why in news?

In June, 2022, India and the European Union (EU) has completed the 1st round of negotiations for **India-EU Trade and Investment Agreements.**

✑ Historical Background of FTA between India and EU:

1. **In 2007: Bilateral Trade and Investment Agreement (BTIA) i.e.,** the Free Trade Agreement (FTA) **between India and the European Union** was signed. Even after a decade of talks, India and the EU have been unable to resolve certain issues, resulting in a deadlock.
2. **In 2013: the earlier negotiations were left incomplete due to differences in the scope and expectations from the deal.**
3. **In 2022:** Both partners are restarting the Free Trade Agreement (FTA) talks after a gap of about 9 years.
4. Both sides want the trade talks to be broad, balanced, and comprehensive, with an emphasis on equality and mutual benefit.

✑ What is a FTA?

1. It is **a treaty between 2 or more countries to facilitate trade and eliminate trade barriers**.
2. It aims at eliminating tariffs completely.
3. It involves agreements on trade, investments and Geographical Indications (GI).

✑ [NOTE: What is GI?

It is a label given to products that have a specific geographical origin as well as qualities derived from that origin.]

✑ Basics about European Union (EU)

1. It is a group of **27 countries** that function as a unified economic and political group.
2. The euro is the official currency of 19 out of these 27 countries. The **euro is not used by 9 EU members** (Bulgaria, Croatia, the Czech Republic, Denmark, Hungary, Poland, Romania, Sweden, and the United Kingdom).
3. The EU arose from a desire to create a unified European political entity to end centuries of warfare between European countries.
4. By implementing a set of **unified laws** that apply in all member countries in areas where members have agreed to act as one, the EU has created an **internal single market**.
5. In **2012**, the **EU** was awarded the **Nobel Peace Prize for** advancing the causes of peace, reconciliation, democracy and human rights in Europe.

✑ Goals of EU

1. Promote EU citizens' peace, values, and well-being.

2. Provide freedom, security, and justice without internal borders.
3. Promote sustainable development based on balanced economic growth and price stability, a highly competitive market economy with full employment and social progress, and environmental protection.
4. To fight against social exclusion and discrimination.
5. Promote scientific and technological progress.
6. Enhance economic, social and territorial cohesion and solidarity among EU countries.
7. Respect its diverse linguistic and cultural heritage.
8. Create an economic and monetary union with the euro as its currency.

Values of EU

1. The EU values are common to the EU countries which believe in building a society in which inclusion, tolerance, justice, solidarity and non-discrimination prevail.
2. These values are an integral part of the **European way of life** which includes:

   Freedom, Democracy, Equality, Rule of Law, Human Rights, Human Dignity etc.

History of EU
1. Following **WWII (World War-II),** European integration was viewed as a solution for the continent's excessive nationalism.
2. **1946**: **Winston Churchill** promoted the idea of formation of a **United States of Europe** at the University of Zurich in Switzerland.
3. **1951: Treaty of Paris** came, under this treaty following institutions got established
   a. **1952:** the **European Coal and Steel Community (ECSC)** was founded by **6 countries** (Belgium, France, Germany, Italy, Luxembourg, and the Netherlands) to publicly boycott part of their sovereignty by placing their coal and steel production in a common market.
   b. **1952:** The **European Court of Justice** (known as the "Court of Justice of the European Communities" until 2009) was also established.
4. **1957: Euratom Treaty**, under this treaty, the **European Atomic Energy Community (EAEC or Euratom)**, an international organisation was founded with the original goal of developing nuclear energy and distributing it to its member states.
5. **1957: Rome Treaty established the European Economic Community (EEC).** The initial goal of the Community was to achieve economic unification among its 6 founding members, including a common market and customs union.
6. **1965: Merger Treaty (Brussels)** established the European Communities by combining the **3 communities (ECSC, EAEC, and EEC**) under a single set of institution- **European Community (EC)**.
7. **1985: The Schengen Agreement** opened the door for most member countries to have open borders without passport controls. It became effective in 1995.
8. **1986:** The European Community enacted the **Single European Act**, which committed its member countries to a timetable for economic cooperation and **the establishment of a single European currency, and common foreign and domestic policies.**
9. **1992: The Maastricht Treaty** (also known as the **Treaty on European Union**) was signed in Maastricht, Netherlands by members of the European Community to further European integration.

European Union – Decision-Making Bodies:

1. **European Parliament**
   a. It is one of the 3 legislative institutions of the EU.

    b. Members of the European Parliament are elected by European Union citizens every 5 years using proportional representation.

    c. There are 705 members in the European Parliament.

2. **European Council (EC)**

    a. It is a collective body that defines the European Union's overall political direction and priorities.

    b. It comprises the heads of state or government of the EU member states, along with the President of the European Council and the President of the European Commission.

    c. The High Representative of the Union for Foreign Affairs and Security Policy also takes part in its meetings.

    d. Established as an informal summit in 1975, the European Council was formalised as an institution in 2009 when the Treaty of Lisbon had entered into force.

    e. The decisions of its summits are adopted by consensus.

3. **European Commission**

    a. It acts as the executive arm of the EU. It is responsible for the day-to-day functioning of the EU.

    b. It is considered as the guardian of the treaties signed.

    c. It also has legislative powers like proposing laws for debate.

4. **Council of the European Union**

    a. It interprets EU laws to make sure it is applied in the same way in all EU countries.

    b. It also settles legal disputes between national governments and EU institutions.

✎ European Union – Economy

1. EU has a share of around 14% of the global Gross Domestic Product.
2. In 2020, the combined GDP of EU is $ 20 trillion
3. EU also has representation in the World Trade Organization (W.T.O)
4. 19 member states of EU are part of the Eurozone.
5. Euro is used as the common currency in the Eurozone.
6. Euro is the **2ⁿᵈ most traded currency in the world**.
7. Euro is the **2ⁿᵈ largest reserve currency in the world.**
8. As of 2010 data, out of the top 500 largest corporations in the world, 161 of them had their Headquarters in the European Union.

Euro Crisis

1. The EU and the **European Central Bank (ECB)** have struggled with high sovereign debt and collapsing growth in Portugal, Ireland, Greece and Spain since the global financial market collapse of 2008.
2. Greece and Ireland received financial bailouts from the community in 2009, which were accompanied by fiscal austerity. Portugal followed in 2011, along with a 2ⁿᵈ Greek bailout.

India & EU

1. The EU works closely with India to promote peace, create jobs, boost economic growth and enhance sustainable development across the country.
2. In 1962, India was the 1ˢᵗ developing country to establish diplomatic relations with European community.
3. **EU-India Cooperation Agreement 1994** provides the legal framework for EU-India relations. India and the EU have been **strategic partners** since 2004. **Since the Lisbon summit in 2000, India and EU hold regular summits.**

4. As India graduated from low to medium-income country (OECD 2014), the EU-India cooperation also evolved from a **traditional financial assistance type towards a partnership** with a focus on common priorities.

5. At the **2017 EU-India Summit,** leaders repeated their intention to strengthen cooperation on the implementation of the **2030 Agenda for Sustainable Development** and agreed to explore the continuation of the **EU-India Development Dialogue**.

✍ Significance of EU for India:

1. The EU is India's one of the largest trading partner, accounting for €85 billion (95 billion USD) worth of trade in goods in 2017 or **1% of total India trade, after China (11.4%) and the USA (9.5%).**

2. Major EU exports to India include engineering goods, gems and jewellery and chemical and allied products. The primary EU imports include textiles and clothing, chemical and allied products and engineering goods.

3. The EU's share in foreign investment inflows to India has more than doubled from 8% to 18% in the last decade, making the EU one of the largest **foreign investors in India.**

4. India is a member of the international **ITER Fusion Project**, which aims to build and operate an experimental facility to demonstrate the scientific viability of ''fusion'' (energy source of our Sun and stars) as a future sustainable energy source.

5. India also contributes to **Horizon 2020 Research and Innovation Funding**, which enables individual scientists to receive grants from the European Research Council (ERC) or the Marie Sklodowska-Curie Actions (MSCA).

6. Establishment of a **''Green Strategic Partnership'' between India and Denmark** shows significance of Europe in India's technological, and social transformation.

7. **ICT Cooperation:** The EU and India aim to **link** the '**Digital Single Market' with the 'Digital India'**. Apart from these **"Start-up Europe India Network"** initiative and EU-India Cyber Security Dialogue deserves special mention.

8. **Global cooperation:** The EU is on the cutting edge of developing global rules in new fields. It has prompted a global debate about personal data protection rules and, among other things, aims to set a global precedent for ethical, human-centric standards for the use of artificial intelligence.

9. The **EU-India Common Agenda on Migration and Mobility** (CAMM) is a significant agreement between India and the EU. The CAMM addresses 4 priority areas in a balanced manner:
   a. better-organized legal migration,
   b. preventing and combatting irregular migration and addressing trafficking in human beings,
   c. the promotion of international protection, and
   d. maximizing the development impact of migration and mobility.

10. **China's response:** Europe has the economic and technological clout to be a valuable partner for India in countering China's economic and political clout.

11. **Post-Brexit scenario:** India considered the UK as a gateway to continental Europe and with it exiting the EU, Indian firms will lose this advantage. Post Brexit, India recognizes that its own economic prospects depend on the continued growth and internal stability of EU.

✍ Concerns in India-EU relations as evident from stalled negotiations over FTA

1. Different perspectives on Russia's role in the Crimean crisis.

2. **The arrest of Italian marines** in 2012 tensed relations not only between Italy and India, but also with the EU.

3. **Other issues like:** Access to trade in services, non-tariff trade barriers, agreement on India's **IPR** data secure designation for India, and acceptance of an Investor-State Dispute Settlement mechanism.

4. **Human rights:** EU members expressed concern about India's human rights situation, citing difficulties faced by Indian women and minority groups, as well as the closure of **Amnesty International's Indian offices.**

5. Technical trade barriers (TBT), sanitary and phytosanitary (SPS) measures, variation from accepted international standards, and discrimination based on legislative or administrative measures all have an impact on a wide range of industries.

6. The lack of an FTA is the most significant impediment to a dynamic, economic, and trade relationship.

Brexit

1. The EU has imposed too many rules on businesses and charged billions of pounds in membership fees each year for little return.

2. In 2004, the EU admitted 8 Eastern European countries, sparking a wave of immigration that strained public services.

3. **By 2011**, the proportion of foreign-born residents in England and Wales had risen to **13.4% of the population**, nearly double the level in **1991.**

4. Brexit supporters hoped that Britain would restore full control of its borders, reducing the number of people who came to live and/or work in the country.

5. They claimed that the EU is evolving into a super-state that is slowly destroying national sovereignty. They argue that Britain can negotiate better trade treaties on its own without the EU.

6. Withdrawal from the EU is governed by **Article 50 of the Treaty on European Union.**

India and Brexit:

1. **Bilateral Trade and Commerce Relations:** India sees the British exit as an opportunity to expand its trade and economic relations with the UK. This will make it possible for India and the United Kingdom to sign a bilateral free trade and investment agreement.

2. The UK and EU will compete for trade with India and establish long-term relationships with increased trade growth.

3. **Brexit and the uncertainty**: It create would be disastrous for Indian businesses in the UK. The UK's departure would deny these firms direct access to the EU market.

Way forward:

1. **Emerging prospects of collaboration in the post-pandemic world:** There are on-going debates in the EU over the need to diversify supply chains to reduce reliance on other countries for crucial products like pharmaceuticals. This could be one area for developmental cooperation between India and the EU.

2. India's pharmaceutical manufacturing capabilities coupled with access to European healthcare technologies can provide new avenues for enhancing partnerships and promoting innovation between the partners.

3. **Early conclusion of FTA:** The BTIA is crucial because both India and the EU are large markets and India's demographic dividend can help the EU with the movement of skilled labour and professionals.

4. Also, the increased market access will further integrate the services sector, increasing the scope for cooperation and joint ventures.

5. **Strengthening political dialogue:** There is a need to upgrade the yearly dialogue between the high representative/ Vice President of the EU and the Indian minister for external affairs to a regular strategic dialogue.

6. **Launching concrete trilateral/cooperation projects in pilot partner countries:** Establish regular bilateral, as well as trilateral dialogues on/ with Africa, to discuss security, economic issues, as well as connectivity. Further, dialogue on Afghanistan and Central Asia in the appropriate settings should be intensified.

3.10 WEST SETI POWER PROJECT: NEPAL

Why in News?

Nearly 4 years after China withdrew from the West Seti hydropower project in Nepal, India will take over it. Project will be handled by India's National Hydro Power Corporation (NHPC).

Why China withdrew?

The CWE Investment Corporation, a subsidiary of **China 3 Gorges Corporation**, had informed the Nepal Government in August 2018 that it would not be able to execute the **750-MW West Seti Hydropower Project** because it was financially unfeasible and its resettlement and rehabilitation costs were too high.

Cost of the project:

1. The project is expected to cost Nepali Rs 104 billion (Indian Rs 6,500 crore) and will provide Nepal with 31.9% free electricity.
2. Locals impacted by the project will also receive a share of Nepali Rs 10 million, as well as 30 free units of electricity per month.

Nepal's Constitution on such Projects

1. It includes a provision requiring a 2/3rd majority in Parliament to accept any treaty or agreement with another country on natural resources.

India -Nepal Power Relations

1. Nepal is rich in power resources, with over 6,000 rivers and an estimated capacity of **83,000 MW.**
2. However, it has a massive power deficit, generating only about 900 MW against an installed capacity of nearly **2,000 MW.**
3. Although it is currently selling 364 MW of power to India, it has imported from India in the past.
4. India has formally approached Nepal on numerous occasions, seeking preferential rights over Nepali waters if it can match offers from other countries.
5. Although India is viewed as a viable market for Nepal, there has been some concern in Nepal about India's inability to deliver projects on time.

✎ Earlier projects:

1. An ambitious **Mahakali** treaty was signed in 1996 to produce 6,480 MW, but India has yet to release the **Detailed Project Report.**
2. **3 cross-border transmission lines were completed with GoI assistance:**
a. the 400 kV Muzaffarpur-Dhalkebar line (2016).
b. the 132 kV Kataiya-Kusaha and Raxaul-Parwanipur lines.
c. the Raxaul-Parwanipur line (2017).

3.11 INTERNATIONAL NORTH-SOUTH TRANSPORT CORRIDOR (INSTC)

Why in news?

The launch of INSTC has been informally signalled when containers from Russia's Astrakhan port crossed the Caspian Sea and reached Nhava Shiva port in Mumbai.

What is INSTC?

1. It is a **7,200-km-long multi-mode** (supporting more than 1 mode of transport) network of ship, rail, and road route for moving freight (goods) between **India, Iran, Azerbaijan, Russia, Central Asia and Europe**.

2. The objective of the corridor is to **increase trade connectivity** between major cities such as Mumbai, Moscow, Tehran, Baku, Bandar Abbas, Astrakhan, etc.

3. The primary objective of the NSTC project is to **reduce costs in terms of time and money** over the traditional route currently being used.

4. The corridor is expected to **consolidate the emerging Eurasian Free Trade Area** (free trade zone comprising countries located in central and northern Asia and Eastern Europe).

5. The legal framework for the INSTC is provided by a **trilateral agreement** signed by **India, Iran and Russia** at the Euro-Asian Conference on Transport in **2000**.

☙ **Importance of INSTC for India:**

1. **Reduce freight (goods in bulk) costs by 30% and the journey time by 40%** in comparison with the traditional deep-sea route via the Suez Canal.

[NOTE: What is Suez Canal?

It is an artificial sea-level waterway in Egypt, connecting the Mediterranean Sea to the Red Sea through the Isthmus of Suez and dividing Africa and Asia. The canal is a route of trade between Europe and Asia.]

2. It will help India **bypass China-led Belt and Road Initiative (BRI)** and establish north-south transport corridor that can complement the east-west axis BRI.

3. It will help India to **bypass Pakistan to access Afghanistan, Central Asia** and beyond.

4. It marks a **shift in India's approach from non-alignment to multi-alignment**: E.g., India's working under QUAD, SCO and INSTC at the same time.

4. SOCIAL ISSUES

▶ 4.1 ACCREDITED SOCIAL HEALTH ACTIVIST) WORKERS

Why in News?

1. India's ASHAs are among the six recipients of the WHO Director-General's Global Health Leaders Award
2. The honour recognizes contributions to advancing global health, leadership, and commitment to regional health issues.

✎ A total of six recipients were given the awards:

1. In February 2022, eight volunteer polio workers were shot and killed by armed gunmen in Afghanistan's Takhar and Kunduz provinces.
   a. Notably, Pakistan and Afghanistan remain the only two countries in the world where polio is still spread.
2. **Dr. Paul Farmer** for his contributions to direct healthcare services, research, and advocacy on behalf of the sick and poor;
3. **Dr. Ahmed Hanker for his anti-stigma programme that combines the power of storytelling and performing arts with psychiatry;**
4. **Ludmila Sofia Oliveira Varela, a volleyball player, for facilitating youth access to sports as an alternative to risky behaviour.**
5. **Yohei Sasakawa** for his global fight against leprosy and the associated stigma and social discrimination.

✎ About Accredited Social Health Activist) workers:

1. **ASHA (which means "hope" in Hindi) workers are community volunteers who have been trained to provide information and assist people in accessing the benefits of various government healthcare schemes.**
2. **They serve as a link between marginalised communities and facilities such as primary health care centres, sub-centres, and district hospitals.**
3. The ASHA programme was based on **Chhattisgarh's successful Mitanin programme**, in which a Community Worker looks after 50 households.
4. Over 98% of ASHAs live in the village where they work and know every household.
5. She acted as a demand-side functionary, transporting patients to facilities and providing health care closer to home.
6. **The National Rural Health Mission (NRHM) established the role of these community health volunteers in 2005.**
7. ASHAs are mostly married, widowed, or divorced women from the community between the ages of 25 and 45. According to the NRHM programme guidelines, they must have good communication and leadership skills, as well as be literate with formal education up to **Class 8.**
8. There are approximately 10.4 lakh ASHA workers in the country, with the largest workforces in populous states such as Uttar Pradesh (1.63 lakh), Bihar (89,437), and Madhya Pradesh (77,531).
   a. **Note: Goa is the only state with no such workers, as per the latest National Health Mission data available from September 2019.**
9. ASHA will have to undergo series of training episodes to acquire the necessary knowledge, skills and confidence for performing her spelled out roles.

ASHA workers Responsibilities:

1. **The details task assigned to ASHA workers under National Health Mission**
2. To raise community awareness and provide information about health determinants such as nutrition, basic sanitation and hygiene practises, and health services.
3. To counsel women and families on birth preparation and to ensure that women have ante-natal check-ups, maintain nutrition during pregnancy, give birth in a healthcare facility, and receive post-birth training on breast-feeding and complementary nutrition for children.
4. To provide women with information on contraception and sexually transmitted infections.
5. To ensure and motivate the immunisation of children in their community.
6. ASHAs will assist and mobilise the community for action against gender-based violence in collaboration with **Village Health, Sanitation and Nutrition committee (VHSNC).**
7. To provide curative care at the community level for minor ailments such as diarrhoea, fevers, care for normal and sick new-borns, childhood illnesses, and first aid.
8. Under the Revised National Tuberculosis Control Programme, she will provide Directly Observed Treatment Short-course (DOTS).
9. She will also serve as a depot holder for essential health products tailored to the needs of the local community. Each ASHA will be given a drug kit.
10. The ability to act as a caregiver can be improved based on state needs. States can look into providing ASHA with graded training to provide palliative care (specialised medical care), screening for noncommunicable diseases, childhood disability, mental health, geriatric care, and other services.
11. To provide information on about the births and deaths in her village and any unusual health problems/disease outbreaks in the community to the Sub-Centres/Primary Health Centre.
12. Under the Total Sanitation Campaign, she will promote the construction of household toilets.

How did the ASHA network help in pandemic response?

1. **ASHA workers were an important part of the government's pandemic response, with most states utilising the network to screen people in containment zones, test them, transport them to quarantine centres, or assist with home quarantine.**
2. **During the first year of the pandemic, when everyone was terrified of the infection, ASHA workers had to go door-to-door checking for COVID-19 symptoms. They had to notify the authorities and assist the people in getting to the quarantine centres.**
3. ASHA workers were required to visit households with confirmed COVID-19 cases and explain the quarantine procedure. They had to give them medications and pulse oximeters. All of this is on top of their regular duties.
4. They have also been tasked with motivating people to get their shots and collecting data on how many people have yet to be vaccinated for COVID-19, which begins in January 2021.

What is the significance of ASHA workers?

1. ASHAs were respected because they brought basic health services to people's homes.
2. The role of a community health volunteer is regarded as critical to achieving the goal of increasing community participation and access to the healthcare system. Their involvement resulted in increased traffic to government facilities.

3. Accountability of public health services increased; there would be protests if a facility did not extend quality services.
4. Incentives for institutional deliveries and the establishment of emergency ambulance services such as 108, 102, and so on were implemented in most states, putting pressure on public institutions and improving ASHA mobility.
5. Overall, it resulted in the creation of a new cadre of incrementally skilled local workers who were compensated based on performance.
6. Needless to say, ASHA employees helped to slow the spread of the COVID-19 pandemic.

 Challenges Faced by ASHA Workers:

1. **The work burden hardly makes it Voluntary in nature:** Their job description keeps expanding to include more tasks. There are multiple tasks that they have to do on a daily basis. Most of them don't consider it "voluntary" work that could be done based on how much time they have, but rather duties that any regular employee has to perform.
2. "Her work would be so tailored that it does not interfere with her normal livelihood," the National Health Mission states, referring to the role's volunteer nature.
3. Governments are not required to pay them a salary because they are considered "volunteers." They were paid incentives for various tasks they completed, with no fixed wage component. It amounted to anywhere between Rs 6,000 and Rs 8,000 per month (less than the wages of unskilled manual labour under MGNREGA). Furthermore, there is a lot of variation in how much they are paid across states. To make matters worse, they must deal with payment delays, inadequate infrastructure and transportation, and so on.
4. The goal of providing incentives rather than pay was to avoid "**governmentisation**" and promote "**communitisation**" by holding her accountable to the people she served.
5. There is no provision for safety nets: they receive no benefits such as pensions or health insurance. The persistent disregard for their working conditions undermines policy outcomes, women's empowerment, and community development in general.
6. There is a strong case to be made for granting some of these positions' permanent status with reasonable compensation as a means of sustaining motivation. For quite some time, ASHA employees have been demanding that they be made permanent government employees with benefits.
7. There is also a strong call for community workers to have their skills and capacity developed so that they can advance up the skill ladder in the formal primary health care system as an ANM/GNM or a public health nurse.
8. Poor infrastructure, such as insufficient transportation, made it difficult for them to carry out their regular duties.
9. High Workload: In addition to their regular defined tasks, ASHAs are frequently required to take on additional work (from other government departments) that is outside the scope of their roles.
10. Other demotivating factors include a lack of medicine, a lack of training, family disapproval, the attitude of health staff at referral centres, and the auxiliary nurse midwife/Anganwadi worker's refusal to cooperate.

Way Forward:

1. Given the decline in female labour force participation, the government must urgently recognise front-line workers and their contribution to human development.
2. The system can only survive and grow if the compensation is adequate and the ASHA maintains the community's trust.

3. There will be built-in institutional mechanisms for capacity-building as well as opportunities for ASHAs to advance to other cadres such as ANM, public health nurses, and community health officers.

4. Expanding better opportunities with decent wages for front-line workers is not only necessary for recognising their rights as workers, but could also contribute to the **revival of the rural economy** by putting wages into the hands of many ASHA workers.

4.2 THE DEBATES AROUND THE SURROGACY ACT:

Why in news?
Petitioners in the Delhi High Court questioned why specific criteria are being acknowledged to decide **surrogacy** in India.

What is surrogacy?

It is defined as a practice where a woman (surrogate)undertakes to give birth to a child for another couple and agrees to hand over the child to them after birth.

What's the issue?

1. A married petitioner was denied a chance at commissioning surrogacy under the provision of surrogacy act.
2. **Surrogacy Act, 2021:**
   a. The surrogacy provision allows married couples (who do not have their own child) to opt for surrogacy only on **medical grounds.**
3. **2.Allow "altruistic surrogacy (**where the surrogate does not receive compensation for her services beyond pregnancy-related expenses).
4. **A national board was created to** execute a code of conduct for people working at **IVF (in Virto fertilization)** clinics.
5. It intends to make **genetic testing of the embryo is mandatory.**
6. It also seeks to provide the **cryo-preservation processes for sperm, oocytes, and embryos.**
7. It also proposes to **constitute a national registry** and registration authority to maintain a central database and **assist the national board in its functioning**.

✍ Who can use the services of a surrogate mother?

1. Any couple that has "**proven infertility**".
2. The couple should be Indian citizens who have been married for at least 5 years.
3. **3.**The female is between 23 and 50 years old and the male is 26 to 55 years old.
4. They cannot have any surviving children except a "child who is mentally or physically challenged or suffers from a life-threatening disorder or fatal illness.

✍ Who can be a surrogate mother?

1. Only a close relative of the couple can be a surrogate mother.
2. She should have been married and should have had her own child.
3. She can be a surrogate mother only once.

National and state surrogacy boards constituted by central and state government respectively.
The central and the state governments shall constitute the National Surrogacy Board (NSB) and the State Surrogacy Boards (SSB),

✍ National Surrogacy Board Functions:

a. Advising the central government on policy matters relating to surrogacy

   b. Laying down the code of conduct of surrogacy clinics
   c. Observe the functioning of SSBs.

✎ Parentage and abortion rules:

1. A child born through surrogacy procedure will be the **biological child of the intending couple**.
2. Surrogate mother will have option to withdraw from surrogacy before embryo implanted in her womb.
3. An abortion of the surrogate child requires the written consent of the surrogate mother and the authorization of the appropriate authority.

✎ Offences and penalties:

1. Undertaking or advertising commercial surrogacy
2. Exploiting the surrogate mother and child
3. Selling or importing human embryos for surrogacy.
4. The penalty for such offences is imprisonment up to 10 years and a fine of up to 10 lakh rupees.

✎ Why regulations on Surrogacy?

1. India has emerged as a hub for infertility treatment, attracting people from all over the world.
2. Deprived women rent their wombs and thereby make money to take care of their expenses.
3. Once information about the availability of rented wombs got out, the demand also picked up.
4. Several instances have also come up where women didn't get the promised sum.

✎ Other issues:

2008: a Japanese couple began the process with a surrogate mother in Gujarat, but when the child was born, they refused to take it.
2012: an Australian couple commissioned a surrogate mother and arbitrarily chose one of the twins that were born.

▶ 4.3 CHILD MARRIAGE

Why in news?
According to National Family Health Survey-5 (NFHS-5), every fourth woman surveyed in the age group of 20 to 24 was married before they turned 18.

✎ More findings about child marriage in NFHS-5:

Age at 1st marriage
1. Marriage before the legal marriage age: 38% of women aged 20-49 marry before the legal marriage age of 18 years, and 23% of men aged 25-49 marry before the legal marriage age of 21 years.
2. However, both men and women have shown a declining trend in terms of early marriage. The median age at first marriage is 19.2 years for women aged 20 to 49 and 24.9 years for men aged 25 to 49.
3. **West Bengal followed by Bihar** has the lowest child marriage age, with nearly two-fifths of women marrying before reaching the legal marriage age.

✎ Child Marriage can be defined as:

1. It is a marriage or union that occurs before the age of 18.

2. Child marriages in parts of Europe and Central Asia may reflect a hardening of gender attitudes that reinforce and limit girls' opportunities.

3. Child marriage is frequently associated with patriarchal attitudes toward girls, such as the need to protect family "honour."

4. While some boys marry before the age of 18, the vast majority of children marry before the age of 18, often against their will and with serious results.

✎ Widespread of child marriage in India:

1. According to NFHS-5 data, approximately 25% of women aged 18–29 marry before reaching the legal marriageable age of 18.

2. Child marriage is more common in rural India than in urban India (28% vs. 17%, respectively).
   a. West Bengal (42%), and
   b. Bihar and Tripura each contributed 40%.
   c. Goa, Himachal Pradesh, and Kerala (between 6% and 7%).

3. Adivasis and Dalits account for 39% of child marriages in India.

4. The share of advantaged social groups is 17% and the remaining share is of other backward classes.

✎ Causes of child marriage:

1. **Cultural and social factors:** Due to social norms in many regions and cultures, when a girl reaches reproductive age, her parents begin planning her marriage.

2. In many societies, polygamy is often associated with child marriage.

3. **Poverty prevalence and dowry burden:** For many poor families, marrying their daughter at a young age is a survival strategy; it means one less person to feed, clothe, and educate.

4. Furthermore, the high dowry costs associated with delayed marriages force families to marry their children at a young age.

5. **Security and safety:** Parents believe that marrying their child earlier will protect and secure them from increased or generalised violence, including sexual violence.

6. **Lack of education:** Having little or no education is strongly linked to marrying at a young age. Girls' education is frequently a low priority, and their primary role is that of a wife, mother, and homemaker, which forces them to marry at a young age.

7. **Inadequate law enforcement**: According to the Prohibition of Child Marriage Act of 2006, marriages that occur as a result of the use of force/threat/fraud/kidnapping or a violation of a court's injunction order to prevent such a marriage from occurring are null and void, implying that child marriages for other reasons are valid.

✎ Impacts:

1. It has a disproportionate impact on girls, limiting their educational opportunities, jeopardising their health, and trapping them in poverty, undermining their prospects and potential.

2. Child brides are isolated from their families, friends, and communities, as well as subjected to violence, abuse, and exploitation.

3. Girls who marry early often become **pregnant** while they are still children themselves, with **great risks** for their own well-being and that of their babies.

4. There are clear links between **child marriage and school drop-out**, with girls who are married before the age of 18 less likely to be in school than their peers, and girls who drop out of school more likely to be married.

5. The majority of rescued children are not brought before Child Welfare Committees (CWCs) and are frequently returned to their parents, resulting in secret forced marriages.
6. Others are compelled to live in the same socioeconomic cultural environment, causing frustration and anxiety.
7. Those who remain at home with their parents face daily adversity and humiliation, and such incidents discourage adolescents from speaking out against child marriage.

✎ **Strategies for delaying osr preventing child marriage include:**

1. Provide information, skills, and support networks to girls.
2. Provide financial assistance and incentives to girls and their families.
3. Educate and mobilise parents and members of the community.
4. Improve girls' access to a good education.
5. Encourage the passage of supportive legislation and policies.
6. The most vulnerable girls should be given priority, and those with influence in families and society should be mobilised to give girls more control over their own lives and prospects.
7. Communication campaigns help to examine traditional beliefs about marriage and promote behaviour changes within communities, resulting in equality, access to education, and freedom from exploitation and discrimination.
8. A comprehensive National Plan of Action with regional consultations is required to address local issues and eliminate child marriages.

Initiatives by Govt of India to end child marriage

✎ **1.Legislative (law):**

a. **Child Marriage Restraint Act, 1929:** It restricts the practice of child marriage.
b. **Prohibition of Child Marriage Act, 2006**: It was enacted to address and fix the shortcomings of the Child Marriage Restraint Act.
c. **Special Marriage Act, 1954 and Prohibition of Child Marriage Act, 2006:** These prescribe 18 and 21 years as the minimum age of consent for marriage for women and men respectively.

2. Scheme and policies

a. Beti Bachao Beti Padhao (BBBP) is a scheme run by the Ministry of Women and Child Development.
b. Committee of the Ministry of Women and Child Development: To look into issues like maternal age, the importance of lowering the Maternal Mortality Ratio (MMR), and improving women's nutritional status.
c. The District Child Protection Unit (DCPU) locates and rescues children in need of care and protection.
d. District Child Protection Committees: These are nodal organisations at the district level that review and monitor work related to ensuring child rights. They are chaired by the Chairperson of the Zilla Parishad.
e. State governments are attempting to eliminate child marriages by 2030.
f. SDG 5: It addresses gender equality and the empowerment of all women and girls, with the goal of preventing child marriage.

4. **Help line**

a. The Government of India has launched CHILDLINE, with the short code 1098, a 24-hour telephone emergency outreach service for children in crisis, including child marriage prevention, in collaboration with police and District Child Protection Units.

▶ **4.4 SHRESTHA SCHEME**

Why in news?

1. **Ministry of Social Justice and Empowerment** has launched the scheme 'SHRESHTA.' This scheme is known as **Scheme for residential education for students in High school in Targeted Areas.**
2. The scheme was created with the goal of providing quality education and opportunity to students of Scheduled Castes

Note: The Ministry of Social Justice and Empowerment is responsible for the welfare, social justice, and empowerment of the society's disadvantaged and marginalised groups, such as Scheduled Castes, Backward Classes, Persons with Disabilities, Senior Citizens, and Victims of Drug Abuse, among others.

National Testing Agency

1. It was formed as a Society under the Indian Societies Registration Act of 1860.
2. It is a self-sustaining and autonomous (controls itself rather than being controlled by anyone else) testing organisation that conducts entrance examinations for admission/fellowship in higher educational institutions.
3. It administers efficient, transparent, and international standard tests to assess candidates' competency for admission and recruitment purposes.

About SHRESHTA Scheme

1	PURPOSE	1. **To improve the socioeconomic status of the Scheduled Castes population by providing high quality education to their children in CBSE affiliated private schools in grades 9 and 11.**
2	**OBJECTIVE**	1. Easier access to government schemes. 2. Foster a favorable environment for the growth of scheduled castes. 3. Collaborating with volunteer groups to close the service-deficient Scheduled Castes (SCs) dominating regions in the education sector. 4. To enable bright Scheduled Caste (SC) students with high-quality education so that they can pursue future opportunities.
3	**ELIGIBILITY**	1. Students from Scheduled Castes studying in classes 8th and 10th in the current academic year (2021-22) are eligible to participate in the scheme. 5. 2. Students from the SC community who earn up to Rs.2.5 lakh per year is eligible.
4	**MECHANISM**	6. The selection will take place through a transparent process known as the National Entrance Test for SHRESHTA (NETS). 7. The National Testing Agency (NTA) will administer it for admission to classes 9th and 11th.
5	**BENEFICIARIES**	8. The government expects that around 3000 students from the SC category will be admitted to Class 9 and Class 11 under this system each year. 9. The Ministry will cover the entire cost of their school and housing fees until they complete their academics in class 12th.

4.5 PARAKH (PERFORMANCE ASSESSMENT, REVIEW, AND ANALYSIS OF KNOWLEDGE FOR HOLISTIC DEVELOPMENT)

1. It is a national assessment centre for all AICTE (All India Council of Technical Education) approved institutes, was **established by the Ministry of Education.**
   {**AICTE** was established **in November 1945** as a **national-level Apex Advisory Body** to conduct a survey of technical education facilities in the country and to promote unified and coordinated development**.}**
2. It will support colleges in identifying learning gaps and preparing students for employment.
3. It gives students a place to **self-assess** their learning outcomes and **21st-century life skills.**
4. It helps students develop higher-order thinking skills.
5. It was introduced as part of the **National Education Policy 2020**.

✑ National Education Policy—2020:

It is a comprehensive framework for elementary, secondary, and postsecondary education, as well as vocational training in both rural and urban India.

✑ NEP's goal is:

1. The goal of a NEP is to provide a comprehensive framework for guiding the development of education in the country.
2. **Recognizing, identifying, and developing** each student's unique abilities
3. All students must achieve foundational literacy and numeracy by grade three.
4. Complete valuations and participation, as well as extensive use of technology for creativity and critical thinking,
5. The focus is on **conceptual learning.**

4.6 PERFORMANCE GRADING INDEX FOR DISTRICTS (PGI-D)

Why in news?
1. It has been released by the Ministry of Education.
2. Rajasthan's Sikar is the top performer in the Index.

✑ About Performance Grading Index for Districts:

1. The **index analyses the performance** of the school education system at the district level.
2. The **Indian Education System;**
   a. One of the largest in the world.
   b. Nearly 15 lakh schools.
   c. Approx 97 lakh teachers.
   d. About 26 crore students from varied socioeconomic backgrounds.
3. The data for the assessment is **filled by districts through the online portal.**
4. It assesses institutes across **83 indicators**, which are grouped under **6 categories**;
   I.   Effective Classroom Transaction.
   II. Infrastructure Facilities & students Entitlements
   III. School Safety and Child Protection.
   IV. Digital Learning.
   V.   Governance Process.
   VI. Outcomes

These categories are further divided into **12 sub-categories**;
   I.   Learning Outcomes and Quality.

II.   Access Outcomes.
III.   Teacher Availability and Professional Development Outcomes.
IV.   Learning Management.
V.   Learning Enrichment Activities.
VI.   Infrastructure, Facilities, Student Entitlements.
VII.   School Safety and Child Protection.
VIII.   Digital Learning.
IX.   Funds convergence and utilization.
X.   Enhancing CRCs Performance.
XI.   Attendance Monitoring Systems.
XII.   School Leadership Development.
5. The index grades the **districts into 10 grades.**
    a. **Daksh** is the Highest achievable Grade for Districts scoring more than 90% of the total points in that category or overall.
    b. **Akanshi-3** in the lowest grade for scores up to 10% of the total points.
        c. The in-between grades are 'Utkarsh' (81- 90%), 'AtiUttam' (71-80 %), 'Uttam' (61 to 70 %), 'Prachesta-1' (51 to 60 %), 'Prachesta-2' (41 to 50%), etc
6. The Index shows that **schools across India performed poorly digital learning category**.
    a. Around 61% of districts of the country, Students had very little exposure to digital learning due to limited availability of computers, Internet facilities and teachers trained to handle technological tools in schools.
    b. Nearly 180 districts scored less than 10% on digital learning.

Way Forward
1. The Index would **help in identifying the gaps at the district level** and improve their performance in a decentralized manner.
2. It will encourage education institutions to perform better and raise the quality of education.

▶ **4.7 PM EVIDYA**

Why in news?
1. India received UNESCO's recognition for the use of ICT in school education.
2. Use of ICT (Information and communications technology) under the **initiative of PM eVIDYA wins UNESCO's recognition.**

✎ **About PM eVIDYA:**
1. The Ministry of Education launched this programme in May 2020 as part of the Atma Nirbhar Bharat Abhiyaan.
2. The goal was to promote digital, online education in order to enable multi-mode access to convey education while minimising learning losses.
3. The Central Institute of Educational Technology (CIET), a unit of the Ministry of Education's National Council of Educational Research and Training (NCERT), has been awarded the UNESCO King Hamad Bin Isa Al-Khalifa Prize for the Use of ICT in Education for the year 2021.

✎ **Some Other related concern:**
1. India has achieved universal primary school enrolment. This is a big achievement, but getting students to school is only the **1st step** in developing human capital.
2. Poor quality of facilities; shortage of qualified faculty.
3. curriculum that is out of date and a limited university-industry partnership.

4. The governance system is broken. There are a few incentives for being a good teacher and a few penalties for being a bad one. More effective and accountable governance systems are required.
5. The greed of private colleges to make as much money as possible from each student puts harrowing pressure on students, resulting in mental breakdown.
6. Girls drop out of school at a higher rate than boys. While boys go to work, girls usually stay at home and help with household chores. Gender role socialisation is an important factor.
7. Pandemics and the digital divide are causing learning loss.

Steps by the Government to Reform Education Sector

1. Article 21A of the 86th Constitutional Amendment provides the fundamental right to free and compulsory education, which includes a common education system in which "rich and poor are educated under one roof."
2. **The Rashtriya Uchchatar Shiksha Abhiyan** provides funding to eligible state higher educational institutions.
3. To provide world-class education to Indian students throughout the country, the Declaration of Educational Institutions as Eminent Institutions
4. The establishment of a Higher Education Financing Agency to support high-quality infrastructure in prestigious educational institutions.
5. **The National Institution Ranking Framework** for ranking our higher education institutions
6. The GIAN Initiative will invite distinguished academicians, entrepreneurs, scientists, and experts from world-class institutions to teach in India's higher education institutions.
7. Sodhganga will create a national repository of Indian universities as well as digital study materials for higher education.
8. The Samagra Shiksha Scheme aims to provide inclusive and equitable quality education at all levels of schooling.
9. AI can be used to provide personalised instructions based on the needs of the students.
10. The government must work to improve digital infrastructure and provide students with mobile phones or laptop computers.

4.8 QS WORLD UNIVERSITY RANKING 2023

Why in news?

1. One of the leading global higher education analysts QS (**Quacquarelli Symonds)** has released the 19th edition of the **international university rankings**.
2. It is the **only** international ranking to have received the approval of **International Ranking Expert Group (IREG)** (It includes a distinguished group of individuals who develop or analyse ranking systems and involves the leading media and other organizations that publish ranking systems along with researchers and others who study the rankings of colleges and universities as well as their study programs and research activities.)

✎ **Indicators that decide the ranking:**

1. Academic reputation (AR) (40%)
2. Employer reputation (ER) (10%)
3. Citations per faculty (CPF) (20%)
4. Faculty/student ratio (20%)

5. International faculty ratio (5%)
6. International student ratio. (5%)

✍ **Performance of Indian Institutions**:

1. The latest edition features 41 Indian universities, of which 12 improved their positions, 12 remained stable, 10 declined and seven are new entries.
2. Overall, Indian education institutes, 41 of which made it to the rankings, have performed poorly across many key metrics. For instance, 30 out of 41 ranked universities have suffered declines in the **Faculty Student Ratio (FSR)** indicator, with only four recording improvements.
3. The **IISc (Indian Institute of science)** ranks 155th globally, and is the global leader in the **citations per faculty (CpF)** indicator, which QS uses to evaluate the impact of the research produced by universities.
4. The IISc is the fastest rising South Asian University among the top-200 universities in the QS rankings, having climbed 31 places year on year.
5. The **IIT Bombay**, which was the top Indian university in QS World University Rankings of the previous edition, is the second-best Indian institution this time and climbed five places globally to reach the 172 ranks.
6. The third best Indian university is the Indian Institute of Technology, Delhi (IITD), followed by IIT Madras and IIT Kanpur.
7. Jindal Global University is the top-ranked private institute in India.
8. No other Indian university, public or private, has found a place in the top 500 category globally, since the launch of the **Institute of Eminence scheme.**

INDIA'S BEST
Top Indian institutes in QS World University Rankings 2023

2023	Institute	2022
155	IISc Bangalore	186
172	IIT Bombay	177
174	IIT Delhi	185
250	IIT Madras	255
264	IIT Kanpur	277
270	IIT Kharagpur	280
369	IIT Roorkee	400
384	IIT Guwahati	395

✍ **Other Indian Initiatives with similar objective:**

1. **Institutions of Eminence (IoE) Scheme**:
   It is a government's scheme to provide the regulatory architecture for setting up or upgrading of 20 Institutions (10 from public sector and 10 from the private sector) as world-class teaching and research institutions called '**Institutions of Eminence'.**

2. **National Education Policy, 2020:**
   It aims to introduce several changes in the Indian education system - from the school to college level and make India a global knowledge superpower.

3. **Impacting Research Innovation and Technology (IMPRINT):**
   It is a first-of-its-kind Pan-IIT and IISc joint initiative to develop a new education policy and a roadmap for research to solve major engineering and technology challenges that India must address and champion to enable, empower and embolden the nation for inclusive growth and self-reliance.

4. **Uchhatar Avishkar Yojana (UAY):**
   It was announced with a view to promote innovation of a higher order that directly impacts the needs of the industry and thereby improves the competitive edge of Indian manufacturing.

4.9 CHILDREN IN STREET SITUATIONS (CISS)

The National Commission for the Protection of Child Rights (NCPCR) has launched a "CiSS application" through the Baal Swaraj portal to support in the rehabilitation of street children.

✎ About NCPCR:
It is a statutory body under the Commissions for Protection of Child Rights (CPCR) Act, 2005.
Note: Statutory body is a non-constitutional body which is set up by a parliament. They are authorized to pass the law and take the decision on the behalf of state or country

About the Baal Swaraj portal

1. It was launched by NCPCR.
2. It is a portal for online tracking and digital real-time monitoring of vulnerable children.
3. The portal has 2 functions: **COVID care and CiSS.**
   Baal Swaraj follows a 6ᵗʰ stage framework for child rehabilitation.
1. The portal is used to collect the child's information.
2. Under the supervision of the District Child Protection Unit, investigating the child's background (Social Investigation Report).
3. Creating a child's Individual Care Plan (ICP).
4. The Child Welfare Committee (CWC) issued an order based on the SIR.
5. Allocating the schemes and benefits available to the beneficiary.
6. A checklist is created to evaluate progress (follow ups).

About the CiSS application

1. It is used to collect data on street children from all states and union territories, as well as track their rescue and rehabilitation.
2. According to the standard operating procedure for care and protection of children in street situations 2.0 (SOP 2.0), any child who lives on the streets alone or with the family during the day is classified as a "**Child in Street Situation.**"
   {SOP 2.0 makes relevant recommendations for utilizing existing legal frameworks and social welfare schemes to improve the lives of children living on India's streets}
3. The programme embodies **Article 51 (A)** of the Constitution by providing a platform for the public to report any child in need of assistance and to help children in need in any way they can.

✎ Street Children's Challenges:

1. A lack of responsible adult care and protection
2. Every day, I am (street child) forced to work in order to eat.
3. Working in risky occupations on the streets,
4. Poor health and illness due to poor living conditions
5. Exposure to drug and substance abuse,
6. Access to medical care and education is limited.
7. Inability to connect with social security schemes due to a lack of identity.

Key Guidelines

1. The procedure's guiding principle is to consider the child in the context of the family, because the family is a child's first port of call.
2. It also focuses on providing social security to both children with and without families.
3. It also mentions a personal care plan for street children as well as family strengthening programmes.

4.10 MIGRATION IN INDIA 2020-21

Why in News?
The Ministry of Statistics and Programme Implementation (MoSPI) published a report titled Migration in India 2020-21.

MoSPI:

1. It came into existence as an Independent Ministry on 1999
2. It is the nodal agency for the planned and organized development of the statistical system in the country

Key Findings

1. After the onset of the COVID-19 pandemic in March 2020, 0.7% of the country's population was a **temporary visitor in households** during July 2020–June 2021.
2. For over 84% of these, they moved places for reasons linked to the pandemic, ranging from:
   - Meeting family/relatives/friends (48.9%).
   - Loss of job/closure of unit/lack of employment opportunities (12.2 %).
   - Earning members (9.2%) migrate.
     - Closure of educational institutions and health-related reasons (15.7 %).
3. In July-June 2020–21, the overall migration rate in India was 28.9%, with rural migration rates of 26.5 percent and urban migration rates of 34.9%.

Migration	Male	Female
Rural areas	5.9 %	48 %
urban areas	22.5 %	47.8%

Reason for migration:

1. **Among females**, the highest level of migration rate was seen at 86.8 % for marriage,
2. 49.6% of the males migrated in **search of employment**, to take up better employment/business/proximity to their place of work, or loss of job/closure of unit/lack of employment opportunities.
3. Because of the migration of a parent or earning member of the family, **17.5% of males and 7.3% of females migrated.**

Conceptual Framework defined in report:

1. **Usual Place of Residence (UPR):** It is the place (village/town) where the person has been found staying during the survey with the intention of staying there continuously for 6th months or more.
2. **A migrant member in a household is a household member whose last usual place of residence was different from the current residence at any time in the past.**
3. The migration rate for any category of people (for example, rural or urban, male or female) is the percentage of migrants who fall into that category.

4.   **Temporary Visitors:** Individuals who arrived after March 2020 and stayed in the household continuously for 15 days or more but less than 6 months.

✎ **About the Migration in India Report:**

1.   It is based on 1st collection of additional data during the annual round of the **Periodic Labour Force Survey** for July 2020–June 2021.
2.   It is released by the **Ministry of Statistics and Programme Implementation (MoSPI)**.
3.   It separates the categories of "temporary visitors" and "migrants".
4.   While **'temporary visitors'** have been defined as those who arrived in households after March 2020 and stayed continuously for a period of **15 days** or more but less than **6 months**.
5.   The 'migrants' have been defined as those for whom the last usual place of residence, at any time in the past, is different from the present place of enumeration.
6.   The survey block was introduced in July 2020, and the period of the survey for asking for this information was July 2020–June 2021.

▶ **4.11 GLOBAL TRENDS: FORCED DISPLACEMENT IN 2021'**

1.   The UNHCR published this annual report.
2.   It presents key statistical trends and the latest numbers of refugees, asylum seekers, internally displaced and stateless persons worldwide, as well as numbers of people who have returned to their countries.

✎ **About UNHCR:**

1.   It is an organisation dedicated to saving lives, protecting rights, and ensuring a better future for refugees, internally displaced people, and stateless people.

2.   Founded in the aftermath of World War II in 1950,

✎ **Key findings of the report:**

1.   The number of people displaced by war, violence, persecution, and human rights violations had risen to 89.3 million, an increase of 8% from the previous year.
2.   Nearly 5 million people in India were internally displaced (displaced within their own countries) as a result of climate change and disasters.
3.   China experienced the most disaster-related displacements (6.0 million).
4.   The United States received the most recent individual applications, followed by Germany.
5.   The Syrian Arab Republic (6.8 million), Venezuela (4.6 million), Afghanistan (2.7 million), South Sudan (2.4 million), and Myanmar accounted for 69% of all refugees (1.2 million).
6.   5.7 million displaced people, including 5.3 million internally displaced people and 429,300 refugees, returned to their areas or countries of origin.

▶ **4.12 ACTION PLAN TO ADDRESS INTERNAL DISPLACEMENT**

To better resolve, prevent, and address internal displacement crises, **the United Nations General Assembly (UNGA)** has launched the Action Agenda on Internal Displacement.

Important points

1.   The Action Agenda includes calls to member states, international financial institutions, and the private sector, and 31 commitments from the UN system.
2.   Internal migration necessitates a diverse approach that combines development, peace building, human rights, climate action, and disaster risk reduction efforts.

✍ Why is an Internal Displacement Action Agenda required?

1. As conflicts and natural disasters have increased in the last decade, the number of IDPs has more than doubled, with women, children, and marginalized groups bearing the brunt of the consequences.
2. According to a World Bank report, climate change could force more than 200 million people to relocate within six regions by 2050 if immediate action is not taken.
3. The war between **Russia and Ukraine** has displaced 13 million people, nearly two-thirds of whom remain in Ukraine.
4. The status of this increasingly vulnerable population has gone beyond humanitarian concerns.

✍ The Action Agenda on Internal Displacement has 3 broad objectives:

1. To help internally displaced people find long-term solutions.
2. To better prevent future displacement crises.
3. To provide better protection and assistance to those who are currently displaced.

Recommendations for an Action Agenda on Internal Displacement

1. The first goal can only be achieved if the rights and agency of IDPs of all ages, genders, and diversities are recognised.
2. IDPs should be given the right to choose what is best for them and should be allowed to participate in decisions that would affect them.
3. The primary responsibility of facilitating sustainable solutions to suitable displacement rests with states.
4. Greater action is needed from and support for local and city authorities because IDPs are increasingly settling and residing in urban areas worldwide.
5. To prevent future crises, mobilise rapid action to support de-escalation, political negotiation and conflict resolution when there are early signs of conflict, renewed violence or threats to civilians.

Internal displacement definition

1. It refers to the forced movement of people within their own country.
2. As of the end of 2019, 50.8 million people were internally displaced as a result of conflict, violence, or natural disasters.

India's internal displacement

1. According to the Internal Displacement Monitoring Centre (2021), approximately 5 million people were internally displaced in India last year.
2. After China and the Philippines, **India ranked 3rd** in terms of the most internal displacements caused by disasters.
3. **Adivasis:** who bore the brunt of major development projects such as large dams, are examples of IDPs in India.
4. Coastline residents, such as those in Odisha's Satabhaya, where seven villages were being devoured by the sea
5. Thousands of tribals from Chhattisgarh were forced to relocate to **Khammam, Telangana,** as a result of the conflict between Maoists and the **Salwa Judum.**
6. There is a policy in place in India for people who have been displaced by dams. It does not, however, have one for those displaced due to political conflict or environmental reasons.

▶ 4.13 WORLD MENTAL HEALTH REPORT

It was released by the World **Health Organization (WHO) on June 17, 2022.**

About WHO:

1. **It is a specialized agency of the United Nations that looks into matters of public health.**
2. **It was established on April 7th, 1948,**
3. **HQ: Geneva, Switzerland**

✍ **What are the highlights of the report?**

1. WHO has called for more action on addressing mental health issues worldwide, especially now that the 'Covid-19' **pandemic** has been cited as contributing to **worsening mental health.**
2. Almost a billion people, 14% of whom were adolescents, were living with some form of mental health issues in 2019. For some, this resulted in dying by suicide which accounted for one in 100 deaths, with more than half of them happening before the age of 50.
3. Access to mental health services remains poor. Globally, **71% of psychosis patients don't receive treatment.** High-income countries provide treatment to 70% psychosis patients and low-income countries manage the same for just 12%.
4. All 194 WHO member states have adopted the **Comprehensive Mental Health Action Plan 2013–2030** but progress has been slow.
   {**WHO's Comprehensive Mental Action Plan 2013-2020 was adopted by the 66th World Health Assembly**.
   The Sustainable Development Goals target 3.4 and 3.5 talks about reducing mental illness within the population. The Mental Health Atlas was launched by WHO in 2017.}
5. The WHO's report **lists three key 'paths to transformation'** to quicken progress on the Comprehensive Mental Health Action Plan 2013–2030.
6. These include more focused investment in **mental health, reshaping environments** such as homes, communities, schools, workplaces and health care services that influence mental health and **strengthening the quality of mental health care** by diversifying it.

What is mental health?

1. It is a **state of well-being** in which the individual realizes his /her own abilities, can manage the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his/her community.
2. **Like Physical health, mental health is also important** at every stage of life, from childhood and adolescence through adulthood.

What are the Challenges related to Mental Health?

1. **High Public Health Burden:** According to the National Mental Health Survey 2015-16, an estimated 150 million Indians need mental health care interventions.
2. **A lack of resources:** Psychiatrists (0.3), nurses (0.12), psychologists (0.07), and social workers account for a small proportion of India's mental health workforce (per 100,000 people) is 0.07.
3. A low financial resource allocation for health coverage of just over 1% of GDP has created barriers to public access to affordable mental healthcare.

✍ **Other Challenges:**

1. **Poor awareness about the symptoms of mental illness**, social stigma and abandonment of mentally ill, especially old and destitute, leads to social isolation and reluctance on part of family members to seek treatment for the patient.
2. This has resulted in a massive **treatment gap**, which further worsens the present mental illness of a person.

3. Post-Treatment Gap: There is a current need for proper rehabilitation of mentally ill people following their treatment.
4. Severity Increase: Because mental health problems tend to worsen during economic downturns, special care is required during times of economic distress.

✍ Steps Taken by the Government for Promoting Mental Health:

1. Constitutional Provision: The Supreme Court has held that healthcare is a fundamental right under Article 21 of the Constitution.
2. NMHP (National Mental Health Program): Since 1982, the government has been implementing the National Mental Health Program (NMHP) to address the enormous burden of mental disorders and the shortage of qualified professionals in the field of mental health.
3. The Program was restructured in 2003 to include two schemes: modernization of state mental hospitals and enhancement of psychiatric wings in medical colleges/general hospitals.
4. The Mental HealthCare Act 2017: It ensures that every affected person has access to mental healthcare and treatment from government-run or funded services. It has significantly limited the application of Section 309 IPC and made suicide attempts punishable only as an exception.
5. Kiran Helpline: In 2020, the Ministry of Social Justice and Empowerment launched a 24-hour toll-free helpline called 'Kiran' to help people suffering from anxiety, stress, depression, suicidal ideation, and other mental health issues.
6. Manodarpan: It was launched by the Ministry of Human Resources Development (MHRD) as part of the Atmanirbhar Bharat Abhiyan. Its goal is to provide students, family members, and teachers with psychosocial support for their mental health and well-being during Covid-19.

Way Forward

1. We must educate and sensitize the community/society in order to reduce the stigma associated with mental health.
2. When it comes to providing the right care to patients with mental illnesses, we need mental health care intervention for patients as well as innovative models to deepen the penetration of services and staff.
3. One such model is the Ministry of Health and Family Welfare's **Accredited Social Health Activist (ASHA).**
4. To educate and raise awareness about mental health and the chronic issues that surround it, India requires a steady flow of funds.
5. The public needs to be educated about mental health through campaigns like the Swachh Mansikta Abhiyan.

▶ 4.14 GLOBAL TRENDS: FORCED DISPLACEMENT IN 2021'

1. The UNHCR published this annual report.
2. It presents key statistical trends and the latest numbers of refugees, asylum seekers, internally displaced and stateless persons worldwide, as well as numbers of people who have returned to their countries.

✍ About UNHCR:

1. It is an organisation dedicated to saving lives, protecting rights, and ensuring a better future for refugees, internally displaced people, and stateless people.
2. Founded in the aftermath of World War II in 1950,

🖎 **Key findings of the report:**

1. The number of people displaced by war, violence, persecution, and human rights violations had risen to 89.3 million, an increase of 8% from the previous year.
2. Nearly 5 million people in India were internally displaced (displaced within their own countries) as a result of climate change and disasters.
3. China experienced the most disaster-related displacements (6.0 million).
4. The United States received the most recent individual applications, followed by Germany.
5. The Syrian Arab Republic (6.8 million), Venezuela (4.6 million), Afghanistan (2.7 million), South Sudan (2.4 million), and Myanmar accounted for 69% of all refugees (1.2 million).
6. 5.7 million displaced people, including 5.3 million internally displaced people and 429,300 refugees, returned to their areas or countries of origin.

▶ **4.15 NATIONAL TRIBAL RESEARCH INSTITUTE**

What in News?

1. The union home minister has inaugurated the National Tribal Research Institute (NTRI).
2. NTRI, the National Tribal Research Institute
3. It will be the leading national institution for the advancement and protection of tribal heritage and culture and the hub for tribal research concerns in the departments of academia, government, and law.

Located at: New Delhi

Functions of NTRI

1. Collaboration with other research organisations and academic institutions, as well as monitoring the activities of its various research departments and awarding scholarships to the best students, are all part of the mission.
2. Monitoring Tribal Research Institutes (TRIs) and Centers of Excellence (CoEs) projects and establishing standards for improving research and training quality.
3. To provide policy input to the Ministry of Tribal Affairs and State Welfare Departments, as well as to design programmes that improve or support tribal socioeconomic aspects.
4. To provide guidelines for the establishment and operation of tribal museums, as well as to showcase India's rich tribal cultural heritage under one umbrella.

🖎 **About Tribal Research Institute (TRI):**
1. It is the research body of the Ministry of Tribal Affairs at the state level.
2. There are 26 TRIs supported by the Ministry of Tribal Affairs.

▶ **4.16 NATIONAL AIR SPORTS POLICY:**

Why in news:

1. The Union ministry of civil aviation (MoCA) announced the country's first national air sports policy (NASP 2022).
2. It has been launched to improve the state of aero sports in India.

🖎 **National Air Sport Policy, 2022:**

NASP 2022, lists **13 games** under this category.

(Aerobatics, aeromodelling, amateur-built and experimental aircraft, ballooning, drones, gliding, hang gliding, paragliding, micro lighting, paramotoring, skydiving, and vintage aircraft).

Objectives:

1. To "**organise a previously unregulated sport sector**" and potentially generate annual revenue of **Rs 8,000 to Rs 10,000** crore in the near future.
2. To create a structure that would help "**promote the country's air sports sector, by way of making it safe, affordable, accessible, enjoyable and sustainable**." (It includes safety mandates, penalties for violating those norms).
3. Its vision is to make India "**one of the top air sports nations by 2030**".
4. For air sports, there are 4 government structures formed under the policy.
    a) **Air Sports Federation of India (ASFI)** is the apex governing body. It will preside over the national sports federations.
    b) **National associations** for individual air sports or a set of air sports.
    b) **c.Regional** State and Union Territory (UT) level units of the national air sports associations.
    c) **d.District-level** air sports associations. It will preside over the national sports federations

✍ **Federation Aéronautique International:**

1. **1.Federation Aéronautique International was** founded on 14 October 1905.
2. It is the world governing body for air sports.

HQ: Lausanne, Switzerland.

3. All sports competitions in India will be conducted as per the guidelines laid down by **FAI.**

▶ **4.17 WORLD DRUG REPORT 2022**

1. In 2020, approximately 284 million people aged 15 to 64 used drugs worldwide, a 26% increase over the previous decade.
2. Though women are in the minority in terms of global drug use, the rate of increase in drug consumption is more rapid in women than in men.

Continued growth in drug production and trafficking

1. Cocaine production reached a new high in 2020, increasing 11% from 2019 to 1,982 tonnes.
2. Despite the COVID-19 pandemic, cocaine capture in 2020 reached a new high of 1,424 tonnes.
3. Global opium production increased by 7% between 2020 and 2021, to 7,930 tonnes, owing primarily to increased production in Afghanistan**.**

Conflict zones as magnets for synthetic drug production:

1. The report also highlights that unlawful drug economies can flourish in situations of conflict and where the rule of law is weak, which in turn can prolong or fuel conflict.
2. According to information from the Middle East and Southeast Asia, conflict situations can act as a magnet for the production of synthetic drugs, which can be manufactured anywhere.

The environmental impacts of drug markets:

1. Illegal drug markets can have local, community, or individual-level environmental impacts.

2. There is deforestation associated with unlawful coca cultivation, huge waste generation during synthetic drug manufacturing, etc.
3. The throwing of waste can affect soil, water, and air directly, and organisms, animals, and food chains indirectly.

✎ **Drug Trafficking in India:**

1. For the past 3rd decades, India has served as a transit and destination point for heroin and hashish produced in the Golden Triangle and Golden Crescent.

2. The two-way illegal flow of these drugs and chemicals not only violates India's borders, but also poses a serious threat to national security.
3. Opium and other cannabis derivatives (bhang, marijuana/ganja, and hashish) have long been popular in India.
4. These narcotics were mostly used for medicinal purposes, as well as during religious and social ceremonies.
5. Previously, nearly all of the demand for these drugs was met on a local level.
6. Only a small amount of hashish was brought into the country by smugglers from **Nepal and Pakistan.**

▶ **4.18 SWACHH BHARAT MISSION URBAN 2.0**

Why in news?
SBM-U 2.0 has released revised Swachh Certification Protocols for ODF, ODF+, ODF++, and Water+ certifications.
Key interventions against each certification

Status	When Declared?	Arbitration
ODF	If no one is found defecating in the open.	A robust monitoring mechanism is ensured by increased survey sample size and location types.
ODF+	ODF status conditions exist, and all community and public toilets are usable and well-maintained.	Focus on functionality of CT/PT. Innovative operation and maintenance business model for long-term sustainability.

ODF++	ODF+ status conditions and Toilets with sludge and septage Management.	Septic tank and sewer cleaning machines. Safe collection and treatment of used water, as well as safe fecal sludge management. **Note:** Fecal sludge management refers to the storage, collection, transport, treatment, and safe end use or disposal of fecal sludge
Water+	All wastewater released is treated to a satisfactory level (as per CPCB norms), before releasing to environment	Collection, transportation, treatment, and reuse of both used water and fecal sludge

SBM-U 2.0

1. It aims to achieve the vision of safe sanitation in urban areas by making all cities "garbage free" and ensuring grey and black water management in all cities other than those covered by AMRUT, as well as making all urban local bodies ODF+ and those with a population of less than 1 lakh ODF++.

2. The Mission will concentrate on solid waste source segregation, using the **3Rs principles (reduce, reuse, recycle),** scientific processing of all types of municipal solid waste, and remediation of legacy dumpsites for effective solid waste management.

3. **SBM-U 2.0 (2021-22 to 2025-26) was launched in October 2021,** with the goal of sustaining the sanitation and solid waste management outcomes achieved during SBM.

4. In cities with populations of less than **1 lakh people**, complete liquid waste management will ensure that all wastewater is safely contained, collected, transported, and treated, preventing it from polluting our water bodies.

5. All statutory towns will be ODF+, and all cities with a population of one lakh will be ODF++. There will be systems and processes in place to ensure that all waste water is safely treated and reused, and that no untreated wastewater pollutes water bodies.

6. In terms of solid waste management, all cities are expected to achieve at least a **3-star garbage-free certification under SBM-U 2.0.**

7. A special emphasis will be placed on the well-being of sanitation and informal waste workers, including the provision of personal protective equipment and safety kits, as well as links to government welfare schemes and capacity building.

✎ **Swachh Bharat Mission-Urban (SBM-U):**

1. The Prime Minister announced it on August 15, 2014, but the mission was formally launched on October 2, 2014.

2. The goal is to eliminate open defecation in all statutory towns.

3. 100% scientific municipal solid waste management in all statutory towns.

4. Effecting behavior change through Jan Andolan.

5. **SBM-U** was launched in all Urban Local Bodies in 2014 with the goal of achieving 100% ODF status through the construction of Individual Household Latrines (IHHLs) and Community/Public Toilets (CT/PTs).

6. Providing complete access to sanitation facilities to serve additional populations migrating from rural to urban areas in search of employment and better opportunities over the next five years (through more public toilets).

✎ **SBM-U performance:**

1. It has revolutionized the sanitation space in urban India by providing 100% access to sanitation facilities.
2. Over 70 lakh household, community, and public toilets have been constructed, ensuring safe and dignified sanitation for all.
3. Digital innovation, such as SBM Toilets on Google Maps, improves access to sanitation facilities even further.
4. As a result of this, urban India was declared open defecation free in 2019, and the Mission has propelled urban India on the path of sustainable sanitation, with over 3,000 cities and over 950 cities being certified ODF+ and ODF++, respectively.
5. Digital enablements such as the Swachhata App, a digital grievance redressal platform launched by MoHUA in 2016, have revolutionized the way citizen grievances are managed.
6. With citizen participation, the app has resolved over 2 crore citizen complaints to date. MoHUA recently released a new version of the Swachhata App 2.0.

✎ **SBM-U performance:**

5.   ECONOMY

5.1 GDP-GVA (GROSS DOMESTIC PRODUCT- GROSS VALUE ADDED) GAP GROWS AGAIN

Why in News?

Lately in July 2022, **2 measures of the Indian economy i.e., GDP and GVA grew at different speeds and risen the gap between them.**

What are GDP and GVA?

Parameter	GDP	GVA
Definition	It is the **market value of all goods and services produced within the territory** of a country in a given time period.	It is the **value of goods and services produced** within the country **but after deducting the cost of inputs**, for example, cost of labor, cost of raw material, etc.
How is it measured?	It is measured by **output, income, and expenditure** methods.	It is measured **by the reach of output.**
	GDP itself is a **major economic determinant**.	It is **used as a proxy** (when used in place of) **of GDP.**
	It is an **internationally accepted** measure of **overall economic growth** in a country.	It is **not internationally accepted** and it **gives sector-wise details** rather than the economy as a whole.

India and its GVA

1. Earlier, **India used GVA at factor cost** to measure overall economic output.
2. **In 2015, GVA at basic prices** (base year 2011-12) **became the primary measure** of output in the economy's various sectors in India.
3. The **quarterly and annual estimates of GVA** are **given by National Statistical Office (NSO).**
4. These estimates are **given under 8 broad sectors- covering goods and services in India.**

✎ **What were the reasons for this gap?**

Though GVA is used as a proxy for GDP, but they are not same because of the **basic difference of GDP being calculated at market prices** and **GVA at basic prices,** which leads to gap between GDP and GVA. Other than the basic difference **there are different reasons for this gap** as:

1. **In FY21,** the **GDP growth lagged GVA growth by 180 basis points due to increased subsidies** and **reduced taxes** because of lockdown.
2. **In FY22** also, **due to record tax collections** and **reduced subsidies GDP growth was 60 basis points more than GVA.**
3. **In FY23**, the GDP-GVA is expected to continue with GDP growth lagging GVA once again.

✎ **Utility of GDP measurement:**

1. GDP data **presents the state of economy from Consumers side (demand side).**
2. GDP is **not a leading economic indicator** as it **tracks only what has happened** and not how it has happened.
3. It **helps in Identifying Health of an Economy**, i.e., whether it is **growing or experiencing recession.**

4. It gives **a fair idea on standard of living of people** through data on income and private consumption.
5. **GDP makes cross-country analysis on various parameters** like **investments, government spending and net exports.**

✎ **Utility of GVA measurement:**

1. GVA **indicates the state of economy from Producers side** (**supply side**).
2. **Gives real picture of State of Economic Activities**.
3. It **provides sector-wise and region-wise breakdown of value added**.
4. It **helps policymakers to identify sectors requiring incentives** or stimulus.
5. It **helps in Identifying productivity of a sector based on global data standards**, which **helps investors to make specific investment decisions**.

▶ **5.2 FOREIGN DIRECT INVESTMENT REACHES AN ALL-TIME HIGH**

Why in News?

UNCTAD World Investment Report (WIR) 2022 has **ranked India at 7th rank** among the top 20 host economies for 2021, in terms of FDI.

- India **received the highest annual FDI inflows** of USD 84,835 million **in FY 21-22**, overtaking last year's FDI by USD 2.87 billion.

Differences Between FDI and FPI

What is FDI?

Foreign direct investment (FDI) is an **investment made by a company or an individual in one country into a business interest located in another country.**

FDI is different from FPI:

✎ **Who receives most of the FDI in India?**

- **Computer Software & Hardware:** 24.60%
- **Services Sector** (Fin., Banking, Insurance, Outsourcing, R&D, Courier, Tech. Testing and Analysis, Other): 12.13%
- **Automobile Industry:** 11.89%
- **Trading:** 7.72%
- **Construction (Infrastructure) Activities**: 5.52%

| Top 5 FDI Sourcing Nation:	Top Destinations to receive FDI:
• **Singapore:** 27.01%	• **Karnataka:** 37.55%
• **USA**: 17.94%	• **Maharashtra:** 26.26%
• **Mauritius:** 15.98%	• **Delhi**: 13.93%
• **Netherland:** 7.86%	• **Tamil Nadu:** 5.10%
• **Switzerland:** 7.31%	• **Haryana**: 4.76%

Components of FDI:

1. **Equity capital:** It is the foreign direct investor's **purchase of shares of an enterprise** in a country **other than its own.**
2. **Reinvested earnings:** It comprises the **direct investors' share of earnings** not distributed as

dividends by partners, or earnings not remitted to the direct investor.

3. **Intra-company loans:** These refer to **short- or long-term borrowing** and **lending of funds** between direct investors (or enterprises) and partner enterprises.
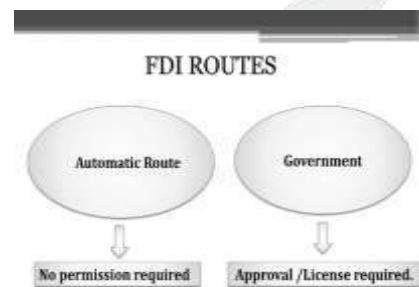
Routes of FDI:

1. <u>**Automatic Route:**</u> In this, the foreign enterprise **does not require the prior approval of the government or the RBI**<u>.</u>
   - In India FDI **up to 100% is allowed in non-critical sectors (PSUs etc.)** Through the automatic route, **not requiring security clearance** from the Ministry of Home Affairs (MHA).
   - Prior government approval or security clearance from MHA is required for **investments in sensitive sectors** such as:
   - Defence, media, telecommunication, satellites, private security agencies, civil aviation and mining, **besides any investment from Pakistan and Bangladesh.**
   2) <u>**Government Route:**</u> In this, the foreign entity **has to take the approval of the government.**

✎ What the Government is doing to boost FDI?

1. The Government of **India has relaxed FDI norms** across sectors such as defence, PSU oil refineries, telecom, power exchanges, and stock exchanges etc**., to make the FDI an easy process.**
2. **Campaigns like 'Make in India**' and **'Atmanirbhar Bharat'** have **given momentum to FDI inflows** over the past few years.
3. Various schemes have been launched attracting investments, such as, **National technical Textile Mission, Production Linked Incentive Scheme**, **Pradhan Mantri Kisan SAMPADA Yojana**, etc.
4. **Liberal and attractive policy regime** for the investors, **a good business climate and reduced regulatory framework is helping to attract FDI globally.**

How can India maintain this Growth?

1. **Government policies/decisions** are of are very important in creating a good environment for global investors.
2. The government should work to **strengthen the FDI environment through the policies** initiatives and reforms **at all levels**.
3. India can get continued inflow of FDI **by maintaining sound trade policy and promoting ease of doing business.**
4. It **should be ensured that India remains an attractive, safe, predictable destination for serious, long-term investors.**
5. **A level playing field is necessary** if we want continued foreign investments. **Partial behaviour towards local players should be avoided.**

▶ 5.3 INDIA AND ITS GIG WORKERS

Why in news?

In June 2022, a report with name **'India's Booming Gig and Platform Economy'** got published in which **NITI Aayog has projected** that the **Gig workforce in India may hit 23.5 million by FY30.**


Who are Gig workers?

1. A person **who works and earns from an activity outside of traditional employer-employee relationship, (Code on Social Security, 2020).**
    [Code on social security is a formal code talks about the employee employer relation and their rights**]**

2. They can be broadly **classified into 2 categories** as:
    -   **Platform Gig Workers**: **Workers whose work is based on online software apps** or digital platforms such as **Zomato, Ola, Swiggy** etc.
    -   **Non-platform Gig Workers:** These are **Casual wage workers in the conventional sectors,** working **part-time or full time.** E.g. **construction.**

✎ Findings of NITI Aayog Report:

1. **In 2020–21,** 77 lakh workers **(1.5% of total workforce) engaged in the gig economy** and it is **expected to reach** 2.35 crore (**4.1% of the total workforce) by 2029–30.**

2. **Higher employment elasticity** of gig workers **shows their growing demand**.

3. **Gig economy is already expanding in all sectors** with nearly **26.6 lakh** gig workers **in retail trade** and sales, **13 lakh in transportation**, **6.2 lakh in manufacturing** and so on.

Top reasons for working in the gig economy

48%
19% Earning while seeking a better job
22% Only way to make an income
48% Autonomy and control
55% Make extra money on the side

4. **Construction, Manufacturing, Retail, and Transportation** and Logistics becomes **high potential industry for gig economy.**

5. Currently, about **47%** of the gig work is **in medium skilled jobs**, **22% in high skilled** and about **31% in low skilled jobs**.

6. The report **draws attention to skill polarisation** as the trend shows **decline in number of workers in medium skills** whereas **low skilled and high skilled is increasing.**
    [Skill polarisation is concentration of one type of skill]
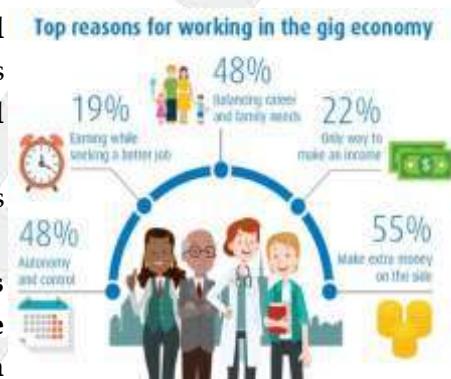
✎ Issues faced by Gig workers:

1. **Lack of job security, irregular wages, and uncertain employment** status give **rise to many disputes.**

2. The **uncertainty of work and income** may lead to **increased stress and pressure and hence impacts productivity of the worker.**

3. **Limited access to internet** and **digital technology** can be a **restrictive factor for workers willing to take up jobs in the gig and platform sector.**

4. **Denial of workplace protections and safety** due to contractual relationship between the platform owner and gig worker.

✎ Recommendations from NITI Aayog:

1. India needs **a framework that balances the flexibility offered by platforms** and **social security of workers.** This can be done through:

2. **Proper Estimation of Gig Workers** is important **to estimate the size and features** of the gig economy.

3. There should be **increased funding and incentives to promote informal platforms** as these **can help self-employed individuals to sell their produce** to wider markets in towns and cities;

4. **Enhance** access to institutional credit **(financial help) through financial products specifically designed for platform workers** and those interested to set-up their own platforms.

5.4 THE CREDIBILITY OF GLOBAL INDICES AND INDIA

Why in News?
In June 2022, India raised objections to the findings of the Environment Performance Index (EPI) 2022.

What is Environment Performance Index (EPI)?
1. It is **an international ranking** system that **measures the environmental health and sustainability of countries**.
2. EPI is a **biennial index**, that was **started in 2002**.
3. It is **released by Yale and Columbia University**.
4. EPI **ranks 180 countries on climate change performance** and environmental health.
5. The index **uses 40 performance indicators** to measure the performance of countries.

What are India's objections regarding this index?
1. India is **not happy with the Reduced weightage of indicators** without any explanation or reasons.
2. There were **some important indicators** in the index with a close link to sustainability, which are now **excluded.**
   For Example, Renewable Energy, Energy Efficiency Waste Generation.
3. **New indicators were given a shorter time period**, in which the **performance of a country cannot be measured accurately**.
4. **Major principles like Equity and CBDR-RC were not considered**, resulting in a **nonequal platform for developing and developed countries.**
   [Common but Differentiated Responsibilities and Respective Capabilities **(CBDR–RC)** is **a principle within the United Nations Framework Convention on Climate Change (UNFCCC)** that **recognizes the different capabilities and different responsibilities along with duties of individual countries in fighting climate change.**]

✎ **Utility of Global Indices:**
1. These types of global indices **maintain a healthy competition** in individual countries to do well.
2. These help in **holding govts. Accountable** for what they are doing.
3. As these indices work on some principles, hence they are a **useful instrument for spreading innovative and good causes.**
4. These keep **control of the private interests** of countries as well as global organizations and **make them function in a sustainable manner.**
5. Indices **try to offer a level playing field to all countries** (developing and developed), by listing their responsibilities and liabilities.

How does a poor rating in an index impact India?
1. **Poor rating in global indices discourages investors globally to invest in India.**
2. The low performance also **impacts the global image** of the country and affects **prestige(respect) and integrity at various global forums.**
3. **Showcasing the negative Image of the country** will create a negative global perception**, which impacts its tourism and can also impact diplomatic ties (international relations).**

Way Forward:
1. **Indian Embassies should be used properly to engage with Indian living outside the country,** which will **make it easy to spread information about the country.**
2. There should be **proper agencies to look into the working of these indices and question them when needed.**
3. **Domestic statistical ecosystem should be strengthened and data should be updated so that a fair observation can be made about the credibility of an index.**

5.5 NATIONAL STRATEGY FOR SUSTAINABLE TOURISM

Why in News?

In **July 2022,** the **ministry of tourism launched the National Strategy for Sustainable Tourism.**

What is Sustainable Tourism?

1. **According to** United Nations World Tourism Organization **(UNWTO), Sustainable tourism should fulfil the 3 basic principles:**
   ▪ **Environmental Sustainability**
   ▪ **Socio-Cultural Sustainability**
   ▪ **Economic Sustainability**

2. Tourism has also been **included as one of the targets of sustainable development goals (SDGs).**
   ▪ **SDG8:** On **Inclusive and sustainable economic growth.**
   ▪ **SDG12:** On **sustainable consumption and production** (SCP).
   ▪ **SDG14:** on **sustainable use of oceans** and marine resources.

About National Strategy for Sustainable Tourism (NSST):
1. It **aims to bring sustainability to the Indian tourism** sector and **ensures more inclusive and carbon-neutral tourism** while **safeguarding natural and cultural resources.**
2. The objective of **NSST is to place India in a position as a preferred global destination for sustainable and responsible tourism.**
3. It will also **work towards getting economic, social, and environmental benefits to build a low carbon, inclusive tourism** sector in India.
4. Following are **4 strategic pillars** that have been identified **for the development of sustainable tourism:**
   ▪ Promoting **Environmental Sustainability**.
   ▪ Protecting **Biological Diversity and Natural Heritage.**
   ▪ Promoting **Economic Sustainability**.
   ▪ Promoting **Socio-Cultural Sustainability.**

According to UNO, the following Steps were taken for sustainable tourism:
1. **Special focus on promoting the 'Incredible India' to attract tourists**, and it should **not be limited to big cities but rather should be in rural India**.
2. Global Sustainable Tourism Council **(GSTC) came in 2010, and India adapted GSTC criteria for sustainable tourism.**

[GSTC is a council that works in cooperation for sustainable and safe tourism across countries]

3. Sustainable Tourism Criteria for India **(STCI) was launched by the Ministry of Tourism** with the objective **to ensure environmentally sustainable practices in the tourism industry.**

4. The **Govt. approved tour operator has to sign a pledge of commitment towards WTO.**

India and its Tourism Potential:

1. Tourism is a **major contributor to the GDP** of the country. In 2020, the sector **contributed around 4.7 % to the total GDP** of the country

2. It **helps in employment generation** as, in 2020, the Indian **tourism sector accounted for 31.8 million jobs**, which was **7.3% of the total** employment in the country.

3. **We were 3rd largest foreign exchange earner** (an indicator showing good tourism import) in the country **until 2019.**

4. **India got 54th rank out of 117 countries in the Global Travel and Tourism Development Index 2021** of the World Economic Forum.

5.6 INDIAN RAILWAY INNOVATION POLICY

Why in News?

In June 2022, Indian Railways (IR) launched the "Indian Railway Innovation Policy"

The objectives of the Policy:

To **fund the required innovation and development** of Indian Railways.

Key highlights of the Indian Railway Innovation Policy:

1) **IR will invest in startups to adopt the new technology** and innovation directly from them.

2) According to the Policy, **the developed Intellectual Property Rights (IPR) will remain with the innovators only.**

3) For the implementation, **the policy's annual budget will be 40-50 crore.**

SOURCE: THE ECONOMIC TIMES

Why there is a need for innovation in railways?

1) **The infrastructure of the Indian Railways is very stressed** with more than 60% of our routes being overutilized.

2) Services at railways are less customer-centric with **less focus on cleanliness, safety, quality, regularity of trains, etc.**

3) Due to the **development of airports** and the availability of cheaper and fast services, IR has **lost its huge passenger share.**

4) Passenger and freight **trains do not utilize their full capacity and hence generate low revenue.**

5) Governance and **working of Railways is very old and rigid and need to revive.**

6) **Problem of corruption** is a major challenge in functioning of IR.

Way Forward for better IR:

1) India should **learn from its best practices at highways and airports, and try to implement them here in IR.**

2) **Govt. should break the organizational rigidity, which is a major cause of concern in the way of development of IR.**

3) India should **cut down on its logistics cost, through multimodal connectivity** (In which various modes of transportation run together).

4) IR should **encourage private players to take part in the business models of railways** so that the issue of credit availability can be solved.

5.7 RBI HAS RELEASED "PAYMENT VISION 2025" FOR INDIAN PAYMENT SYSTEM

Why in News?

In June 2022, **Reserve Bank of India (RBI)** has released **"Payments Vision 2025"** with an objective to provide every user with **safe, secure, fast, convenient, accessible and affordable e-payment options.**

What is Payment Vision 2025?

1) Payments Vision 2025 has been prepared by taking guidance from the **Board for Regulation and Supervision of Payment and Settlement Systems (a body of the RBI)**
2) It **builds** on the initiatives of **Payments Vision 2019-21.**
3) The Payments Vision 2025 document is presented across the five anchor goalposts of **Integrity, Inclusion, Innovation, Institutionalisation and Internationalisation.**

Theme of Payment Vision 2025: (4Es) E-Payments for Everyone, Everywhere, Everytime.
✍ **Objectives:**

1. To raise the **payment ecosystem, where can users can have affordable payment options** accessible anytime and anywhere with convenience.
2. To enable **geotagging of digital payment infrastructure.**
3. **Regulating all significant intermediaries in payments ecosystems** and **linking credit cards and credit components** of banking products to UPI.
4. Creating a payment system for processing online merchant payments using **internet and mobile banking.**
5. **Regulating agencies and bodies** associated with payment system.
6. **Examining of BNPL (Book Now Pay Later) methods** and **exploration of appropriate guidelines** on payments.

✍ **Goals to Achieve:**

1. No. of **cheque-based payments to be less than 0.25% of the total** payments.
2. **Tripling the number of digital payment** transactions.
3. Increase in **debit card transactions at PoS (Point of Sale) by 20%.**
4. **Debit card usage to surpass credit cards in** terms of value.
5. To increase the card **acceptance infrastructure up-to 250 lacs.**
6. **Reduction in Cash in Circulation (CIC) as a percentage of GDP.**

✍ **What is the Significance of the Move?**

1. The RBI's Payments Vision 2025 will be significant in shaping **India's payment ecosystem, propelling a safer, more secured, and seamless payment infrastructure.**
2. This document will act as a **measure for all payment players** and other stakeholders, encouraging them to enhance their capabilities.

3. Through initiatives such as UPI (Unified Payment Interface), the RBI has **democratised payments** within India.
4. With the 2025 vision, payments will be available for 'Everyone, Everywhere, every time', giving **global reach to Indian payment systems.**

✎ **Challenges Faced by Payment System:**

1. **Incident of cyber-attacks** disrupt the operations of payment system.
2. **Lack of digital literacy** is one big issue in spreading digital payment system across nation.
3. **Due to lack of physical interface** and weak grievance redressal mechanism (procedure to address the customer's issues) **there is a huge distrust among people.**
4. There are various digital payment instruments such as Prepaid Payment Instrument (PPIs) which are facing **data privacy issues.**

   Way Forward:
1. It is important to **mandate a customer grievance redressal framework** to all participant in this ecosystem.
2. To make the **dream of digital India true** it is essential to **spread the digital literacy** across nation.
3. Govt. should **reduce the solvency (bankruptcy) risk of firms related to payment** systems by allowing market-based financing (finances through private players).
4. It is very important to have a **strict eye on the cyber-attacks and online frauds.**

▶ **5.8 SKILLING LANDSCAPE OF INDIA**

Why in News?

Ministry of housing and urban affairs (MoHUA) has launched the 'National Initiative for Promotion of Upskiling of Nirman workers'(NIPUN) project to train 100,000 construction workers.

What is NIPUN Project?

1) **Launched in June 2022**
2) The basic motive of the project is to **train over 1 lakh construction workers,** through fresh skilling and upskilling programmes.
3) It will work under the flagship programme of the **Deendayal Antyodaya Yojana-National Urban Livelihoods Mission (DAY-NULM)**

[The transformational impact of the **National Urban Livelihoods Mission (NULM)** has reduced the **vulnerability of urban poor households** by providing **upskilling** and **employment opportunities** to urban dwellers, especially the youth.]

What are the Benefits associated with the Project NIPUN?

1. **It** will enable the construction workers to seek **better job opportunities**, increase their **wages** and even **pursue overseas (foriegn) placements.**
2. It has been encouraged and supported by giving **urban workers access** to self-employment and **skilled wage employment opportunities.**
3. This initiative will enable **Nirman workers to be more proficient and skilled and hence will increase their productivity.**
4. Construction industry is a significant contributor to the **nation's GDP** so this scheme will catalyse (speed-up) the **GDP growth.**
5. It will provide trainees with **'Kaushal Bima',** a **3 year accidental insurance** with coverage of **INR 2 lakhs, digital skills** such as **cashless transactions** and hence **covering the social security aspects** of workers.

✎ Challenges in Skill Development:

Administrative issues

1. **Lack of coordination between various ministries and agencies involved in policies related to skill development.**
2. **Multiplicity in assessment and certification system leading to inconsistent outcomes.**
3. **Underdeveloped and poor quality of infrastructure of skill training centres.**

Structural issues

1. At many places **formal academics is still given prefrences over skills.**
2. **Low women participation** in skill development schemes.
3. **Low employment creation due to high mechanization.** (when major work is done through machines, software, artificial intelligence)
4. **Large Informal workforce,** which generate a **never ending cycle of other informal jobs.**
5. There is a **huge mismatch between skill required by employers and skills available in the market.**
1. Due to **limited access to credit because of Banks' NPAs**, investment rate has declined and thus a negative impact on job creation.

Way Forward

1. **India should Enhance its expenditure on Education and Training for skill development.**
2. **Basic education should be connected to technical training.**
3. **Private sector should be encouraged to take part in skill development.**
4. There is **need to have the mapping of skill requirements in market bridge the gap between required skills and available skills.**
5. India **needs to learn from technical and vocational training/education models in China, Germany, Japan, Brazil, and Singapore,** who had similar challenges in the skilling workforce.
6. India should also develop some techniques to evaluate the performance of training institutes** and encourage them to perform better.
7. **Surveys should conducted** to find the exact skill requirements from the employers.
8. **India should learn from its own experiences** to adopt an inclusive model that can **bridge the skill gaps** and **ensure employability** of youths.

✎ Other Initiatives Taken:

1. **"Skill India" programme -** aims to train a minimum of 300 million skilled people by the year 2022.
2. **Pradhan Mantri Kaushal Vikas Yojana (PMKVY),** a dimension of skill India, under which the training fees were paid by the government.
3. **Ministry of Skill Development and Entrepreneurship** was created to harmonise training processes, assessments, certification and outcomes.

▶ **5.9 NON-PERFORMING ASSETS (NPAs)**

Why in News?

In March 2022, Gross Non-Performing Assets (NPAs) of Scheduled Commercial Banks (SCBs) fell to a 6-year low and reached to 6% while Net NPAs in the same period reached to 1.7%.

What are Scheduled Commercial Banks (SCBs)?

1. Any bank which is **listed in the 2nd schedule of the RBI Act, 1934** is considered as scheduled bank.

2. To qualify as a scheduled bank, the **paid-up capital** (amount of money the bank received from shareholders in exchange of shares) and **collected funds** of the bank must not be less than **Rs 5 lakh.**

3. Scheduled banks **can get loans from the Reserve Bank of India at Bank rate**. Bank rate is the rate at which RBI provides loans to the Banks without purchasing Govt securities from it.

4. The list includes many Govt and Private sector banks like **State Bank of India, Bank of Baroda, HDFC etc.**

What are NPAs?

1. **Loans provided by banks are considered as their Assets** as it generates income for the bank through Interests.

2. When the **loans are not able to generate income then it becomes Non-Performing Asset (NPA).**

3. **A loan for which the principal (amount actually given by the bank as a loan) amount or Interest payment is overdue for a period of 90 days continuously then that loan is classified as NPA.**

4. Based on time period and type of Loan, the **NPA category of a loan changes from Loan to Loan and from Time to Time.** Eg: For Agricultural loans, the overdue for continuously 2 crop seasons is considered as NPA in case of short duration crops and 1 crop season for long duration crops.

5. As per the reports, **the percentage of new borrowers of loans from SCBs has increased in the recent times.**

What is the difference between Gross NPAs and Net NPAs?

Gross NPAs refers to the sum of all the loans that have been defaulted by the borrowers while **Net NPAs is the amount that comes after deducting provisions** (keeping things as security with the bank like Land, Jewellery etc) **for that unpaid loan from gross NPA.**

✎ So, what are the Reasons that led to reduction of NPAs in recent times?

1. **4R's Strategy**: In 2015, Govt. of India came out with 4R's strategy to improve the overall health of Banking sector in India. These 4R's are: 1) **Resolution**- to resolve the NPA related issues as soon as possible. 2) **Recovery**- to recover the NPAs as much as possible 3) **Recapitalizing**- to put more money into the public sector banks (PSBs) 4) **Reforms**- to do changes in public Sector Banks (PSBs) as per the need of the Time.

2. **Introduction of Insolvency and Bankruptcy Code (IBC)**: In 2016, Govt came with the IBC for the speedy recovery of NPAs in a time bound manner. Govt has made special tribunals to hear NPA issues.

3. **Introduction of Indradhanush Plan**: It was a full-fledged reform Initiative for the Banking sector. Under this plan only, **Bank Board Bureau** (it recommends people for the top-level posts in PSBs) was formed. Objective of the plan was to ensure Accountability(responsibility) at every level.

4. **Policy support**: Govt and RBI has helped Banks during the entire period of COVID 19 pandemic to increase their overall capacity. E.g., Credit Guarantee Scheme during Covid-19.

5. **Merger**: In the last few years, Govt has merged a lot of PSBs to form few big PSBs. Govt also formed **National Asset Reconstruction Company Limited (NARCL)** which works for the resolution and recovery of NPAs.

✍ **What are EASE Next Reforms?**

1. It **consists of 2 key initiatives**: a) EASE 5.0 which is common for all PSBs b) Bank specific 3-year plans based on bank's business priorities.
2. Under **EASE 5.0,** PSBs will continue to invest in **Newer Technologies** so that they can handle new customer needs, upcoming competition and challenges.
3. Under **bank-specific plans**, banks will take steps towards **business growth, profitability, risk handling etc.**

✍ **What are the remaining and upcoming Challenges for PSBs and Overall Banking System of India?**

1. **Still high NPAs in PSBs**: NPAs of PSBs is still 7.6% which is greater than the Average of all scheduled commercial Banks. It is also predicted that they can rise up to 10.5% by end of 2022-23.
2. **Merger has just shifted the burden from one to another**: Instead of recovering more NPAs, PSBs mergers have not helped in NPA reduction E.g., Indian Bank with (3.5% NPA) acquired Allahabad Bank (6% NPA).
3. **Bad Business Culture in PSBs**: The Net-Interest Margins and profitability of PSBs is still lower than private banks.
4. **Delays in working of NARCL**: National Assets Reconstruction Company Limited (NARCL) which was registered in July 2021, has already missed its deadline to complete the acquisition(purchasing) of 15 NPAs worth ₹50,000 crore from banks.
1) **Huge delays in IBC Resolutions**: Delays in the resolution of NPAs under the IBC is also a cause of concern.
2) **Many sectors show Early signs of stress**: Certain sectors are looking in stress after COVID19 pandemic. E.g., Power distribution companies (DISCOMs)
3) **Loan-Waivers**: The decisions of loan-waivers (free from loan payment) by the Govts hurts banks as it disturbs their Balance sheets.

✍ **What can be the Way Forward?**

Banks are the backbone of every economy. The increasing risks due **economic slowdown, rising inflation (rise in prices), warning signs of stress in few sectors, fears of recession (negative growth rate) in the US and end of the Easily available loans period as the RBI has raised Interest rates** in recent times, **so it is possible that the banking system will face severe stress in the upcoming days**. Therefore, to improve the overall health of banks, Govt and Banks must ensure:

1. To calculate the **Economic Situation properly** and to **maintain asset quality and Capital Adequacy** (funds to handle in case loans becomes NPAs).
2. To overcome the **poor governance issues** in the PSBs.
3. To **make NARCL fully functional** at the earliest.
4. To **amend the IBC** and add a provision that the **tribunal's will be held responsible in case of delays in the NPA resolution process.**
5. To **continue Banking reforms as per the needs of the Time.**

5.10 SPECIAL ECONOMIC ZONES (SEZs)

Why in News?

In June 2022, govt. has released a draft **Development Enterprise and Services Hub (DESH) Bill,2022** for consultation **to replace the Special Economic Zones Act ,2005**
 [An SEZ is **a territory within a country that is typically duty-free** (Fiscal Concession) and has different business and commercial laws chiefly **to encourage investment and create employment.]**

✎ **SEZs in India:**

1. India establishes Asia's **first EPZ** (Export Processing Zones) was established **in 1965 at Kandla, Gujarat.**
2. **In 2000, SEZ Policy was announced under Foreign Trade Policy.**
3. **Later Special Economic Zones Act was passed in 2005 followed by SEZ Rules in 2006.**
4. India's SEZs **were structured closely with China's** successful model.
5. Presently, **379 SEZs are notified,** out of which 265 are operational.
6. About **64% of the SEZs are located in 5 states** – Tamil Nadu, Telangana, Karnataka, Andhra Pradesh and Maharashtra.
7. The **Baba Kalyani led committee** was constituted to study the existing SEZ policy of India.

✎ **Objectives of the SEZ Act:**

1. To **create additional economic activity.**
2. To **boost the export** of goods and services.
3. To **generate employment.**
4. To **boost domestic and foreign** investments.
5. To develop **infrastructure facilities.**

✎ **Major Incentives and Facilities Available to SEZ:**

1. **Duty free import/domestic procurement** of goods for development, operation of SEZ units.
2. **Exemption from various taxes** like Income Tax, minimum alternate tax, etc.
3. **External commercial borrowing** is allowed to by SEZ units upto US $ 500 million/year.
4. **Single window clearance** for Central/State level approvals.

✎ **Challenges: to SEZs:**

1. Due to **lack of demand for SEZ** space and disruptions caused by the pandemic, there is a **lot of unutilized land in SEZs.**
2. There is **problem of integration of multiple existing models** of economic zones such as
   a) SEZ,
   b) Coastal economic zone,
   c) Delhi-Mumbai Industrial Corridor,
   d) National Investment and Manufacturing Zone,
   e) Food park and textile park
3. As most decisions are made by centre and **state has limited role,** it leads to many **federal disputes.**
4. Indian SEZs have lost some of their competitive advantages globally and hence **need to have fresher policies like ASEAN Countries has recently does.**

5. **Large no. of states not having SEZ Act/Policy** restrict the uniformity of new laws related to SEZs.

Way Forward

1. **Promotion of MSME investments in SEZs** by linking with MSME schemes.
2. India should **work upon the recommendations given by the Baba Kalyani Committee** on SEZs.

5.11 SINGLE NODAL AGENCY (SNA) DASHBOARD OF PUBLIC FINANCIAL MANAGEMENT SYSTEM (PFMS)

Why in News?

In June 2022, **Ministry of Finance launched the Single Nodal Agency (SNA) dashboard of the Public Financial Management System (PFMS) to ensure effective inclusion of technology in public finance.**

About the Dashboard:

1. The initiative is a **part of forms part of PFMS reform.**
2. These reforms were **initiated in 2021**.
3. This is **to observe how funds for Centrally Sponsored Schemes (CSS) are released, disbursed, and monitored.**

SNA model

1. The SNA model **needs states to notify an SNA for each Centrally Sponsored Scheme (CSS).**
2. SNA **for each centrally sponsored scheme will open a unique bank account at a commercial bank** responsible for all transactions related to the implementation of the particular CSS.
3. SNA dashboard is **launched as a system to track the transfer of funds to states for centrally sponsored schemes** and the **utilization of funds by central agencies.** o
4. It will help in **reducing the interest expenditure** as **money will be given at the stage where it is needed.**

5.12 INTERNATIONAL FINANCIAL SERVICES CENTRE AUTHORITY (IFSCA)

Why in News?

In June 2022, **EU has given equivalence statuses to Central Counter Parties (CCPs) supervised by IFSCA.**

✎ Objective of IFSCA:

To **develop a strong global connect** and **focus on the needs of the Indian economy** as well as to **serve as an international financial platform for the entire region** and the **global economy as a whole.**

✎ About IFSCA:

1. IFSCA is **a unified authority** for development and **regulation of financial products**, financial services and financial institutions **in the International Financial Services Centre (IFSC) in India.**
2. IFSCA was **established in 2020** under the **International Financial Services Centres Authority Act, 2019.**

3. Its **headquarter is in Gift City, Gandhinagar, Gujarat.**
4. **Before IFSCA other bodies like RBI, SEBI, PFRDA and IRDAI regulated the business in IFSC.**

Benefits of IFSCA:

1. **It will help in the Unification of regulation under one authority and** the banking, capital markets and insurance sectors, etc. which are regulated by multiple regulators **will be unified under the IFSC authority.**
2. The single window regulatory institution would **accelerate the development of India.**
3. **Both national and international institutions** dealing with international financial services would utilise the IFSCA platform.

5.13 GST COMPENSATION CESS LEVY EXTENDED TILL MARCH 2026

Why in News?

The **compensation cess will continue to be levied from July 1, 2022 to March 31, 2026 as per Goods and Services Tax** (Period of Levy and Collection of Cess) **Rules, 2022.**

✎ About Compensation cess:

1. **States are guaranteed compensation for any shortfall in tax collection below 14% growth (base year 2015-16).**
2. It is done **for the first 5 five after 2015.**
3. It was **paid bi-monthly**.
4. GST Compensation Cess is **collected on supply of select goods or services or both.**
5. **GST compensation is paid out of Compensation Cess** every 2 months by the **Centre to states.**
6. It was specified by the **GST (Compensation to States) Act, 2017.**
   - [GST Act 2017: **All the taxpayers**, **except** those **who export specific notified goods** and those who have **opted for GST composition scheme**, are **liable to collect and remit the GST compensation cess** to the central government.]
7. **Compensation Cess Fund** was also established and the **cess collected** and the **amount recommended by the GST Council** would be **credited to the fund.**

What is GST?

5.14 JAN SAMARTH PORTAL

Why in News?

In June 2022, PM launches the Jan Samarth Portal.
1. Portal was **launched during the 'Iconic Week Celebrations' of the Ministry of Finance** and **Ministry of Corporate Affairs** at Vigyan Bhawan in **New Delhi.**
2. The **week, starting from June 6 to June 11, is being celebrated as part of 'Azadi Ka Amrit Mahotsav'.**

✎ Special Feature of Jan Samarth Portal:

1) The portal is **unique** in the sense it is the **first of its kind**.
2) It **connects beneficiaries directly to the lenders for loan application** and processing under Credit-Linked Government Schemes.
3) There are a total of **13 schemes under 4 loan categories** that are linked to this portal.

4) The 4 loan categories are- **education, agricultural infrastructure, business activity, and livelihood**.

5) The **portal will have open architecture enabling state governments and other institutions** to **list their schemes on this platform in the future.**

6) The **launch of the portal indicates** that India is moving ahead with the approach of **Citizen-Centric Governance**, which is the fundamental aspect of Good Governance.

✎ **Idea Behind Jan Samarth Portal:**

1) The **goal** of developing this portal **is to encourage inclusive growth and development of several sectors.**

2) This will be **achieved by guiding them toward the appropriate government schemes and benefits through simple and easy digital processes.**

3) It is **important to highlight** that **this portal ensures end-to-end coverage of all the linked schemes.**

4) The **portal will benefit students**, **farmers**, **business owners**, **Micro, Small**, and **Medium Enterprise entrepreneurs**, as well as the **start-up ecosystem.**

Significance of the Portal

This portal will help in improving the lives of students, businessmen, farmers, and MSME entrepreneurs as well as help them in realizing their dreams. The Portal has an open architecture, which will help state governments and other organizations to add their plans on it, in future.

▶ **5.15 TWIN DEFICIT PROBLEM**

Why in News?
The **finance ministry in its 'Monthly Economic Review' mentioned the re-emergence of the twin deficit problem in the economy.**
It's also the first time the government has explicitly talked about the possibility of fiscal slippage in the current fiscal year.

✎ **Key Terms:**

1. **Stagflation:** It is described as **a situation in the economy where the growth rate slows down, the level of unemployment remains steadily high and yet the inflation or price level remains high** at the same time.

2. **Fiscal Deficit:** It is **the gap between the government's expenditure requirements and its receipts.**

3. **Current Account Deficit (CAD):** The current account measures the flow of **goods, services, and investments** into and out of the country. It represents a country's foreign transactions and, like the capital account, is a **component of a country's Balance of Payments (BOP).**

✎ **What is a Twin Deficit?**

It **refers to a nation's current account deficit and a simultaneous fiscal deficit.**
✎ **What are the Major Highlights of the Report?**
1. The **World is looking at a distinct possibility of widespread stagflation.**
2. **India, however, is at low risk of stagflation**.
3. Meanwhile, **Indian financial markets** have **witnessed heavy foreign investment outflows the past 8 months.**

✎ What will be the Impact of the Twin Deficit Problem?

The twin deficit problem, especially the worsening current account deficit, may complex the effect of **costlier imports, and weaken the value of the rupee thereby further increasing external imbalances.**

Way Forward

1. **It is important to reduce the revenue expenditure** (or the money government spends just to meet its daily needs).
2. **Promoting domestic manufacturing** and decrease in imports of unessential items can be beneficial.
3. The government **should rationalize both the capital and revenue expenditure** and should go for a balanced budget to avoid a fiscal slippage.

5.16 NIRYAT PORTAL FOR IMPORT AND EXPORT

Why In News?

The Prime Minister launched a new portal - **NIRYAT (National Import-Export Record for Yearly Analysis of Trade).**
About NIRYAT

1. It is developed as a **one-stop platform** for **stakeholders to get all necessary information** related to **India's foreign trade.**
2. It will deal with the **import and export** analysis of India.
3. It will provide **important real-time data to all stakeholders**.
4. From this portal, important information related to more than **30 commodity** groups exported to more than **200 countries of the world** will be available.
5. In the coming time, **information related to district-wise exports will also be available on this.**
6. It will **strengthen the efforts to develop the districts as important centers of exports.**

5.17 WORLD COMPETITIVENESS INDEX 2022

Why in News?
In **June 2022,** the **annual World Competitiveness Index** was **released by** the **Institute for Management Development (IMD).**
[IMD is a Swiss foundation, based in Switzerland, dedicated to the development of international business executives at each stage of their careers]
India has witnessed the **sharpest rise among the Asian economies**, with a six-position jump from **43rd to 37th rank** on the, largely due to gains in economic performance.

WHO STANDS WHERE

2022	Country	2021
1	Denmark	3
2	Switzerland	1
3	Singapore	5
4	Sweden	2
5	Hong Kong	7
6	Netherlands	4
7	Taiwan, China	8
8	Finland	11
9	Norway	6
10	US	10
37	India	43

✎ What is World Competitiveness Index?

1. World Competitiveness Yearbook (WCY) is a comprehensive annual report, **first published in 1989**.

2. It **analyses and ranks countries** according to **how they manage their capabilities to achieve long-term value creation.**

3. It measures the prosperity and competitiveness of **countries** by examining the **Four factors**:
   a. **Economic performance**
   b. **Government efficiency**
   c. **Business efficiency**
   d. **Infrastructure**

What are the Highlights of the Index?

1. **Europe: Denmark** has moved to the **top of the 63-nation list** from the **3rd** position last year, while **Switzerland** slipped from the **1st** ranking to the **2nd** position and **Singapore** regained the third spot from **5th**.

2. **Asia:** The top-performing Asian economies are Singapore (3th), Hong Kong (5th), Taiwan (7th), China (17th) and Australia (19th).

3. **Others: Both Russia and Ukraine were not assessed** in this year's edition due to the limited reliability of data collected.

4. **India's Performance on 4 parameters:**

1. **Economic performance**: It has improved from 37th in 2021 to 28th in 2022.
   2. **Government efficiency:** It has improved from 46th in 2021 to 45th in 2022.
   3. **Business efficiency:** It saw a huge improvement from 32nd rank in 2021 to 23rd in 2022.
   4. **Infrastructure:** It, on the other hand, saw no change at 49.

Reasons for India's Good Performance:

1. Major improvements in the context of **retrospective taxes** in 2021
   [A retrospective tax is **one that is charged for transactions in the long past**. It **can be a new or additional charge on transactions done in the past.**]

2. **Re-regulation of a number of sectors**, including **drones**, space, and **geospatial mapping.**

3. **Significant improvement in the competitiveness of the Indian economy.**

4. **India** as a **driving force in the global movement to fight climate change** and India's **pledge of net-zero by 2070_**all are in line with global standards to attract businesses.

The challenges that India faces in attracting businesses:

1. **Managing trade disruptions and energy security.**
2. **Maintaining high GDP** growth **post the pandemic**.
3. **Skill development** and **employment generation**.
4. **Asset monetization** and **resource mobilization for infrastructure** development.

The top five attractive factors of India's economy:

1. A skilled workforce,
2. Cost competitiveness,
3. The dynamism of the economy,
4. High educational level
5. Open and positive attitudes.

What are the Recent steps taken by India to Increase its Competitiveness?

1. India has made various efforts to ensure growth in manufacturing capacity such as **Atmanirbhar Bharat** and **Make in India** initiatives which are aimed at domestic supply chains.
2. The government has introduced the **Production-Linked Incentive (PLI) Scheme** in various sectors for enhancing India's manufacturing capabilities and exports.
   a. **To facilitate technological advancement** for increasing competitiveness, India's Department of Telecom **(DoT) has constituted 6 task forces** on **6G technology.**
3. The Ministry of External Affairs, through its **New, Emerging and Strategic Technologies (NEST) division** is also ensuring India's active participation in international forums on technology governance.

Way Forward

1. A nation that ensures **a balance between economic and social progress** can enhance its productivity, competitiveness, and thus, prosperity.
2. It is **necessary to create an environment that pushes the businesses to compete** in local as well as international markets **and ensures that the average citizen's standard of living** also **improves.**
3. Governments need to **provide an environment with good infrastructures, institutions, and policies** that encourage sustainable value creation by the enterprises.

▶ 5.18 ALTERNATE INVESTMENT FUND (AIFS)

Why in news?
SEBI came out with new guidelines for Large Value Funds (LVFs) for accredited investors.
[LVF for accredited investor means an AIF or scheme of AIFs in which each investor is an accredited investor and invests at least Rs. 70 crores.

What are AIFs?
1) **Securities and Exchange Board of India (Alternative Investment Funds) Regulations, 2012 defines** AIFs as **any privately pooled investment fund,** (whether from Indian or foreign sources), **in the form of a trust or a company, or a corporate body.**
2) AIFs are **private funds** but **do not come under the jurisdiction of any regulatory agency in India.**

✎ **AIF does not include funds covered under the:**

1. **SEBI** (Mutual Funds) Regulations, 1996,
2. **SEBI** (Collective Investment Schemes) Regulations, 1999,
3. Any other regulations of the Board to regulate fund management activities.

The **Union Cabinet too had approved the creation of an Alternative Investment Fund of Rs. 25,000 core to revive affordable housing projects.**

▶ 5.19 PRODUCTION LINKED INCENTIVE SCHEME:

Why in News?
The **Department of telecommunication (DoT)** has **extended the PLI scheme for 1 year.**

What is the PLI Scheme?

1. It was **first introduced in India in March 2020**, targeting 3 industries –
2. Mobile manufacturing and
3. Electric components
4. Pharmaceutical (critical key starting materials/active pharmaceutical ingredients), and medical device manufacturing.
5. The government has set aside **Rs 1.97 lakh crore under the PLI schemes** for various sectors and an **additional allocation of Rs 19,500 for solar PV modules in Budget 2022-23.**

 Objectives of the scheme:

1. The Government introduced this scheme to **reduce India's dependence on China and other foreign countries.**
2. It supports the **labour-intensive sectors (where the major work is done by labor)** and aims to increase the employment ratio in India.
3. This scheme works to **reduce down the import bills and boost up domestic production.**
4. However, PLI Yojana invites foreign companies to set up their units in India and encourages domestic enterprises to expand their production units.

 What are the Challenges Facing the PLI Scheme?

1. There **is no common set of parameters to understand the value added by companies** that have received or are likely to receive incentives under the PLI scheme.
2. At present, **different ministries monitor the value addition** of their respective PLI schemes and **there is no way to compare two different schemes.**
3. There **is no centralized database to measure the increase in jobs, rise in exports, improvement in quality, etc.**
4. **Lack of coordination** between **departments, ministries and companies** operating in their sector.
5. The **no. of companies that are able to qualify for incentives is very few.**

 Sectors for the which PLI Scheme has been Announced till now:

So far, the **government has announced PLI schemes for 14 sectors** including **automobile and auto components, electronics and IT hardware, telecom, pharmaceuticals, solar modules, metals and mining, textiles and apparel, white goods, drones,** and **advanced chemistry cell batteries.**

5. 20 SPECIAL 301 REPORT

What is the News?

1. **Office of the United States Trade Representative (USTR) has released** the Special 301 Report 2022.
2. **What is the Special 301 Report?**
3. This report **identifies trading partners that do not adequately protect Intellectual Property (IP) rights.**
4. Here, the report **highlighted the main point of disagreement between India and the US related to section 3(d) of the Indian patent act,1970.**

What is section 3(d) of the Indian Patent Act 1970?

1) **Section 3** deals with **what does not qualify as an invention under the act.**
2) **Section 3(d) prevents** what is known as the **"evergreening" of patents.**

[**Evergreening means reapplying for patent and designs act 1911.**

✎ **The report places countries into 2 lists:**

Priority Watch list countries -These are those countries that are **having serious intellectual property rights deficiencies** and **require increased United States Trade Representative (USTR) attention.** These countries are Argentina, Chile, China, **India**, Indonesia, Russia, and Venezuela.

Watch List countries - These countries are **having serious intellectual property rights deficiencies but are not yet placed on the Priority Watch list.**

What are the key findings of the report?

1)**India remains one of the most challenging major economies with respect to the protection** and enforcement **of intellectual property.**

3)However, the **potential threat of patent withdrawals**, lack of presumption of patent validity, and narrow patentability criteria under the Indian Patents Act impact companies across different sectors.

4)For instance, in the pharmaceutical sector, the United States continues to monitor the restriction on the patent-eligible subject matter in **Section 3(d) of the Indian Patents Act** and its impacts.

▶ **5.21 NEOBANKS**

Why in News?

The **RBI** (Reserve Bank of India) is **taking a hard look at the new bank business model i.e., Neobanks**
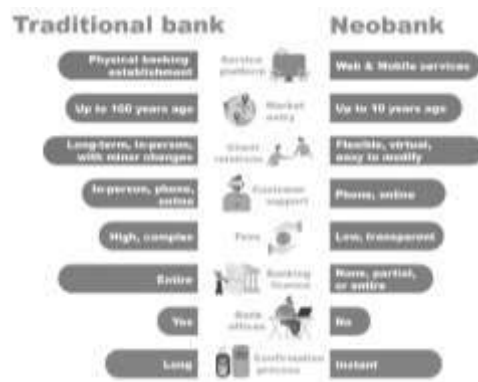
What are Neo banks?

1. A neo bank is a kind of **digital bank without any branches.**
2. **Rather than being physically present** at a specific location, **neo banking is completely online.**
3. Neo banks **work as financial institutions (FI)** that give customers a **cheaper alternative to traditional banks.**
4. These banks **influence technology and artificial intelligence (AI)** to offer personalized services to customers while minimizing operation costs.
5. Neo banks came with a tag of **'challenger banks'** because they challenged the complex infrastructure and other operational processes of traditional banks.
6. These firms **don't have a bank license of their own but rely on bank partners to offer licensed services.**
    Razorpay, Jupiter, Niyo, Open, etc are examples of top Neo banks of India.

What are the different working Models of neo banks?

1. **Non-licensed** FinTech (Financial Technology) firms that collaborate with conventional banks.
2. **Traditional banks** that are responsible for their digital initiatives.
3. **Licensed neo banks** (usually with digital banking licenses in those countries that allow it).

What are the Differences Between Traditional Banks and neobanks?

✍ **What are the Challenges for Neo banks?**

1) The **key to their success lies in adopting the right technology,** business strategy, and work culture, etc. which is not up to the mark in many banks.
2) As, **RBI doesn't yet recognize neo banks**, there is a lack of clarity on the process to follow in case of an issue.
3) Since **neo banks don't have a physical branch, customers don't have access to in-person assistance.**
4) Neo banks **generally offer fewer services than traditional banks.**

✍ **Advantages of Neo banks:**

1. Fewer regulations and the absence of credit risk allow neo banks to keep their costs low. Products are typically inexpensive, with no monthly maintenance fees.
2. These banks offer customers **the majority of banking services through an app** and **make banking easy**.
3. Neobanks **allow customers to set up accounts quickly** and **process requests speedily**.
4. Neo banks are **transparent and works to provide real-time notifications**.
5. Most **neo banks provide dashboard solutions** with greater interfaces and **easy-to-understand and valuable insights** for services such as payments, payables and receivables, and bank statements.

▶ **5.22 SAGARMALA YOUNG PROFESSIONAL SCHEME (SYPS)**

About Sagarmala Young Professional Scheme

1. **It is a national ambitious initiative launched in 2015 to transform India's logistics sector performance".**
2. It is **formulated by the Ministry of Port, shipping, and waterways to engage talented, forward-thinking youth in various divisions of ministry.**

How many professionals will be hired?

1. Over **25 young professionals will be hired** under this scheme.
2. They will be **required to have qualifications in B. E or B. Tech, B. Planning or MBA or equivalent degree in relevant subject or field**, apart **from a minimum 3 years of relevant work experience.**
3. **Professionals in Accountancy, Legal, Finance, Economics/Commerce, Statistics, Data Analytics** will also be engaged on the basis of the requirements of the Ministry.
4. Initially, they will be **engaged for 2 years,** which is **extendable to additional 2 years based on performance.**

Benefits of this Scheme:

1. SYPS **focuses on active on-the-ground learning for young professionals.**
2. Through this scheme, **these professionals will gain the opportunity to learn about the functioning of government and developmental policy concerns.**
3. **To meet Ministry's needs, professionals are required to deliver high-quality inputs in areas like data analysis, infrastructure, project management**, skill development, start-up, innovation, digital transformation, and environment.
4. This **scheme will provide for the active participation of young people in decision-making**. It will thus **contribute to social wellness** at an individual level, by encouraging self-esteem and a sense of empowerment.

5. It will also **help in enhancing awareness of common concerns**.

5.23 GOOGLE TAX OR EQUALISATION LEVY

Why in News?
India's Google tax on offshore (out of the country) digital economy firms is set to stay beyond 2023, as a global tax deal will replace these taxes.

What is Google tax?
1. It is **a tax to equalize the tax burden on distant and domestic suppliers of similar goods and services**.
2. It is **also known as Equalization Leavy (EL).**
3. EL was **introduced in 2016.**
4. **It is applicable to payments for digital advertisement services received by non-resident companies without a permanent establishment (PE) here.**
5. The **objective of this tax is to make sure that those entities which are making a payment to a non-resident for specified services like online advertisements, deduct this tax before making the payment.**
6. **It was later extended to non-resident e-commerce operators with the rate of 2%**

What are the challenges associated with google tax?
   1) **European counties had prioritized digital taxation, while the US had prioritized the global minimum rate.**
   2) **legislators in both Europe and US struggling to pass the laws that are needed to implement the deal.**

5.24 HYBRID SECURITIES

Why in News?

In June 2022, The **Securities and Exchange Board of India (SEBI) has set up a 20-member committee under K V Kamath on Hybrid Securities.**

✎ Objective of the Committee:

To Boost the growth of hybrid securities, ease of issuance and attracting domestic and global capital.

✎ Function of the Committee:

It will **make recommendations on issues related to development** and **regulation of primary and secondary markets** of hybrid securities.

✎ What are Hybrid Securities?

   1. These are **investment instruments.**
   2. Hybrid Securities **combine 2 or more different financial instruments**, **commonly the equities and bonds (debt).**

3. For example, Infrastructure investment Trusts (InvITs), Real Estate Investment Trusts (REITs), Preferred Stocks etc.

Hybrid Security

Company A issue bond at Par Value $1000   Conversion Price $10   Bondholder will get 100 ($1000/$10) Share

5.25 US HAS INCREASED ITS BENCHMARK INTEREST RATE

Why in News?
In July 2022, US has increased its benchmark interest rates.

What is Benchmark interest rate?
1. It is **also known as base interest rate decided by the central bank (US Federal Reserve in case of US) of a country.**
2. It is **the minimum interest rate investors will demand for investing in securities.**
3. It is **directly related to the yield (output) of the securities.**

What Was the Need to Increase the Benchmark Interest Rates?
1. This **increase came after the record inflation US is experiencing for the first time after 1981.**
2. This **Inflation is a combined effect of supply and demand imbalances, higher energy prices, etc.**

Impact of this rise on India:
1. **More Investors will move to US as they will get higher interest rate there, resulting in low FDI in India.**
2. **It will lead to the lower the value of the India Currency.**
3. **It may slowdown the Indian economy.**

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6. ENVIRONMENT

▶ 6.1 CLIMATE EQUITY

✎ Recently in news because:

At the closing session of Bonn Climate Conference, India brought attention of all to the fact that ''principle of equity'' is getting ignored in climate negotiations.

Because of increased concentration of greenhouse gases and the consequent climate change, since 1992 various climate negotiations i.e., talks are going on how to control climate change.

<u>What are greenhouse gases (GHGs)?</u>

Any gas that has the property of absorbing infrared radiation (net heat energy) emitted from Earth's surface and reradiating it back to Earth's surface, thus contributing to the greenhouse effect.

✎ Examples of GHGs:

1. Carbon dioxide
2. Methane
3. Water Vapour
4. Surface-level ozone
5. Nitrous oxides
6. Fluorinated gases

What is <u>greenhouse effect</u>**?**

It refers to the warming of Earth's surface and troposphere (the lowest layer of the atmosphere) due to the release of GHGs as they trap the heat energy.

<u>What is climate change?</u>

It refers to long-term shifts in temperatures and weather patterns. These shifts may be natural, such as through variations in the solar cycle. But since the 1800s, human activities have been the main cause of climate change, mainly due to burning fossil fuels like coal, oil and gas.

Burning fossil fuels generates GHGs which causes greenhouse effect that leads to increased average temperature of earth's surface.

What is ''Carbon Budget''?

1. It's generally defined as the maximum amount of carbon that humans could emit into the atmosphere and still keep global average temperatures below an increase of 2°C.
2. A global average temperature of more than 2°C above pre-industrial temperature averages is considered to be dangerous as after that point, the effects of climate change will become extreme, destructive and likely irreversible.
3. In fact, it is advised to restrict average temperature rise to a more conservative target of 1.5°C.
4. According to the Sixth Assessment Report (AR6) of IPCC, historical cumulative net CO_2 emissions between 1850 and 2019 amount to about:
   - $4/5^{th}$ of the total carbon budget for limiting global warming to 1.5°C.

- 2/3rd of the total carbon budget to limit global warming to 2°C.

5. Carbon budget is controversial for developing countries because most of the already-spent budget is due to past emissions by countries that used up their budgets to become fully developed like US and Europe.

6. So now the issue is that developing countries will have to cut their carbon budgets, which raises arguments about justice and equity.

✍ There are 2 major principles of climate negotiations:

1. Common But Differentiated Responsibility (CBDR)
   According to this principle, developed countries have more responsibility of ''climate action''. This is because;
   a. Historically due to industrial revolution (IR), these countries are responsible for majority of emissions of greenhouse gases in the atmosphere and have thus exhausted the carbon budget.
   b. Because of IR these countries have developed more and have benefitted economically, therefore, they are more capable and equipped for taking climate action.

✍ ''Climate Action'' includes following efforts to tackle climate change:

   a. Adopting mitigation and adaptation efforts to curb GHG emissions.
   b. Contributing to funds created for climate action

2. **Climate Equity**
   a. It refers to the equitable distribution of the benefits obtained from climate action.
   b. It also aims to protect the most vulnerable and marginalized people from adverse effects of global warming as these people are the least responsible for climate change.
   c. It aims to ensure that there is no unequal burden of climate change on any country or group of people.
   d. It also aims to provide distributive justice among the present generations, as well as the future generations i.e., climate goals are achieved in a sustainable manner.

Mitigation	Adaptation
1. It means reducing climate change which involves reducing the flow of heat-trapping greenhouse gases into the atmosphere.	1. It means adapting to life in a changing climate which involves adjusting to actual or expected future climate.
2. It includes: a. either reducing sources of these gases (for example, the burning of fossil fuels for electricity, heat, or transport) or b. enhancing the "sinks" that accumulate and store these gases (such as the oceans, forests, and soil).	2. It includes: a. reducing risks from the harmful effects of climate change (like sea-level rise, more intense extreme weather events, or food insecurity) b. making the most of any potential beneficial opportunities associated with climate change (for example, longer growing seasons or increased yields in some regions).

✍ What is the importance of ''climate equity'' in climate change negotiations?

1. For climate mitigation, it is important that developed countries give more financial support to developing countries and have more targets of GHG emission reduction.

2. There should be transfer of technology and finances from developed countries to developing countries so that there is smooth transition towards low emissions mode of development.

3. Developing countries need their fair share of carbon budget to balance development and climate protection and sustainable development goals.

4. It is important to reach at a consensus on climate equity and funding of ''Loss and Damage'' for cooperation among developed and developing countries on fight against climate change.

5. It will help build accountability and impose responsibility on those who benefit from measures that causes climate change.

6. It will help manage the negative consequences of climate change on vulnerable population.

[Note: What is ''Loss and Damage'' (L&D)?

1. It refers to impacts of climate change which is permanent and thus cannot be adapted to.

2. For example, slow-onset processes like sea-level and temperature rise, and extreme events such as floods, hurricanes and tropical cyclones.

3. Historical emitters (i.e., developed countries) should pay for L&D in accordance with the 'polluter pays' principle (It refers to making the party which produces pollution responsible for paying for the damage done to the natural environment).

4. L&D impacts are felt disproportionately by small island nations who have had negligible emissions with estimated costs of L&D by 2030 ranging from $290-580 billion.]

How the principle of ''climate equity'' is getting neglected in climate negotiations?

At COP 26 which was held in Glasgow in 2021, several decisions were taken which go against this principle such as:

1. All countries have been requested to revise and improve their climate pledges by the end of 2022 but the principle of CBDR has been neglected and no concrete targets have been given.

2. Countries have been asked to undertake targeted actions to reduce use of fossil fuels by adopting ''phasing down of unabated coal (i.e., coal not associated with carbon storage)' and inefficient fossil fuels''. This would compromise developing countries' development objectives like providing affordable energy to its citizens.

3. For L&D, only the provision of technical assistance and insurance-based interventions has been discussed. Developed countries have not been made to compensate because of resistance from countries like US and EU.

4. Carbon credits generated under Kyoto Protocol have been allowed to be carried over Paris Agreement which would make the target of limiting temperature rise to 1.5°C very difficult.

✎ COP 26 at Glasgow, 2021

Outcomes:

1. Establishment of Glasgow Dialogue was established for funding L&D.

2. Global Goal on Adaptation was adopted to institutionalize the functions of Santiago network on L&D.

✍ Bonn Climate Change Conference:

It was held in June, 2022 where countries took several decisions to implement Paris Agreement.

Outcomes:

1. 1st technical dialogue of Global Stocktake to review the progress made under Paris Agreement for limiting temperature rise to 1.5°C.
2. Draft of '' Global Goal on Adaptation'' was discussed.

What is the way forward for climate equity?

1. Funding for L&D must be grant based so that only the countries which require the funds get them without creating unnecessary burden on others.
2. Developed countries should enhance their emission reduction targets to give developing countries' fair share in the carbon budget, which is essential to achieve their developmental rights.
3. Enhancing accessibility of funds for vulnerable communities.

6.2 ECO-SENSITIVE ZONES (ESZ)

✍ Recently in news because:

Supreme Court (SC) has given the judgement about ESZ with respect to the application filed under TN Godavarman Thirumalpad v/s Union of India Case.

✍ Important Points of Judgement:

1. It has directed that every protected forest, national park and wildlife sanctuary across the country should have a mandatory ESZ of a minimum 1 km starting from their marked boundaries.
2. The above rule would apply to all states/ UTs where there is no prescribed minimum area of ESZ.
3. But if there is already more area under ESZ anywhere, then higher area would area remain under ESZ.
4. New permanent structures cannot be constructed in ESZ.
5. Mining is not allowed in Wildlife Sanctuaries and National Parks.
6. Activities which are not prohibited in ESZ and are already undergoing within 1 km of these protected areas or in extended areas of ESZ can continue after taking permission.
7. Principal Chief Conservator of Forests of each State/UT have to make a list of existing structures at the ESZs and submit a report to the SC within 3 months.
8. For those protected areas which have not been prescribed by states/ UTs, a 10 km ESZ will be demarcated till the final decision comes.
9. All of the above rules/ directions can be eased out in case of ''overwhelming public interest''.

✎ Importance of SC Judgement:

1. Enforcement of true spirit of the law: It will help to overcome the problem where states have notified very less area (only few meters) as ESZ just to comply with ESZ Rules. That is, they follow letter of the law but not the spirit of the law.
2. Preserving ecological connections between various protected areas.
3. Preventing ecological harm in sensitive places like the Western Ghats where the ESZ demarcation has not yet been decided.
4. Controlling the negative effects (deforestation, eviction of locals, littering, pollution, etc.) of increasing tourism in protected areas.

What are ESZ?

1. These are ecologically important and fragile areas around protected areas (national parks, wildlife sanctuaries, wildlife corridors) which are to be protected from industrial pollution and unregulated development.
2. The purpose of declaring ESZs is to create some kind of a "shock absorber" for the protected areas. And also acts as a 'transition zone' between protected areas and areas of human habitation.
3. These are notified by Ministry of Environment, Forest and Climate Change (MoEFCC) i.e., Central Government, under Environment Protection Act, 1986.

✎ Historical Background of ESZ:

1. 2002: 'Wildlife Conservation Strategy, 2002' was brought to notify an area within 10 Kms from the boundaries of National Parks and Wildlife Sanctuaries as ''Eco Fragile Zones''. But many states didn't follow this rule because of challenges related to displacement of human habitations and industrial development in these regions.
2. 2005: To overcome above problem, it was decided by National Board of Wildlife that declaration of ESZ should be according to each site of protection rather than applying ''one size fits all'' formula and activities should be regulated rather than being prohibited completely.
3. 2006: In Goa Foundation v. Union of India, the SC ordered all States/UTs to follow 2005 order.
4. 2011: MoEFCC notified 'Guidelines for declaration of ESZ around National Parks and Wildlife Sanctuaries' which are as follows:

   a. **Extent of area of ESZ:**
      i. It would be site specific and no 1 criterion would be adopted.
      ii. As per 'Wildlife Conservation Strategy, 2002', the maximum area of ESZ around protected areas can be up to 10 kms from their boundaries.
      iii. In case of sensitive corridors, connectivity and ecologically important areas, the area of ESZ can go even beyond 10 kms.

   b. **Procedure of notifying ESZ:**
      i. A database of all the activities and important corridors around a protected area is created by Range Officers.
      ii. Then a committee consisting of: Wildlife Warden, Ecology Expert and officials from Local level government and Revenue Department:
         a) Decides the extent of ESZ.
         b) Creates a Master Plan for the management and regulation of activities in ESZ.
      iii. Then the final notification of ESZ is given by MoEFCC.

c. **Classification of activities for ESZ:**
  i. Activities that are permitted without restriction: Rainwater Harvesting, Organic farming, Ongoing Agricultural and Horticulture practices by local communities, Adoption of green technology for all activities etc.
  ii. Activities that are permitted with certain restrictions: Felling of trees, Establishment of hotels and resorts, drastic change of agriculture system, widening of roads, introduction of exotic species etc.
  iii. Activities that are prohibited: Commercial mining, setting of saw mills, polluting industries, major hydroelectric projects etc.

✎ Significance of ESZ:

1. In-situ conservation: ESZs help in in-situ conservation, which deals with conservation of an endangered species in its natural habitat.
2. Minimize Forest Depletion and Man-Animal Conflict: ESZs minimize forest depletion and man-animal conflict.
3. The protected areas are based on the core and buffer model of management, through which local area communities are also protected and benefitted.
4. Minimize the impact of development activities: To minimize the impact of urbanization and other developmental activities, the areas adjacent to protected areas have been declared as ESZs.

✎ Challenges related to ESZs:

1. Developmental activities: Activities such as construction of dams, roads, urban and rural infrastructures in the ESZ due to less number of prohibited activities, disturb the ecological balance and cause disruption to natural ecological processes.
2. Loopholes in governance: The lacunas in the Environmental Protection Act 1986 and the Wildlife Protection Act 1972 fail to protect the animals and restrict poaching. Developmental activities in the ESZs can further put them in danger.
3. Tourism: For the purpose of eco-tourism, land around the sanctuaries and national parks is cleared leading to deforestation and displacement of indigenous people.
4. Exotic species: Introduction of exotic species like Eucalyptus and *Acacia auricularis* etc., and their plantations hamper the growth of other forest species.
5. Impact of Climate change: Climate change has put over pressure on land, biodiversity and wildlife. For example, frequent forest fires or the Assam floods which badly affected the KAZIRANGA NATIONAL PARK and its wildlife.
6. Local population: Shifting cultivation, pressure of increasing population and the rising demand for firewood and forest produce, etc. exert pressure on the protected areas which eventually affects the indigenous local population.
7. Opposition from states: as demarcation of ESZ would lead to loss of revenue due to restriction on developmental activities.
8. ''One-size-fits-all'' approach goes against 2005 order.
9. Protests from people living within 1 km of protected areas.
10. Lack of involvement of all stakeholders in decision- making makes it difficult to implement the rules.

Way Ahead

1. It is the duty of the state to protect and preserve the natural resources so that sustainable development can be achieved in the long term. (Article 48A of Indian Constitution- To protect and improve the environment and to safeguard forests and wildlife.)

2. The government should not limit its role to that of a facilitator of economic activities for the immediate benefits of the State.
3. Afforestation and reforestation of degraded forest, regeneration of lost habitats, promoting carbon footprints can be done.
4. Promotion of better conservation techniques and creating awareness about overexploitation of resources and its adverse impacts among masses.
5. Finding the loopholes within administrative structure and filling them through new regulations based on scientific understanding of the eco sensitive issues.
6. Ecologically sensitive areas should be identified on the basis of proper investigation, satellite images, scientifically studying the impact of infrastructure projects.
7. Environment friendly livelihood economic activities such as agroforestry, organic farming, etc. should be promoted in ESZ as alternative income options.
8. Adopting participatory approach through involvement of state governments, people and private sector for effective decision- making and compliance of rules in spirit.

6.3 FOREST (CONSERVATION) RULES, 2022

⌦ Recently in news because:

These rules were notified under Forest Conservation Act 1980 by Ministry of Environment, Forest and Climate Change (MoEFCC) in June 2022 replacing Forest (Conservation) Rules, 2003.

⌦ Important features of the new rules:

1. It establishes various committees for reviewing development projects requiring environmental clearance.

Committees	Details		
	To be set up by:	Frequency of meetings	Functions performed
1. Project Screening Committee	State/ UT government	2 times a month	i. recommend projects to State/UTs administration ii. examine the proposal received from the State Government or Union territory Administration, where forest land involved is more than 5 hectares.
2. Regional Empowered Committee	Central government in every regional office	2 times a month	To examine every referred project for approval or rejection
3. Advisory Committee	Central government	1 time a month	It will consist of 6 members who will advise with regards to grant of approval under various sections of rules.

2. It suggests time frame to review various types of projects:

Type of project	Time frame given
1. Non- mining projects	
a. 5-40 hectares	60 days
b. More than 100 hectares	120 days

2. Mining projects	
a. 5-40 hectares	75 days
b. More than 100 hectares	150 days

3. Approval for the project:
   a. In- Principal approval is given by Central government after considering the recommendation of the Advisory Committee.
   b. Final approval is given by the Nodal Officer after receiving in- principle approval from Central government.
4. There must be land available for compensatory afforestation that is neither administered as forest by the Forest Department nor notified as forest under the Indian Forest Act of 1927 or any other law.
5. Now the state government will be responsible for securing rights of forest dwellers and that can be done only after the final approval by Central government.

✎ Issues with new rules:

1. There is no mechanism to ensure that the compensated tree lots or plantations provide same ecological qualities and functions as the natural forest that is diverted.
2. Rules contradict the Gram Sabha's powers under Forest Rights Act of 2006 to identify the kind and scope of individual or community forest rights and to issue certificates for the same. As the same powers are now given to state government under the new rules.
3. It excludes the projects involving less than 5 hectares thus excluding a large number of projects.

✎ Conclusion:

Though rules aim to speed up the process of evaluating any infrastructure or other development project that involves the relocation of forest property. But it is also important to make development more inclusive and secure the traditional rights of tribal and other forest-dwelling groups over forestlands with their cooperation.

✎ Understanding various related concepts:

1. Indian Forest Act, 1865 and 1927
   a. 1st law with respect to forest resources in India.

   b. However, it was more tilted towards protecting the commercial interests of the British Empire in India.

   c. The act gave authority to the British to restrict tribal activities by imposing taxes on timber and forest services.

   d. So, it mainly regulated the cutting of timber and flow of raw materials rather than protecting forests.

2. Forest (Conservation) Act of 1980 (FCA, 1980)
   a. It was enacted by the Parliament of India in order to control the ongoing deforestation of the forests of India.
   b. It came into force on October 25, 1980.

c. Objectives:

i.   Protect the forest along with its flora, fauna and other diverse ecological components while preserving the integrity and territory of the forests.
ii.   Arrest the loss of forest biodiversity.
iii.   Prevent forest lands being converted into agricultural, grazing or for any other commercial purposes and intentions.

d. It gives complete authority to the Central government to carry out the objectives of the act.
e. The 1988 amendment prohibits the lease of forest land to anybody other than the government.
    - It enhances conservation, plantation and increase of forest cover to an average of 30%.
f. Provisions of the 1992 amendment:
    i.   Infrastructure is allowed: The Act made provision for allowing some non-forest activities in forests without cutting trees with prior approval of the Central government. These activities include the setting of transmission lines, seismic surveys, exploration, drilling, and hydroelectric projects.
    ii.   Total ban deforestation: Wildlife sanctuaries, National Parks, etc. are totally prohibited for any exploration or survey without prior approval of the Central government even if no tree felling is involved.
    iii.   More crops under NFA: Cultivation of tea, coffee, spices, rubber, mulberry for rearing silkworms, and cash crops are included under non-forestry activities and are not allowed in reserve forests.
    iv.   Mining: Mining is a non-forestry activity and prior approval of the Central government is mandatory.
    v.   Environmental Impact Statement.
    vi.   Even the cultivation of fruit-bearing trees, oil yielding plants, or medicinal plants in the forest area needs to be first approved to maintain the balance in the ecology of the forest.

g. Supreme court defined a forest in 1996 in the TN Godavarman Thirumulpad vs Union of India case. It said that forests would be defined by their "dictionary meaning" and the Forest Conservation Act will be implemented with this new definition. So, all non-forest activity were suspended to prevent further deforestation and the provisions of the Forest Conservation Act were applied to all forests across India, irrespective of their classification or nature of ownership.

    3.   Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006, also known as Forest Rights Act (FRA) 2006

✎ **Need for the Act:**
    a. A large number of people especially the scheduled tribes have lived in and around forests for a long period of time.
    b. This has established their relationship with the forests.
    c. During the colonial time the focus shifted from the forests being used as a resource base for sustenance of local communities to a state resource for commercial interests and development of land for agriculture.
    d. Several Acts and policies such as the 3 Indian Forest Acts of 1865, 1894 and 1927 of Central Govt and some state forest Acts curtailed centuries-old, customary-use rights of local communities.

✎ **Objective:**

The act recognizes and vest the forest rights and occupation in Forest land in forest Dwelling Scheduled Tribes (FDST) and Other Traditional Forest Dwellers (OTFD)who have been residing in such forests for generations.

✎ **Features:**

a. The Act provides that the gram sabha, or village assembly, will initially pass a resolution recommending whose rights to which resources should be recognised.

b. This resolution is then screened and approved at the level of the sub-division and subsequently at the district level.

c. The 4 rights granted under the act are:

 i. Title rights: It is ownership to land that is being farmed by tribals or forest dwellers as on 13 December 2005, subject to a maximum of 4 hectares

 ii. Use rights: Use of minor forest produce and its ownership, grazing areas, pastoralist plasticroutes, etc.

 iii. Relief and development rights: For rehabilitation in case of illegal eviction or forced displacement; and to basic amenities, subject to restrictions for forest protection.

 iv. Forest management rights: To protect forests and wildlife.

4. **Compensatory Afforestation Fund Management and Planning Authority (CAMPA) Act, 2016:**

 a. A company diverting forest land must provide alternative land to take up compensatory afforestation.

 b. For afforestation, the company should pay to the state to plant new trees in the alternative land provided by the state.

 c. It establishes:

 i. National Compensatory Afforestation Fund under the Public Account of India

 ii. State Compensatory Afforestation Fund under the Public Account of each state

 d. These Funds will receive payments for:

 i. compensatory afforestation

 ii. net present value of forest (NPV), and

 iii. other project specific payments.

 e. The National Fund will receive 10% of these funds, and the State Funds will receive the remaining 90%.

▶ **6.4 HEAT WAVES 2022: CAUSES, IMPACTS AND WAY FORWARD FOR INDIAN AGRICULTURE**

Why in News?

An analysis and study of heatwaves was done by the Central Research Institute for Dryland Agriculture (CRIDA), ICAR.

What is heat wave?

1. It is a period of excessively hot weather, which may be accompanied by high humidity, especially in oceanic climate countries.

2. While definitions vary, a heat wave is usually measured relative to the usual weather in the area and relative to normal temperatures for the season.

✎ **Causes of heat waves in India:**

1. Anticyclones over western parts of Rajasthan around March and absence of western disturbances (absence of rainfall) cause early and extreme heat waves.
2. Anticyclones leads to hot and dry weather by sinking winds around high-pressure systems in the atmosphere.

NOTE:
1. An anticyclone is a weather phenomenon defined as a large-scale circulation of winds around a central region of high atmospheric pressure, clockwise in the Northern Hemisphere and counter clockwise in the Southern Hemisphere as viewed from above (opposite to a cyclone).
2. A western disturbance is an extratropical storm originating in the Mediterranean region that brings sudden winter rain to the north-western parts of the Indian subcontinent.
3. Extratropical storms are global phenomena with moisture usually carried in the upper atmosphere, unlike their tropical counterparts where the moisture is carried in the lower atmosphere.

✍ Impacts of heat wave on Indian Agriculture:
1. It can cause yellowing and wrinkling of the grain and forced maturity.
2. It can cause loss of moisture, sunburn and flower drop.
3. It can cause loss of appetite and higher body temperature in domesticated animals.

✍ CRIDA's suggestions for preventing heatwaves:
1. Right crop varieties, bathing animals should be chosen according to climatic conditions of the region.
2. Mulching technique (e.g., Plastic Mulching) should be adopted to conserve soil moisture and reduce the water stress particularly for crops like sugarcane. Mulching refers to a protective covering of bark chips, straw or plastic sheeting, placed on the ground to reduce weed growth, retain soil moisture and prevent freezing of roots.
3. Heat-tolerant wheat crop varieties like PBW03, DBW187 etc. should be adopted in low rainfall regions and its timely sowing should be done.
4. Potassium Nitrate should be sprayed at boot leaf and flowering stages to minimise yield losses.
5. Fruit trees should be covered with shade nets/cotton cloth to reduce sun scalding (an injury of woody plants).

About CRIDA
1. It is an institute under the Indian Council of Agricultural Research.
2. It was formed in 1985 as the Project Directorate of the All India Coordinated Research Project for Dryland Agriculture.
3. It was set up with the intention of undertaking agricultural research activities in areas that have low rainfall.

▶ 6.5 MAWSYNRAM AND CHERRAPUNJI

Mawsynram and Cherrapunji together receive more rainfall in 1 day in comparison to whole India's average in the month of June.

✍ Reasons for heavy rainfall in these 2 places:

1. Both of them lies on the windward side of the Meghalaya's East Khasi Hills district.

✍ Significance of windward side of mountains:

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i. It is the side or direction from which the wind is blowing.

ii. It faces prevailing winds which contains high moisture and on striking with the surrounding mountains and hills which acts as a barrier for them, they shed their moisture in that particular place. That's why the windward side receives more rainfall.

2. They receive rainfall from the South West Monsoon through the Bay of Bengal branch.

3. Their location is bordered by the 'hills on 3 sides'. The south-west winds are blocked by the mountains thus, leaving the Bay of Bengal monsoon getting stuck to this place and shedding entire moisture over this place.

6.6 SINGLE USE PLASTIC

✎ Recently in news because:

Ministry of Environment, Forest and Climate Change (MoEFCC) will ban several single use plastic (SUP) items across India from 1st July, 2022.

What is SUP?

It refers to those plastic items which is used only once for some purpose (e.g., plastic spoons, straws used for eating, drinking).

Which items will be banned?

Those SUP items which have less usefulness and high littering potential and whose manufacture, import, storage, distribution, sale and use was prohibited from 1st July, 2022.

These items were notified by MoEFCC under Plastic Waste Management (PWM) Amendment **Rules, 2021. Such items include:**

1. Plastic Sticks- earbuds, balloon sticks, plastic flags, candy sticks, ice- cream sticks etc.
2. Cutlery items- plates, cups, glasses, forks, spoons, knives, straws etc.
3. Packing/ Wrapping Films- used in sweet boxes, invitation cards, cigarette packets etc.
4. Other items like banners less than 100 microns, thermocols etc.

Which items will not be banned?

Those made up of compostable plastic (are made up of renewable materials and break down through composting).

✎ Penalty for violating the ban:

It will be imprisonment up to 5 years or fine up to 1 lakh rupees or both given under Environment Protection Act, 1986.

Note: Other Important Provisions of PWM Amendment Rules, 2021:

1. Thickness of plastic carry bags was increased:
   a. From 50 microns to 75 microns with effect from 30th September 2021
   b. To be further increased to 120 microns with effect from the 31st December, 2022
2. Complete ban on use of sachets using plastic material for storing, packing or selling gutkha, tobacco and pan masala.
3. Extended Producer Responsibility (EPR) was given legal force for the above-mentioned SUP items. (EPR is an environmental policy that makes producers responsible for the entire life cycle of the products that they introduce in the market, from their design until end of life (including waste collection and recycling)).

✎ **Statistics related to Plastic Pollution in India:**

1. 3.5 million tonnes of plastic waste is generated annually.
2. Per capita plastic waste generation has almost doubled over the last 5 years.
3. Only 60% of plastic waste is collected.
4. The 'Global Plastics Outlook: Policy Scenarios to 2060' report was recently released by OECD which has predicted that use of plastics and plastic waste will almost triple globally because of economic and population growth and half of all plastic waste will reach landfills with less than 1/5th being recycled.

✎ **Harmful impacts of SUP:**

1. On Environment:
   a. It takes long time to decompose so it gets accumulated in soil and water over a period of time.
   b. Its production leads to the release of greenhouse gases as these are manufactured using fossil fuels.
   c. It causes harm to wildlife as animals and birds get entangled in plastic debris, die upon feeding on SUP items.
   d. It leads to destruction of coral reefs by getting deposited on them.
   e. It acts as medium for the transportation of chemicals and Persistent Organic Pollutants (POPs).
   f. Burning of plastic waste can cause air pollution.
2. On Economy:
   a. Decline in tourism due to decrease in aesthetic beauty caused by plastic litter.
   b. Choking of drains and sewers.
   c. Marine plastic debris obstructs ships.
   d. It negatively impacts fishing industry.
3. On health:
   a. It seeps into food chain.
   b. Toxins in food and water disrupts normal hormonal functions and can be cancer causing.

✎ **Steps taken by the government taken to guarantee that the ban is enforced:**

1. Establishing control rooms and specialised enforcement teams at the central and state levels to monitor the production, importation, stocking, distribution, sales, and usage of prohibited SUPs.
2. States and Union Territories have been ordered to establish border checkpoints to stop the interstate transportation of any prohibited SUPs.
3. The PRAKRITI mascot has been adopted to raise public awareness and encourage behavioral change.
4. Various e- governance initiatives adopted are:
   a. National Dashboard on Elimination of Single Use Plastic and Plastic Waste Management has been established by MoEFCC for brining all stakeholders at 1 place and track the progress made for the elimination of single-use plastic (SUP).

b. Extended Producer Responsibility (EPR) Portal for Plastic Packaging has been established by CPCB to ensure that producers, importers, and brand owners are adhering to their EPR obligations.

c. Mobile App for SUP Grievance Redressal has been established by CPCB, which gives citizens the capacity to monitor the production, use, and sale of SUP in their area.

d. A monitoring module for SUP has been established by CPCB, which is to be used by local government bodies, State Pollution Control Boards (SPCBs), Pollution Control Committees (PCCs), and CPCB to track SUP production, sale, and use in commercial areas at the district level and to implement the SUP ban in real time.

5. Instructions have been issued at national, state, and local level about the following:

a. All major petrochemical companies should not supply plastic raw materials to businesses that are manufacturing prohibited SUPs.

b. SPCB/PCCs to cancel permission granted under the Air/Water Act to businesses producing prohibited SUPs.

c. Customs Authority should not allow the import of prohibited SUPs.

d. Local authorities will provide new business licenses with the restriction that SUP items won't be offered there.

✎ Plastic Waste Management related problems in India:

1. A lack of suitable infrastructure and technology for the resource- and cost-effective collection, segregation, and disposal of plastic waste.

2. The local governments and municipal organisations in charge of enforcing the ban have insufficient staff, resources, and operational capabilities.

3. Because of inadequate infrastructure and technology, India has limited ability to produce biodegradable substitutes.

4. Closing of plastic manufacturing facilities will result into loss of income, particularly affecting small vendors, etc.

5. Difficulties in influencing consumer behaviour as the alternatives to common SUP goods are costly.

6. It is challenging to switch quickly when there is heavy consumption.

7. Disposal of current SUP inventories with sellers will lead to their dumping in streets, beaches, landfills, etc.

8. The EPR rules are not followed in India.

9. Plastic bag makers face technological and financial problems in complying with new regulations.

10. Plastics industry pressurizes to give longer transitional time.

11. Industries like Fast Moving Consumer Goods Companies (FMCG) (e.g., food and beverages company) will suffer due to their reliance on plastic straws, plates, and other items.

✎ Way Ahead: What steps can be taken to overcome above challenges?

The 3'R's

1. Imposition of taxes on plastic packaging to reduce their demand and promote reusability.

2. Bringing policies to improve product design to make them more durable and to encourage reuse and recycle.

3. Increase the availability and affordability of biodegradable plastics and SUP alternatives by encouraging manufacturing through the promotion of innovation, offering tax benefits, etc.
4. Improving waste collection, recycling and investing in sanitary landfills to eliminate any leakage of plastic waste.
5. Identify and target priority regions of origin and distribution of plastics.
6. Combining climate mitigation policies with plastics regulations to reduce emissions in the industry by switching thwate energy used for processes connected to plastics (such production and conversion) to less carbon-intensive sources.
7. The government has asked Urban Local Bodies to adopt innovative initiatives to increase enforcement of the ban, lessen the demand for SUPs and increase awareness:
    a. By setting up " Swachhata raths'' at all marketplaces, public spaces, and other high-traffic areas.
    b. As part of the EPR mandate, businesses can put up:
        i.   Bottle Banks (where customers can get rewards for depositing PET bottles)
        ii. Reusable plastic bottle booths at various locations.
    c. Opening Thaila (bag) and Bartan (utensils) bhandars to offer residents alternatives to SUP.
8. Identify readily available SUP-alternatives (such as cloth/jute/plastic bags, degradable cutlery, etc.) and raise awareness of them among the people.

6.7 STOCKHOLM+50 CONFERENCE

✎ Recently in news because:

1. It was held in June, 2022 in Stockholm, Sweden and it marks the 50 years of 1972 United Nations (UN) Conference on the Human Environment (also known as the Stockholm Conference).
2. It was held by UN General Assembly.
3. Theme: A healthy planet for the prosperity of all — our responsibility, our opportunity
4. Agenda:
    a. Sharing experiences and best practices for the protection of Earth's environment.
    b. A sustainable recovery from the Covid-19 pandemic.

✎ Need for such meeting:

1. Today the world is facing a triple crisis of ''climate change, pollution and waste, nature and biodiversity loss'', even after 50 years of the Stockholm Declaration.
2. This is threatening the achievement of the Sustainable Development Goals.

✎ Recommendations given for achieving the agenda:

1. Making sure that everyone has access to prosperity and a healthy world.
2. Adopting legislation to uphold the right to a safe, healthy, and sustainable environment.
3. Making systemic adjustments to our current economic structure.
4. Quicken transitions to environmentally safe practices in high-impact industries.
5. By giving developing nations access to and assistance for digital and technology solutions.

✍ **What is Stockholm Conference, 1972?**

Historical Background:
1. 1967: A research study provided the actual estimates of global temperature based on CO_2 levels. It was predicted that the doubling of CO_2 from the current level would result in nearly 2°C rise in global temperature.
2. 1968: So, the concept of climate change was discussed for the 1st time using this scientific evidence in the UN General Assembly (UNGA). The idea of holding the Stockholm Conference was 1st proposed by Sweden so it is also called as the "Swedish Initiative".
3. 1972: The United Nations Conference on the Human Environment in Stockholm was held from 5th- 16th June, 1972. This was the 1st meeting at global level with regards to the environment.

Theme: 'Only One Earth'

Participants: 122 countries

Aim: Creating a common governance framework for the planetary environment and natural resources.

✍ **Outcomes of the Conference:**

1. Stockholm Declaration an action plan: 70 out of 122 participant countries which were developing and poor countries and adopted the Stockholm Declaration. The Stockholm Declaration contained 26 principles that marked the beginning of a dialogue between developed and developing countries. This built the "interconnections between development, poverty and the environment".
2. Establishment of an international body called the UN Environment programme (UNEP) to establish cooperation among countries.

✍ **Key agreements of the Stockholm Declaration:**

1. Natural resources such as air, water, land, flora and fauna must be safeguarded through careful planning for the benefit of the present and future generations.
2. The release of toxic substances and heat emissions should not be allowed to exceed the capacity of the environment.
3. The poor and developing nations must be supported in their struggle against pollution.
4. The environmental policies of the states should support the present or future development potential of developing countries.
5. Appropriate steps should be taken by States and international organisations to reach an agreement on meeting the possible national and international economic consequences resulting from the application of environmental measures.
6. According to the UN charter and principles of international law, the States have the sovereign right to exploit their own resources as per their own environmental policies. However, the states have this responsibility of making sure that activities within their jurisdiction or control do not cause any harm to the environment of other States or of areas beyond the limits of national jurisdiction.

Importance of Stockholm Conference, 1972

1. It was the 1st global conference on the environment which took place when the environment was not even a subject of importance for any nation.
2. Previously, the UN charter never contained the domain of environment to deal with.
3. No country had an environment ministry until 1972.

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         a. Afterwards, countries like Norway and Sweden set up their ministries for the environment.

         b. In 1985, India set up its ministry of environment and forest.

4. After 1972, environmental issues like species extinction and mercury poisoning started making headlines and public consciousness increased.

5. The Stockholm conference started the contemporary "environmental era".

6. Many of today's conventions on the environmental crises trace their origin to the Stockholm Declaration.

         a. United Nations Framework Convention on Climate Change (UNFCCC)

         b. United Nations Convention to Combat Desertification (UNCCD)

         c. Convention on Biological Diversity (CBD)

7. It identified the theme of sustainable development which was adopted at 1992 UN Conference on Environment and Development, also known as Earth Summit, held in Rio de Janeiro.

8. It led to the adoption of 2 environmental principles:

         a. Precautionary Principle: According to it, inaction is not justified in cases when there is a serious danger of harm to people or the environment and there is no concrete scientific evidence. In contrast to the conventional reactive wait-and-see approach to environmental preservation, it is a better-safe-than-sorry strategy. It encourages action to foresee and prevent environmental harm when there is uncertainty about how an activity may affect the environment.

         b. Polluter-pays Principle: It states that those who produce pollution should bear the costs of managing it to prevent damage to human health or the environment. For instance, a factory that produces a potentially poisonous substance as a by-product of its activities is usually held responsible for its safe disposal.

9. It established multi- stakeholder approach for sustainable development with participation from NGOs, scientific community, indigenous people, private sector and established Environmental Forum.

✎ What are the Challenges?

1. Some nations expressed their concerns regarding the dominance of rich countries and said that the policies are more in the interests of wealthier, industrialised countries.

2. There is lack of coordination among the countries that's why the earth's temperature is about to increase at least 3°C above pre-industrial levels by 2100. This is twice the 1.5°C warming as mandated in the Paris Agreement, 2015.

3. Within the next 50 years, 1-3 billion people are projected to be displaced because of adverse climate conditions.

4. Poverty is the biggest hurdle in the way of adopting sustainable measures for a healthy environment, as poverty can't be eradicated without the use of science and technology.

5. Unless the poor or developing countries are in a position to provide employment and meet daily necessities of the people, the policies towards sustainable environment can't be implemented appropriately.

Way Forward

It is a high time for Stockholm+50 for setting specific deadlines for achieving the goals of sustainable development. And to achieve this we need coordination between developed and developing countries. Developing countries need to be supported to remove poverty and adopt technological measures to tackle climate change.

6.8 SUSTAINABLE DEVELOPMENT REPORT 2022

Why in news?
1. India's ranking in the Global Sustainable Development Report 2022 has fallen.
2. The country continues to face significant challenges in achieving 11 of the 17 SDGs, lowering its global ranking in SDG preparedness.

Background

1. In September 2000, the United Nations authorised all of its members to conform to a Millennium Development Goal, which consisted of a set of 8 time-bound goals that were to be met within a 15-year period.
2. In 2015, the United Nations received a final report confirming the success of the Millennium Development Goals.
3. When the MDGs' 15-year target was met, development responsibility was transferred to the 17 Sustainable Development Goals.
4. The Sustainable Development Goals are a set of 17th objectives that all United Nations members have agreed to work on in order to improve the country's future.
5. "Future We Want," a documentary played at the Rio+20 meeting, proposed a post-2015 development agenda.
6. The Rio+20 summit (2012) in Rio de Janeiro produced the SDGs, which are non-binding document.
7. The United Nations Sustainable Development Summit established a post-negotiation agenda named "Transforming Our World: the 2030 Agenda for Sustainable Development."

What is Sustainable Development means?

1. "Sustainable development is development that meets the needs of the present, without compromising the ability of future generations to meet their own needs."

✍ **The main features are:**
   a. Increase in per capita income
   b. Careful use of natural resources
   c. Preserving the resources for future generations

2. The Brundtland Commission Report of 1987 defined sustainable development.

3. The adoption of 3 major international agreements in 2015:
   a. 2030 Agenda and the SDGs
   b. Paris Climate Agreement
   c. Addis Ababa Action Agenda on financing for development

✍ **key Highlights of the report:**

Global:
1. The Ukrainian conflict has an impact on both economic and social outcomes, such as poverty, food insecurity, and access to affordable energy.
2. Furthermore, the threat of climate and biodiversity crises is growing.
3. For the 2nd year in a row, the world has made no progress toward the SDGs.
4. The average SDG Index score fell in 2021 as a result of slow or non-existent recovery in poor and vulnerable countries.
5. It has a negative social and economic impact, as well as a trade and supply that is unsustainable.

India:

1. In the 2022 Global Index of SDGs, the India ranked 121 out of the 163 countries. It had ranked 117 in 2020 and 120 in 2021.

2. The progress in around 10 of these goals is similar to those in 2021.

3. These include SDG 2 on ending hunger, SDG 3 on good health and well-being and SDG 6 on clean water and sanitation.

4. But ensuring decent work (SDG 8) has become more challenging.

5. India is on track to achieving SDG 13 on climate action.

6. The decline in India's overall performance is primarily due to 8 states — Bihar, Telangana, Rajasthan, Uttar Pradesh, Karnataka, Andhra Pradesh, Punjab and Jharkhand, whose scores have decline under SDG 13 in the 2 years.

How are states and UTs ranked?

The SDG India Index scores range between 0–100, the higher a state's/UT's score, the closer it is to meeting the target.

States and UTs are classified in four categories based on Index score:

a. Aspirant: 0–49
b. Performer: 50–64
c. Front-runner: 65–99
d. Achiever: 100

✎ **What are the challenges for India?**

1. Addressing Climate Issues: In India, factors like speedy population growth, urbanization, industrialization, and poverty, among others, are responsible for harming the environment. Some of the environmental issues common in India are:

    a. The Air Quality Index is declining.
    b. Uncontrolled Environmental Degradation
    c. Loss of Biodiversity74
    d. Urbanization in the Himalayas
    e. Lack of waste management
    f. Decline of resources (land, air, water)
    g. Growing Water Scarcity

2. Defining Key Indicators: Providing adequate indicators to effectively assess SDG progress is one of India's major challenges.

    To effectively implement the SDGs, key definitions for areas such as poverty, hunger, safe drinking water, and education must be revised.

3. Financing Sustainable Development Goals: Despite India's best efforts and making poverty reduction a priority since the 4-5 Year Plan, there is a considerable funding gap that prevents progress toward SDG achievement at current levels of investment.

4. Monitoring and Ownership of the Implementation Process: Although NITI Aayog is expected to play an important role in taking ownership of the implementation process, Aayog members have repeatedly expressed concerns about the limited manpower available to handle such a time-consuming task.

5. Measuring Progress: The Indian government has acknowledged the lack of data, particularly from subnational areas.

    Incomplete administrative data coverage is another factor that has hampered progress measurement for even the Millennial Development Goals (MDGs), the precursor to SDGs.

Measures taken by India to achieve SDG

1. The task of coordinating SDGs in India has been assigned to NITI Aayog has undertaken a mapping of schemes and relate to the SDGs and their targets, and has identified lead and supporting ministries for each target.
2. States are also encouraged to conduct similar mapping for SDG-related state-sponsored schemes such as visioning, planning, budgeting, and developing implementation and monitoring systems.
3. Furthermore, the Ministry of Statistics and Program Implementation is creating key indicators to track SDG implementation.
4. Since 2015, the Indian government has launched a number of flagship programmes that are central to the SDGs (when the UN and other countries adopted the SDGs). Among them are the Swachh Bharat Mission, Skill India, Make in India, Digital India, and other initiatives.
5. The 15 of the 17 SDGs directly relate to activities undertaken by local governments in the country.

Conclusion

Sustainability is commonly regarded as a long-term goal (i.e., a more sustainable world), whereas sustainable development involves a number of processes and pathways to achieve it (e.g., sustainable agriculture and forestry, sustainable production and consumption, good government, research and technology transfer, education and training, etc.). As a result, we must work to strengthen our states in order to achieve the SDGs with proper governmental and community participation, which will benefit the country's overall development.

6.9 ETHANOL

Why in new?

The Indian Prime Minister was informed that 10% ethanol blending had been achieved earlier than expected.

What is ethanol blending?

1. It is a motor fuel that is purely composed of a mixture of gasoline and at least 99% pure ethyl alcohol obtained from agricultural products.

2. Ethanol is one of the main biofuels created naturally through the fermentation of sugars.

3. It serves as a chemical solvent in addition to being an alternative fuel.

Background

1. The Ethanol Blended Petrol Programme was launched in 2003 with the aim of promoting the use of renewable and environmentally friendly fuels and reducing India's import dependence for energy security.
2. Starting with 5% blending, the government has set a target of 10% ethanol blending by 2022 and 20% blending (E20) by 2030.
3. The programme is implemented in accordance with the National Policy on Biofuels.

4. Under this programme, oil marketing companies (OMCs) will obtain ethanol from domestic sources at prices fixed by the government.

5. Till 2018, only sugarcane was used to produce ethanol. The government has extended the scope of the scheme to include food grains like maize, bajra, fruit and vegetable waste, etc. to produce ethanol.

6. This move helps farmers gain additional income by selling the extra produce and also widen the base for ethanol production in the country.

What is Ethanol?

1. Ethanol is an organic chemical compound.

2. It is a simple alcohol with the chemical formula C_2H_6O.

3. Its formula can also be written as C_2H_5OH, an ethyl group linked to a hydroxyl group. Ethanol is unstable, burnable, colourless liquid with a characteristic wine-like smell and pungent taste. It is a psychoactive drug, a recreational drug (a drug that is used without medical supervision), and the active ingredient in alcoholic drinks.

4. It is naturally produced by the fermentation (chemical breakdown of a substance) of sugars by yeasts.

5. 5.It is used as a chemical solvent and in the synthesis of organic compounds.

6. Ethanol is a fuel source. Ethanol can also be dehydrated to make ethylene, an important chemical feedstock.

How it is produced?

1. The Department of Food and Public Distribution (DFPD) is the nodal department for the promotion of fuel grade ethanol producing distilleries in the country.

2. The production of ethanol using sugarcane-based raw materials, such as extra rice from Food Corporation of India (FCI), sugarcane juice, sugar syrup, and maize, has received government approval. Sugar cane is crushed and used to make C & B heavy molasses.

3. The amount of ethanol made available through the EBP Program increased from 38 crore litres in 2013–2014 to 173 crore litres in 2019–2020, increasing the blend percentage from 1.53% to 5.00% in the process.

Present status of Ethanol blending in India:

1. According to the Ministry of Petroleum and Natural Gas. India achieved 9.45% ethanol blending as on March 13, 2022.

2. The government 1st announced its plans of advancing the 20% blending target in December 2020.

Need for Ethanol blending in India:

1. India's top priority for the twenty-first century is ethanol.
2. India stands to gain from the addition of 20% ethanol to gasoline in a number of ways.
   a. It reduces annual imports of auto fuel by $4 billion, or Rs30,000 crore.
   b. It also enables farmers to increase their income by raising crops that are used to make ethanol.
   c. It is less polluting and "offers equivalent efficiency at a lower cost than petrol," according to the NITI Aayog paper.
3. An expert panel found that using gasoline with ethanol in it lowers emissions of nitrogen oxide, hydrocarbons, and carbon monoxide (NOx).

4. Using E20 fuel reduced CO emissions from 2-wheelers by 50% and from 4-wheelers by 30%.

Recent related developments

1. The procedure of procurement of ethanol under the EBP has been simplified to streamline the entire ethanol supply chain and remunerative ex-depot price of ethanol has been fixed.
2. A "pattern" that connects distilleries to OMC depots and details quantities to be supplied has been developed to help meet new blending targets.
3. State-wise demand profile has also been projected, keeping in view distances, capacities, and other sectoral demands
4. Further, The Government of India has advanced the target for 20% ethanol blending in petrol (also called E20) to 2025 from 2030.

▶ **6.10 CARBON PRICING LEADERSHIP REPORT 2021-22**

Why in news:

The Carbon Pricing Leadership Coalition's (CPLC) Secretariat prepared the report to examine

global developments in carbon pricing, implications for carbon market growth, and broader

limits to carbon pricing potential.

✎ **About carbon pricing leadership(CPLC):**

It is a non-profit organisation that brings together leaders from government, business, civil society, and academia to improve global understanding of carbon pricing as a tool for boosting and financing effective climate action.

Key Findings of the report.

1. A carbon price in the range required to meet the Paris Agreement temperature targets by 2030 currently covers less than 4% of global emissions.
2. A number of nations increased their carbon taxes, set more ambitious goals, and are considering ETS programmes (Emission Trading schemes).
3. The Article 6 agreement has raised awareness of carbon markets.
4. It provides countries with tools to ensure environmental quality and allows private capital to flow to developing countries.

What is carbon price?

1. It is a cost imposed on carbon pollution in order to satisfy polluters to reduce the amount of greenhouse gases they emit into the atmosphere.
2. According to economists, it is an effective way to encourage countries to reduce their greenhouse gas emissions.
3. It is a method of accepting future environmental costs by putting a price on the source of the problem, specifically carbon emissions.
4. It generates funds for activities that contribute to the cleaning up of the atmosphere/environment, in addition to encouraging individuals and businesses to reduce GHG emissions.
5. For example, the government's carbon tax could be used to fund research into fuel cells, among other things.
6. It refers to the external costs of carbon pollution that the public bears, such as crop damage, health problems, droughts, flooding, and so on.

7. A carbon price can aid in the transition of an economy to a low-carbon economy.

There are 2 broad ways to establish a carbon price.

1. Carbon tax, the price that governments impose on polluters for each metric tonne of CO_2 emissions produced.
2. Emission Trading System (cap and trade), a system of tradable permits for GHG emissions. It establishes a limit (cap) on the amount of GHG emissions that can be emitted.

6.11 ENVIRONMENTAL PERFORMANCE INDEX

1. It is a global rating system that ranks nations based on their environmental health.
2. It a biennial (taking place every 2 year) index.
3. It was started in 2002 as Environmental Sustainability Index.
4. Index is Prepared by World Economic Forum (WEF) in collaboration with Yale Centre for Environmental Law and Policy and Columbia University Centre for International Earth Science Information Network.
5. It ranks 180 countries based on 40 performance indicators across 11 issue areas on the following policy goals
   a. Climate change performance
   b. Environmental health
   c. Ecosystem liveliness
6. These indicators show how close countries are to establishing national environmental policy goals.
7. The EPI team transforms raw environmental data into indicators that rank countries on a 0-100 scale from worst to best.

EPI -2022:

Country	Score	Rank
India	18.9	180
Denmark	77.90	1st
United Kingdom	77.70	2nd
Finland	76.50	3rd
Malta	75.20	4th

Asian Countries

Country	Ranking in Asia	Global Ranking
Afghanistan	1st	81
Bhutan	2nd	85
Maldives	3rd	113
Sri Lanka	4th	132
Nepal	5th	162
Pakistan	6th	176
Bangladesh	7th	177
India	8th	180

{Important note: India ranks in EPI
a. 2022-180
b. 2020-168
c. 2018-177}

Concerns Raised by India on EPI 2022

1.In response to India's 180th place ranking, the Indian government argued that some indicators are too general and based on unscientific practises.

2. India is worried about the following issues:
   a. Instead of using a longer time frame, individual nations calculate the new indicator in the Climate Policy target using the average rate of change in emissions over the previous 10 years, as well as the amount of renewable energy available and used, additional carbon sinks, energy efficiency, and other factors.
   b. The country's forests and wetlands are important carbon sinks that were taken into account when determining the projected path of GHG emissions through 2050 in EPI 2022.
   c. The report doesn't explain why indicators that the nation performed well were given less weight.
   d. Even though agricultural biodiversity, soil health, food loss, and waste are critical indicators for developing countries with large agrarian populations, they are not included.
   e. The current calculation did not take historical data on the lowest emission path into account.

✎ The World Economic Forum (WEF):

   a. It is an independent international organization committed to improving the state of the world by engaging business, political, academic and other leaders of society to shape global, regional and industry agendas.
   b. It was come into existence in 1971.
   c. headquartered in Geneva, Switzerland.

Some major reports published by WEF are:

   1. Energy Transition Index.
   2. Global Competitiveness Report.
   3. Global IT Report.
   4. Global Gender Gap Report.
   5. Global Risk Report.
   6. Global Travel and Tourism Report.

6.12 MAJOR ECONOMIES FORUM ON ENERGY AND CLIMATE

Why in news:

The Union Minister for Environment, Forests, and Climate Change represented India at the virtual meeting of the Major Economies Forum on Energy and Climate (MEF), which was presented by US President Joseph Biden.

About MEF:

1. It was established March 28, 2009.
2. It seeks to promote open communication between major developed and developing economies, to generate the political leadership necessary for the Copenhagen Climate Change Conference to succeed, and to develop joint initiatives that boost clean energy supply while reducing greenhouse gas emissions.
   a. {Denmark, as President of the UN Framework Convention on Climate Change Conference in December 2009(Copenhagen), and the United Nations participated in this dialogue as observers.}
3. The 17 major economies include Australia, Brazil, Canada, China, the European Union, France, Germany, Italy, Japan, South Korea, Mexico, Russia, South Africa, the United Kingdom, and the United States.

New initiatives that were announced

1. The meeting was attended by the UN Secretary General and representatives from 23 of the world's largest economies on earth.
2. The MEF leaders discussed how they plan to carry out their individual climate change commitments.
3. The Global Methane Promise's Energy Pathway aims to reduce waste discharges, hot air blowing, and methane leaks in the oil and gas industry.
4. The Green Shipping Challenge and the 2030 Zero-Emission Vehicle Goal are two initiatives to reduce emissions in the transportation sector.
5. Efforts to improve food security by increasing fertiliser efficiency.
6. India's ongoing commitment to global collective action to address climate change was discussed by the Union Environment Minister.
   a. He highlighted that India's initiatives, such as the International Solar Alliance and the Coalition for Disaster Resilience Infrastructure, do not stop at its borders.
   b. India has already installed 159 GW of non-fossil fuel generation capacity. Furthermore, in the last 7.5 years, India's installed solar energy capacity has more than doubled.
   c. He highlighted that India's annual per capita emissions are only 1/3rd of the global average, and its total combined GHG emissions are less than 4% of the global average.
   d. He mentioned how one of the world's largest clean energy development plans is helping in the achievement of the Panchamrit objectives.

✎ **5 Nectar Elements (Panchamrit):**

   a. Reach 500 GW Non-fossil energy capacity by 2030.
   b. 50% of its energy requirements from renewable energy by 2030.
   c. Reduction of total projected carbon emissions by 1 billion tonnes from now to 2030.
   d. Reduction of the carbon intensity of the economy by 45% by 2030, over 2005 levels.
   e. Achieving the target of net zero emissions by 2070.

6.13 LAND SUBSIDENCE IN COASTAL AREAS

Why in news?
According to research conducted by IIT Bombay experts, Mumbai is sinking at a rate of 2mm per year due to land subsidence.
What is Land Subsidence?
1. It describes the downward and vertical movement of the earth's surface.
2. It can be caused by groundwater extraction, mining, the disappearance of natural wetlands, infrastructure construction, and ecological disruption.
3. Land subsidence is irreversible because it changes the hydrology of the area, which results in floods and damages public infrastructure like roads, bridges, railroads, and telecommunications.

Key points:

4. Land subsidence is expected to affect 1.2 billion people who live in 21% of the world's major cities and 8% of the top layer of the planet by 2040.
5. Delhi and Kolkata are also experiencing land subsidence, in addition to Mumbai.

6. With a maximum collapse rate of 8.45 mm per year, a 19 km2 area of Mumbai is sinking more quickly than 2 mm annually.

7. Due to Mumbai's significantly lower subsidence rate than the rest of South Asia, the effects of sea-level rise and extreme rainfall events may eventually become worse in Mumbai.

8. Recent studies show that the Arabian Sea rises by 0.5 to 3mm per year, suggesting that some parts of Mumbai may sink faster than sea levels rise.

9. Areas with thin soil particles, such as the alluvial deposits of the fertile Gangetic plains, are more vulnerable.

10. The study examined land subsidence in 99 countries worldwide and discovered that Tianjin, China, is the world's fastest sinking coastal city, sinking at a rate of 5.2cm per year.

Major causes of Land subsidence

1. Natural factors: Land subsidence happens due to sudden collapse of soils due to reasons like
   a. Tectonic activities (such as earthquakes, volcanoes, and mountain formation in general) are common at plate boundaries, where the edges of two or more plates come into contact along vast faulting zones.
   b. Volcanic activity is the eruption of molten rock (magma) onto the Earth's, where lava and volcanic gases erupt through a crack in the surface known as a vent.
   c. C. *landslide* is defined as the movement of a mass of rock, debris, or earth down a slope.
   d. Sinkhole development

When the layers of the Earth's surface melt and form ice caves, sinkholes are created as a result. They can happen suddenly and without warning because the land beneath the Earth's surface can stay intact for lengthy periods of time before the spaces grow too large.

   e. Permafrost ice melting happens when the ice inside of it melts, releasing water and soil. Permafrost ice melting can have significant effects on our planet and its inhabitants. For instance, a lot of northern villages are constructed on permafrost.

2. Anthropogenic causes:

1. The soil between water pockets gradually collapses when water is removed from aquifers, causing land to deformation.
2. Excessive groundwater extraction is the root cause of more than 80% of the world's land subsidence.
3. Examples of underground infrastructure development include metros and tunnels.
4. Excessive underground mining for minerals, oil, and gas.
5. High-load structures, such as high-rise buildings.

✎ Impacts of Land Subsidence:

1. Infrastructure
   a. The foundations of permanent settlements and roads are creaking.
   b. Frequent flooding
   c. Areas and infrastructure are constantly flooded.

2. Environmental
   a. Changes in river canal and drain flow systems.
   b. Permanent aquifer destruction.
   Permanent destruction of underground aquifer.
   c. earthquake caused by weekend soil layer.
   d. Increased inland sea water intrusion.
   e. Deterioration in the quality of ecosystems such as wetland and mangroves.

3. Economic
   a. Increase in infrastructure maintenance costs.
   b. Land and property values are declining.
   c. Economic activity is disrupted.
4. Social:
   a. worsening in the living environment and life quality (health & sanitation).
   b. High impact on people living in low-lying areas, resulting in home loss and livelihood migratory.
   c. Rising sea levels, extreme rain events, and earthquakes can all contribute to a horrific disaster.

Way Forward
   1. Using advanced satellite technology to clearly identify hotspots affected by land deformation, prompting local governments to conduct ground measurements.
   2. Understanding the geophysical properties of the subsiding areas so that the causes can be addressed
   3. In areas where groundwater extraction is high, for example, tougher rainwater harvesting regulations, penalties for illegal groundwater mining, and so on.
   4. Implementing solutions to offset groundwater over-extraction, such as rainwater harvesting, managed aquifer recharge, pond revival, reducing illegal groundwater pumping, and planting native species that can help with groundwater conservation.
   5. Evaluating building conditions in high-risk areas in order to carry out necessary repairs and maintenance.
   6. Incorporating land subsidence into flood and inundation assessments and modelling in urban areas.
   7. Systematic and continuous monitoring of land subsidence to avoid widespread disasters, particularly in densely populated areas prone to other hazards such as earthquakes and floods.

6.14. FOREST (CONSERVATION) RULES, 2022

✎ **Recently in news because:**
These rules were notified under Forest Conservation Act 1980 by Ministry of Environment, Forest and Climate Change (MoEFCC) in June 2022 replacing Forest (Conservation) Rules, 2003.

✎ **Important features of the new rules:**
   3. It establishes various committees for reviewing development projects requiring environmental clearance.

Committees	Details		
	To be set up by:	Frequency of meetings	Functions performed
4. Project Screening Committee	State/ UT government	2 times a month	iii. recommend projects to State/UTs administration iv. examine the proposal received from the State Government or Union territory Administration, where forest land involved is more than 5 hectares.
5. Regional Empowered Committee	Central government	2 times a month	To examine every referred project for approval or rejection

	in every regional office		
6. **Advisory Committee**	Central government	1 time a month	It will consist of 6 members who will advise with regards to grant of approval under various sections of rules.

4. **It suggests time frame to review various types of projects:**

Type of project		Time frame given
6. Non- mining projects		
c. 5-40 hectares		60 days
d. More than 100 hectares		120 days
7. Mining projects		
c. 5-40 hectares		75 days
d. More than 100 hectares		150 days

8. **Approval for the project:**
   a. In- Principal approval is given by Central government after considering the recommendation of the Advisory Committee.
   b. Final approval is given by the Nodal Officer after receiving in- principal approval from Central government.
9. There must be land available for compensatory afforestation that is neither administered as forest by the Forest Department nor notified as forest under the Indian Forest Act of 1927 or any other law.
10. Now the state government will be responsible for securing rights of forest dwellers and that can be done only after the final approval by Central government.

☙ **Issues with new rules:**

1. There is no mechanism to ensure that the compensated tree lots or plantations provide same ecological qualities and functions as the natural forest that is diverted.
2. Rules contradict the Gram Sabha's powers under Forest Rights Act of 2006 to identify the kind and scope of individual or community forest rights and to issue certificates for the same. As the same powers are now given to state government under the new rules.
3. It excludes the projects involving less than 5 hectares thus excluding a large number of projects.

Conclusion:

Though rules aim to speed up the process of evaluating any infrastructure or other development project that involves the relocation of forest property. But it is also important to make development more inclusive and secure the traditional rights of tribal and other forest-dwelling groups over forestlands with their cooperation.

☙ **Understanding various related concepts:**

2. Indian Forest Act, 1865 and 1927
   e. 1st law with respect to forest resources in India.
   f. However, it was more tilted towards protecting the commercial interests of the British Empire in India.
   g. The act gave authority to the British to restrict tribal activities by imposing taxes on timber and forest services.
   h. So, it mainly regulated the cutting of timber and flow of raw materials rather than protecting forests.

5. **Forest (Conservation) Act of 1980 (FCA, 1980)**

   h. It was enacted by the Parliament of India in order to control the ongoing deforestation of the forests of India.

   i. It came into force on October 25, 1980.

   j. Objectives:

      I. Protect the forest along with its flora, fauna and other diverse ecological components while preserving the integrity and territory of the forests.

      II. Arrest the loss of forest biodiversity.

      III. Prevent forest lands being converted into agricultural, grazing or for any other commercial purposes and intentions.

   k. It gives complete authority to the Central government to carry out the objectives of the act.

   l. The 1988 amendment prohibits the lease of forest land to anybody other than the government. It enhances conservation, plantation and increase of forest cover to an average of 30%.

   m. Provisions of the 1992 amendment:

      vii. Infrastructure is allowed: The Act made provision for allowing some non-forest activities in forests without cutting trees with prior approval of the Central government. These activities include the setting of transmission lines, seismic surveys, exploration, drilling, and hydroelectric projects.

      viii. Total ban deforestation: Wildlife sanctuaries, National Parks, etc. are totally prohibited for any exploration or survey without prior approval of the Central government even if no tree felling is involved.

      ix. More crops under NFA: Cultivation of tea, coffee, spices, rubber, mulberry for rearing silkworms, and cash crops are included under non-forestry activities and are not allowed in reserve forests.

      x. Mining: Mining is a non-forestry activity and prior approval of the Central government is mandatory.

      xi. Environmental Impact Statement.

      xii. Even the cultivation of fruit-bearing trees, oil yielding plants, or medicinal plants in the forest area needs to be first approved to maintain the balance in the ecology of the forest.

   n. Supreme court defined a forest in 1996 in the TN Godavarman Thirumulpad vs Union of India case. It said that forests would be defined by their "dictionary meaning" and the Forest Conservation Act will be implemented with this new definition. So, all non-forest activity were suspended to prevent further deforestation and the provisions of the Forest Conservation Act were applied to all forests across India, irrespective of their classification or nature of ownership.

6. Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006, also known as Forest Rights Act (FRA) 2006

   ✎ **Need for the Act:**

   a) A large number of people especially the scheduled tribes have lived in and around forests for a long period of time.

   b) This has established their relationship with the forests.

   c) During the colonial time the focus shifted from the forests being used as a resource base for sustenance of local communities to a state resource for commercial interests and development of land for agriculture.

d) Several Acts and policies such as the 3 Indian Forest Acts of 1865, 1894 and 1927 of Central Govt and some state forest Acts curtailed centuries-old, customary-use rights of local communities.

Objective:

The act recognizes and vest the forest rights and occupation in Forest land in forest Dwelling Scheduled Tribes (FDST) and Other Traditional Forest Dwellers (OTFD)who have been residing in such forests for generations.

Features:

a. The Act provides that the gram sabha, or village assembly, will initially pass a resolution recommending whose rights to which resources should be recognised.

b. This resolution is then screened and approved at the level of the sub-division and subsequently at the district level.

c. The 4 rights granted under the act are:

    i. Title rights: It is ownership to land that is being farmed by tribals or forest dwellers as on 13 December 2005, subject to a maximum of 4 hectares

    j. Use rights: Use of minor forest produce and its ownership, grazing areas, pastoralist routes, etc.

    k. Relief and development rights: For rehabilitation in case of illegal eviction or forced displacement; and to basic amenities, subject to restrictions for forest protection.

    l. Forest management rights: To protect forests and wildlife.

7. Compensatory Afforestation Fund Management and Planning Authority (CAMPA) Act, 2016:

a. A company diverting forest land must provide alternative land to take up compensatory afforestation.

b. For afforestation, the company should pay to the state to plant new trees in the alternative land provided by the state.

c. It establishes:

    i. National Compensatory Afforestation Fund under the Public Account of India

    ii. State Compensatory Afforestation Fund under the Public Account of each state

d. These Funds will receive payments for:

    i. compensatory afforestation

    ii. net present value of forest (NPV), and

    iii. other project specific payments.

e. The National Fund will receive 10% of these funds, and the State Funds will receive the remaining 90%.

✍ **Some additional remarks:**

1. The Ministry of Environment Forest and Climate Change approved consideration of Central Zoo Authority approved Zoos on forest land as forestry activity under the Forest Conservation Act (FCA), 1980.

2. FCA considers zoos, relief centres etc as a nonforestry activity and makes forest clearance from Centre mandatory.

{ Non-forestry activity refers to the clearing of any forest land or portion of it for any reason other than reafforestation.}

3. Zoos will no longer be required to obtain multiple permissions under the FCA.

About Central Zoo Authority (CZA)

1. The Wildlife (Protection) Act of 1972 provides for the establishment of CZA (1992) to support and strengthen the national effort to save the country's rich biodiversity.
2. CZA consists of a chairman, ten members and a Member Secretary.
3. Every Zoo in India needs CZA recognition for its operation.
4. It advocates for the protection and preservation of the country's wildlife (flora and fauna).

✎ **Wildlife (Protection) Act of 1972:**

1. India is the 1st country in the world to include environmental protection provisions in its constitution.
2. In 1972, the Indian Parliament passed the Wild Life Protection Act to safeguard plant and animal species.
3. The Act establishes wildlife advisory boards and wildlife wardens, as well as the powers and responsibilities that go with them.
4. It helped India join the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

▶ **6.15 CARBON DI OXIDE LEVELS PEAKED**

Why in news?

CO_2 measured at Mauna Loa Atmospheric Baseline Observatory (MLABO), Hawaii, run by US National Oceanic and Atmospheric Administration (NOAA), peaked for 2022 at 421 parts per million (ppm) in May.

1. MLABO is a benchmark site for measuring CO_2 on the slopes of Mauna Loa volcano, world's largest active volcano.
2. Other gases measured include carbon monoxide, methane, nitrous oxide, sulphur dioxide etc.
3. Since 1958, MLABO has been a site for daily record of global atmospheric CO_2 concentration under Keeling Curve.
4. Named after Dr. Charles David Keeling, it is the longest uninterrupted instrumental record of atmospheric CO_2 in the world.
5. CO_2 measured at MLABO this year is
   a) 50% higher than pre-Industrial Revolution levels of 280 ppm (1.8 ppm higher over 2021).
   b) About the same level as 4.1 to 4.5 million years ago in the Pliocene era, when temperatures were 3.9 degrees Celsius hotter and sea levels were 5 to 25 meters higher than now.
6. CO_2 is a greenhouse gas that traps heat, gradually causing global warming.
7. Main anthropogenic causes behind CO_2 emission are burning of fossil fuels (for transportation, energy production etc.). Deforestation, land use changes, livestock etc.

▶ **6.16 UN OCEAN CONFERENCE**

Why in news?

1. The 5-day UN Ocean Conference took off with the Governments of Kenya and Portugal being the co-hosts.
2. Minister of Earth Sciences led the Indian delegation at UN Ocean Conference. India promised to provide science and innovation-based solutions for the implementation of Goal 14 through partnerships and environmentally friendly.

3. The UN Ocean conference 2022 is aligned to SDG (Sustainable Develpment Goals) 14 'life below water' and stresses on the critical need for scientific knowledge and marine technology to build ocean resilience.

What were the major agendas?

1. Moratorium on Deep Sea Mining:
   a) Push for a moratorium on deep-sea mining of rare metals needed for a boom in electric vehicle battery construction.
   b) The digging and gauging of the ocean floor by machines can alter or destroy deep-sea habitats.
2. Carbon Sequestration:
   In order to boost the ocean's capacity to soak up CO2, by either enhancing natural sinks such as mangroves or through geoengineering schemes.
3. Blue Deal:
   a) A "Blue Deal" was promoted to enable the sustainable use of ocean resources for economic growth.
   b) It includes global trade, investment and innovation to create a sustainable and resilient ocean economy.
   c) Focus on blue food to ensure marine harvests from all sources are sustainable and socially responsible.
4. High Seas are Unregulated:
   a) No comprehensive legal framework covers the high seas. Oceans cover some 70% of the earth's surface and provide food and livelihoods for billions of people.
   b) Some activists refer to them as the largest unregulated area on the planet.
5. Threat to Ocean:
   Threats to the oceans include global warming, pollution (including plastic pollution), acidification, marine Heatwaves etc.

6.17 URANIUM MINING

Why in news?

A Letter of Intent of mining lease was issued to the Uranium Corporation of India (UCI) by Rajasthan government for mining of Uranium deposits, which were discovered at Rohil (Khandela Tehsil) in Sikar district.

✎ Uranium mining:

Uranium resources can be extracted from the ground in three ways: open pit, underground, and in-situ leach (ISL).

a) Open pit:
   When uranium is found near the surface - usually no more than 100 meters deep, it can be extracted via open pit mining. The soil and waste rock is removed by heavy equipment, allowing the ore to be accessed.

b) Underground:
   For mines more than 100 m below the surface, the quality and amount of uranium is sufficient, underground mines will be established.

c) In situ leach (ISL) mining:
   The ore is deep underground so it cannot be mined with open pits, and there may be other factors which make it more practical than other underground mining methods. It leaves very little environmental disturbance at the ground surface level.

About Uranium

1. Uranium is a naturally occurring radioactive mineral and is vital to India's nuclear power programme.
   a) Uranium is not a rare element on Earth.
   b) It occurs in 2.8 parts per million in the Earth's crust and occurs in fairly large quantities in various geological settings.
   c) It is more abundant than gold, silver, or mercury, about the same as tin and slightly less abundant than cobalt, lead or molybdenum.
   d) Vast amounts of uranium also occur in the world's oceans, but in very low concentrations.

2. Kazakhstan has the world's largest Uranium reserves and also the largest producer (45% of world supply), followed by Namibia and Canada.
   a) Most of the uranium deposits around the world are of low grade but there are quite a few medium to high grade deposits especially in Canada and Australia.

3. All isotopes of uranium are radioactive and over time they decay to other lighter elements.
   a) The most common isotope of Uranium is U-238 with a relative abundance of 99.3%. The second most common is U-235 with a relative abundance of 0.7% and the rest occur in trace amounts.
   b) U-235 is fissile and so neutrons emitted during fission can cause other U-235 nuclei to fission also, releasing a lot of energy. This reaction is the basis of operation for the world's current nuclear power stations and is the major reason why uranium is a valuable mineral resource.

4. India is one of the few countries in the world which has mastered all the stages of nuclear fuel cycle – starting from uranium exploration, mining, extraction and conversion, through fuel fabrication, to reprocessing and waste management.

5. India is both a producer and importer of uranium and given its limited reserves it consumes all the uranium it produces.

6. Uranium deposits in India:
   a) Jaduguda in Singhbhum Thrust Belt (in the state of Jharkhand) is the first uranium deposit to be discovered in the country in 1951 and also first mine in the country to produce uranium ore in a commercial scale.
   b) Bhatin, Narwapahar and Turamdih are well known uranium mines of the country.
   c) Apart from discoveries in the Singhbhum Thrust Belt, several uranium occurrences have also been found in Cuddapah/Kadapa basin of Andhra Pradesh.
   d) In the Mahadek basin of Meghalaya in the North-eastern part of the country, sandstone-type uranium deposits provide near-surface flat ore bodies amenable to commercial operations.
   e) The Tummulpalli deposit (in Andhra Pradesh) is considered to be one of the largest deposits of uranium in the world.

Uranium Mining in India

1. India has been surveying and exploring uranium since 1949.
   a) According to the UCIL, mining operations at Jaduguda began in 1967, and it is also India's first uranium mine.

2. Atomic Minerals Directorate for Exploration and Research is to identify and evaluate uranium resources required for the successful implementation of Atomic Energy program of the country.
   a) After the AMD completes the final exploration of uranium, it hands over information/data to Uranium Corporation of India Limited (UCIL).

      b) In India, UCIL is the only organisation responsible for mining and processing of uranium ore for commercial purposes.

3. Mines and Minerals (Development and Regulation) Act as well as Mineral Conservation & Development Rules along with Mineral Conservation Rules further guide mining and exploration of uranium.

4. Uranium Resource in India is 650 thousand tonne (approx.) as per 2021 data. Government does not disclose the quantity of uranium extracted in India.
India has imported 7600 tonnes (approx.) of uranium in the last 3 years, mostly from Kazakhstan and Canada.

Challenges in Uranium mining

1. Small Low-Grade Deposits:
Most of the uranium deposits established in India so far falls under the category of low grade.

2. Radiation hazard:
Underground mines can present a radiation hazard to miners. Without proper air ventilation, radon can collect in the mineshafts, where it is inhaled by miners.

3. Environmental degradation:
Uranium mining has widespread effects, contaminating the environment and groundwater with radioactive dust, radon gas, water-borne toxins, and increased levels of background radiation.

4. Negative public perception:
It is mostly about nuclear and mining industries.

Way Forward

1. Technological advancement:
Technology towards uranium exploration needs to be improved / upgraded for locating better grade, large, buried deposits.

2. Manpower mobilisation:
A dedicated training centre at one of the operating units or one attached to any academic institute of national repute may help to induce professionalism within the work force.

3. Managing waste:
With greater public awareness of health hazards and stringent environmental guidelines, the generation and management of tailings (solid and liquid waste) shall become a crucial part of uranium mining sector.

4. Acquiring stakes in uranium properties abroad:
The recent developments in international nuclear co-operation provide opportunity for meeting the energy situation through import of fuel from favourable countries.
However, the preferred path of pursuing the three-stage nuclear power programme of the country shall continue to require more indigenous fuel in future.

5. Raising awareness:
Adverse public perception on uranium mining needs to be cautiously dealt through many socio -economic programmes in different platforms involving community and civic society.

6. Global Cooperation:
Advantages of global co-operation should be fully exploited by assimilating the global technology and adopting the best practices in uranium production sector

7. SECURITY

7.1 AGNIPATH SCHEME

Why in News?

On 14th June 2022, Government of India has launched **Agnipath scheme for recruiting soldiers** across the **3 services (Army, Navy and Airforce).**

What is Agnipath Scheme?

1. It allows **the youth of the country to serve in the Armed forces for a period of 4 years.**
2. Under this scheme, the **youth joining the Armed forces will be called as Agniveers.**
3. Under this scheme, around **45,000 to 50,000 soldiers will be recruited annually,** and most will leave the service in just 4 years.
4. However, after **4 years, only 25% of the batch will be recruited back** into their respective services, for a period of 15 years.

✎ Objectives of the scheme:

1. To **provide an opportunity to the patriotic and motivated youth** with the 'Josh' and 'Jazba' to join the Armed Forces.
2. It is expected to **bring down the average age profile of the Indian Armed Forces by about 4 to 5 years.**
3. The average age in the forces is 32 years today, which can go down to 26 years in the next 6 to 7 years, if the scheme is implemented properly.
4. Under this scheme, soldiers will only be trained for six months.

✎ Eligibility Criteria:

1. It is **only for soldiers below Officer Ranks** (Non- commissioned officers).
   i.   Commissioned officers **are the army's highest ranked officers and lowest rank of a commissioned officer is Lieutenant.**
   ii. Commissioned officers **hold an exclusive rank** in the Indian armed forces. They often hold a **commission under the president's sovereign power** and are officially instructed to protect the country.
2. Aspirants between the age of **17.5 years to 23 years will be eligible to apply.**

✎ Benefits for the Agniveers:

1. On the completion of the 4-years of service, a one-time **'Seva Nidhi' package of Rs 11.71 lakhs will be paid to the Agniveers.**
2. They will also get a **life insurance cover of Rs 48 Lakh during the 4 years of their service.**
3. In case of **death, the payout will be over Rs 1 crore,** including pay for the unserved tenure of the service.
4. The government will **help the soldiers who leave the services after 4 years.** They will be provided with skill certificates and some bridge courses.

What is the importance of such step for the country?

1. It will create **"future-ready" soldiers** as they are already trained under Agnipath scheme.
2. It will **increase employment opportunities for these soldiers** because of the skills and experience they will acquire during the 4 years of their service.
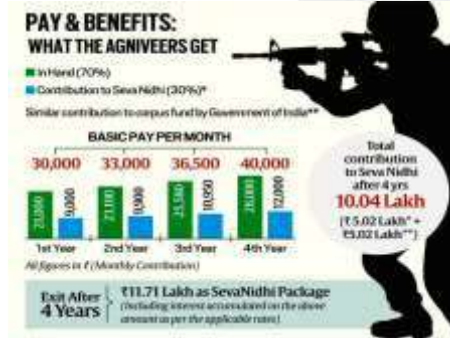
3. This will also lead to the **availability of a higher-skilled workforce to the economy** which will be helpful in productivity and increasing overall **GDP (Gross Domestic Product) growth.**
4. This scheme will also promote **nationalism** in the country.

✎ Global practices:

A careful examination of the methodology for recruiting, retaining, and releasing armed forces personnel in various developed countries reveals similar types of recruitment reforms.
Some examples are:
1. The **Russian military** is a hybrid of a traditional cadre-and-reserve conscript system i.e., 1 year of training and 1 year of service and a contract-professional system.
2. The active-duty conscript period in **Israel** is 32 months for men and 24 months for women, followed by a decades-long period of compulsory reserve duty.
3. There are 2 types of enlistment for **French** soldiers: Contract for 1 year or contract for 3 to 5 years (both renewable).
   NOTE: Conscription is the compulsory induction of individuals into the Armed Services.

So, what are the related concerns?

1. **Difficulty in Finding Another Job:** After the completion of the service of 4 year's, **25% of them will be retained (kept)** and the rest will leave the forces. But **these 75% will find difficulty in finding other jobs.**
2. **No Pension Benefit:**
   a. Those hired under the 'Agnipath' scheme will be **given a one-time lumpsum (single payment)** of a little more than Rs 11 lakh **when they end their 4-year tenure.**
   b. However, they **will not receive any pension benefits.** For most, **getting a second job is essential to support themselves and their families.**
3. **Training May Remain Unutilized:**
   a. Forces will **loose experienced soldiers.**
   b. The jawans joining the Army, Navy and Air Force will be given technical training so that they are able to support the ongoing operations. But these men and women will leave after 4 years, **which could create a gap in the services.**

What is the way ahead?

1. Other manpower management reforms based on manpower optimization, reduction, and reorganization must be linked to the scheme.
2. To transition towards a more technologically advanced armed forces, educational requirements can be raised to 10+2, and a more tough all-India merit-driven entrance examination with psychological tests must be implemented.
3. Reduced training time must be compensated for with targeted training and the use of other innovative methods.
4. Army leaders will need to use novel methods to introduce loyalty and solidarity in a short period of time.
5. It is critical that Agniveers are successfully integrated into society, otherwise they will become a potential threat to the society.
6. 'Motivate the soldiers under this government proposal' as done in other countries. For e.g., Short-term duty soldiers in the United States receive government-funded education.

7.2 DEFENSE MODERNISATION

Why in news?

The funding limit of defence projects under the Technology Development Fund (TDF) has been raised from the present limit of Rs 10 crore to Rs 50 crore per project.

✍ TDF scheme:

1. It has been established to promote self-reliance in defence technology as a part of the **"Make in India" initiative.**
2. It is a **MoD (Ministry of Defence) programme carried out by DRDO** to meet the needs of the **Tri-Services (Army, Air Force and Navy),** Defense Production, and DRDO.
3. TDF aims to create an ecosystem for promoting **self-reliance by building indigenous state-of-the-art systems for defence applications**.
4. It provides **90% of the project cost**.
5. It helps **companies to work with academic institutions** and other industries for better research and development.

What is Defence Modernization?

1. Modernization is the process of purchasing or developing brand-new cutting-edge platforms, technologies, and weapon systems in order to enhance and upgrade defence capabilities.
2. To keep the Armed Forces in a condition of readiness to face the full range of security issues, modernization of the Defense Forces is a continuous process based on:
    i. threat assessment,
    ii. operational obstacles, and
    iii. technical advancements.
3. This is achieved by introducing new machinery and upgrading capacities through technology.

Need for Defense Modernisation

1. **India's location** is such that it faces challenges over a large area of land from the Western Pacific to the Indian Ocean Region (IOR) to the western borders with Pakistan and along the Line of Actual Control (LAC) i.e., border with China.
2. **Changing nature of warfare:** Future wars will be fought using cyber and AI-based autonomous weapons, using precision targeting and adaptive-learning techniques, and how one handles these technologies will determine the future winner.
3. **Decreasing imports of defence weapons:** According to the Stockholm International Peace Research Institute (SIPRI) report, India along with Saudi Arabia, has emerged as the largest arms importers between 2017 and 2021, each accounting for **11% of all global arms sales.**
4. To act as a **net security provider in the region**, India needs to acquire self-sufficiency in terms of the development of advanced defence hardware and technology.
5. **Developing capabilities for new responsibilities** such as disaster response, Humanitarian Assistance and Disaster Relief (HADR) exercises, and so on.

✍ Emerging Technologies in Defence:

1. **Blockchain:** for protecting confidential military data, countering cyber threats, modernising the procurement process and supply chain security etc.
2. **The Internet of Military Things:** Connecting ships, planes, tanks, drones, soldiers through internet for improving situational awareness and response time.

3. **Capabilities for Cyber Warfare:** Includes cyber protection for major institutions and building capabilities to tackle threats like malware, ransomware and phishing attacks.

4. **Robotics and Autonomous Systems:** Increasing situational awareness, reducing soldiers' workload, and facilitating movement in challenging terrains.

5. **Artificial Intelligence (AI):** Improves intelligence, surveillance, and reconnaissance (ISR) mission capability; empowers autonomous weapon systems, reducing soldier casualties; and so on.

6. **Immersive Technologies:** (Augmented Reality /Virtual Reality) to build flexible experiences such as for flight training, mapping information, movement markers etc.

7. **Additive Manufacturing:** localised on-demand production, novel material combinations for armour, self-heating military clothing and ammunition.

8. **Quantum Technology:** For secure communication systems.

9. **5G:** Enhances training and battlefield capabilities due to its fast speed, low latency, enhanced throughput, etc.

✍ **Steps taken for defence modernisation:**

1. Defence Acquisition Procedure, 2020 aims to empower Indian domestic industry through 'Make in India' projects with the aim of turning India into a global manufacturing hub.

2. **SRIJAN Portal:** It is a 'one stop shop' online portal that provides access to the vendors to take up items that can be taken up for indigenization.

3. Encouraging innovation through schemes like

4. **Innovation for Defence Excellence (iDEX):** Aimed at creation of an ecosystem to foster innovation and technology development in Defence and Aerospace for improving military organization

5. Chief of Defence Staff (CDS) was created to provide **"effective leadership at the top level"** to the 3 wings of the armed forces. This is addition to creation of new Department of Military Affairs for better management of military resources and procurement.

6. **Integrated Battle Groups:** IBGs are brigade-sized, self-sufficient combat formations, which can swiftly launch strikes against adversary in case of hostilities.

7. **Theatre commands with tri-service capabilities:** The armed forces are envisaged to be reorganized in multiple Theatre commands in which all the three services will operate in a regionally integrated manner.

8. **The 15th Finance Commission** has recommended the constitution of a dedicated **non-lapsable modernisation fund** for defence and internal security (MFDIS).
   Note: Non-lapsable funds are given to any ministry which has to spend within the fiscal year of allocation and the unutilised amount is carried forward to the next year.

9. DRDO also has 2 dedicated laboratories for application-oriented research in AI.
   a. The Centre for Artificial Intelligence and Robotics (CAIR), Bengaluru.
   b. The DRDO Young Scientist Laboratory (DYSL), Bengaluru

10. DRDO has established 10 Centres of Excellence in collaboration with various academic institutes all over the country to develop critical technology for enabling the futuristic requirements of the Armed Forces.

11. The Ministry of Defence launched 75 AI products/technologies during the first-ever 'AI in Defence' conference & exhibition (a collection of things).

✍ **Challenges to Defense Modernization:**

1. **Lack of investment in R&D:** India is funding around 6% (on defence R&D) of the defence budget, whilst the USA and China are spending approximately 12% and 20%, respectively.
2. **Lack of private sector participation,** especially MSMEs, which can play a critical role in developing niche technologies and providing solutions that are critical for modernization.
3. **Limited Public Sector Manufacturing Capacity and Capability:** Agencies like Ordnance Factories, DRDO, HAL, etc. are limited and overburdened and are marred by several issues.
4. **Absence of a concrete Defense Industrial Base:** Participation of the private sector in defence manufacturing has been limited. The primary reason for this can be attributed to the absence of communication platforms between industry and defence.
5. **Slow decision-making process:** Despite multiple avenues available for procurement and development, production and acquisition contracts take close to 7 to 9 years for finalisation before production starts.

Way forward

1. **Identifying long term requirement capability:** As building complex platforms like ships, submarines, tanks and fighter jets has a long lead time which is constantly challenged by the race to keep-up with changing technology.
2. **Fostering innovation through Board of Research for Advanced Defence Sciences (BRADS):** Rama Rao Committee recommended the creation of BRADS, to function on the lines of **Defence Advanced Research Projects Agency (DARPA) in USA,** for operational flexibility and bureaucracy-free research environment.
3. **Conducive Financial Framework:** to nurture and develop the defence production sector. For example, in South Korea, government raised funds through a special defence tax during early phase of defence encouragement.
4. **Adopt 5Is:** There is need to adopt the concept of **5 Is (Identify, Incubate, Innovate, Integrate and Indigenize)** to accelerate progress, reduce costs and achieve modernisation in a time bound manner.
5. **Human Resource Development:** Scientific and technologically trained pool of manpower, enhancing R&D skills and technological expertise of public and private sector would be the key to achieving modernization.

▶ **7.3 CRITICAL INFRASTRUCTURE (CI)**

Why in news?
Government recently declared ICICI, HDFC, NPCI's IT resources as critical infrastructure (CI).

What is CI?
Those computer resources whose destruction would threaten national security, the economy, public health, or safety.

National Critical Information Infrastructure Protection Centre (NCIIPC) has identified the following as 'Critical Sectors': –

1. Power & Energy
2. Banking, Financial Services & Insurance
3. Telecom
4. Transport

5. Government

6. Strategic & Public Enterprises

7. Military

✎ ABOUT NCIIPC:

1. It is an organisation of the Government of India created under **Section 70A of the Information Technology Act, 2000** (amended 2008).
2. It is designated as the **National Nodal Agency in terms of Critical Information Infrastructure Protection.**
3. It is a **unit of the National Technical Research Organisation (NTRO)** and therefore comes **under the Prime Minister's Office (PMO).**
4. **HQ: New Delhi**

✎ Threats to CI:

1. Natural (Earthquakes, Tsunami etc).
2. Human-caused (Terrorism, economic espionage etc).
3. Accidental (power grid/safety system failure etc).

IT resources form the backbone of countless critical operations in a country's infrastructure, and given their interconnectedness, disruptions can have a **cascading effect** across sectors.

> **Note:** A cascading effect is **an unforeseen chain of events that occurs when an event in a system has a negative impact.**

The government, under the Information Technology Act, 2000, has the power to declare any data, database, IT network, or communications infrastructure as CI to protect that digital asset.

Incapacity or destruction of which has a negative impact on national security, the economy, public health, or safety.

✎ Measures taken to protect CI:

1. National Critical Information Infrastructure Protection Centre (NCIIPC) is the nodal agency for taking all measures to protect CIIs.
2. Indian Computer Emergency Response Team (CERT-In) is nodal agency for responding to computer security incidents.
3. National Cyber Security Coordinator (NCSC) to coordinate with different agencies at the national level for cyber security matters.
4. National Cyber Security Policy 2013 to build a secure and resilient cyberspace.

✎ IT Act, 2000:

1. It was enacted by the Indian Parliament in 2000.
2. It is the primary law in India for matters related to cybercrime and e-commerce.
3. The act was enacted to give legal sanction to electronic commerce and electronic transactions; to enable e-governance and also to prevent cybercrime.
4. For any crime involving a computer or a network located in India, foreign nationals can also be charged under this law.
5. The law prescribes penalties for various cybercrimes and fraud in digital or electronic format.
6. It also gives legal recognition to digital signatures.

7.4 CHIEF OF DEFENCE STAFF (CDS):

Why in News?

The Ministry of Defense (MoD) issued a notification which broadens the scope of eligible officers for the post of the Chief of Defense Staff (CDS).

About Notification

1. It detailed the professional **qualifications and age limitations** for military generals to be eligible for appointment as CDS.
2. Officers from all 3 services are required to meet broadly the same two qualifications:
3. First, an officer must be serving or retired as a general or lieutenant general (three-star general).
4. Second, his age should be below 62 years on the date of his appointment.
5. The central government has reserved the right to extend the tenure of the CDS to a maximum of 65 years.
6. The new notification will make a large number of officers eligible for CDS, thus providing a wider pool for the selection.

CDS Reform Timeline

2001: based on Kargil review committee, Government of India recommended creation of CDs.

2001: Integrated defence services, a tri-service organisation was set UP.

2012: Chairman of chiefs of staff (cosc) established (recommended by Naresh Chandra Committee).

2016: Shekatkar Committee recommended for the creation of the post of the Chief of Defence Staff (CDS).

2019: General Bipin Rawat was appointed as the **first CDs.**

✎ About CDS:

1. It is the head and the highest-ranking officer of the Indian Armed Forces.
2. The President of India is the supreme commander of the Armed Forces.
3. It was created to increase efficiency & coordination among the Armed Forces and reduce duplication.

✎ Objectives:

1. Achieve better results at all levels through effective coordination between the Armed Forces and the Civil Services.
2. Help facilitate inter-service integration and better civilian-military coordination in the Nation's Higher Defence Organisation.
3. strengthen the process of joint planning, operations, and procurement, thereby making the armed forces more effective and efficient.

✎ Duties and functions of CDS include:

1. To head the Department of Military Affairs (DMA) in the Ministry of Defence (MoD) and function as its secretary.
2. To act as the Principal Military Advisor to the defence minister on all Reservist matters (Army, Navy, and Indian Air Force).
3. To function as the **Permanent Chairman** of the Chiefs of Staff Committee and to administer the Tri-Service organizations/agencies/commands
4. To be a member of the Defence Acquisition Council (chaired by the defence minister) and function as the Military Advisor to the Nuclear Command Authority.

5. to ensure optimal utilisation of infrastructure and resolve it through jointness among the services.
6. To implement the 5th Year Defence Capital Acquisition Plan and 2nd year roll-on Annual Acquisition Plans (dealing with a nation's investments in technologies, programs, and product support) as a follow-up to the Integrated Capability Development Plan.
7. bring about reforms in the functioning of the **3 services** aimed at augmenting the combat capabilities of the Armed Forces.

✍ Need of CDS :

1. **Better advice to political executives:** CDS rises above inter-services enmity and provides holistic advice on critical issues such as joint strategy and planning, weapons procurement, manpower allocation, and joint operations.
2. He can act as a mediator when the Chiefs of Staff express divergent views on an issue, such as the use of military resources on the battlefield.
3. **Integration of the armed forces:** CDS is principally responsible for getting the armed forces better integrated rather than operating in tanks.
4. The job includes the creation of new military commands that integrate armed forces to fight together.
5. **Constantly changing security forces require** India's military to be efficient in fighting and avoiding adversaries, which is achievable only if the military is integrated.
6. **Prioritizing procurement:** CDS can help meet a country's military requirements in a manner that operational capabilities of forces are not compromised, and at the same time, needs are met with the available **monetary resources.**
    Note: monetary resource is an asset in the form of money (cash in hand, finances, funds).
7. **Global similarity:** Many major countries in the world have created the post of CDS to bring more jointness and integration into their armed forces. These include Italy, France, China, the UK, the USA, Canada, and Japan.

✍ Challenges:

1. **Other pending reforms might make it less effective:** Without other structural reforms, including the creation of unified theatre commands, questions are bound to be raised about the wisdom of appointing a CDS.
2. **Domination of the Army:** It is argued that CDS will establish the Army's domination, and other services may be reduced to a supporting role.
3. Balancing procurement requirements in the current procurement ecosystem for example, while the Air Force is embarking on a programme for 114 new fighters, the Navy is running a parallel and unrelated procurement programme.
4. **Gender balance in forces:** CDS will have to deal with involving women in the military following the recent court order barring gender discrimination.

Conclusion:

1. With the creation of CDS, India set out upon a much-delayed process of integration of the armed forces and the defence establishment.
2. CDS holds the key to the modernization of the forces and therefore must be supplemented by other structural reforms such as indigenous R&D, production of equipment, fostering innovation, etc. to improve the future willingness of the forces.

7.5 MULTI AGENCY CENTRE (MAC)

Why in news?

The Ministry of Home Affairs has sanctioned ₹138.48 crore to the Intelligence Bureau (IB) to upgrade the MAC.

About Intelligence Bureau:

1. It is India's internal intelligence agency which is used to gather intelligence from within India and also execute counter-intelligence and counter-terrorism tasks
2. It functions under the aegis of Union Ministry of Home Affairs.
3. It was established in 1887 by British India Government and later change as the Central Intelligence Bureau in 1947.
4. **HQ:** New Delhi.

About MAC:

1. MAC is the country's biggest intelligence input sharing platform under the IB.
2. Set up in 2001 after the Kargil War, centre is headquartered in Delhi.
3. 28 agencies like the R&AW, state police, financial intelligence bodies, etc. share intelligence inputs through MAC.
4. State-level MACs coordinate with the centre through nodal officers.
5. Plans are now afoot to link it to the district office of Superintendent of Police.

7.6 OVERGROUND WORKERS (OGWS)

Why in news?

1. nearly 250 overground workers (OGWs) were arrested in Jammu & Kashmir (J&K).
2. OGWs are those that provide logistical support, cash, accommodation, and other facilities to militants or terrorists in J&K.
3. OGW carry out a few activities, then remain silent and live a normal life, thus posing a huge challenge for security forces to track them.
4. They are also known as hybrid terrorists or terrorist associates

What Do OGWs Do?

1. OGWs **"act as eyes and ears of the underground militants",** arranging hideouts, transporting weapons, keeping an eye on security forces' movements, distributing separatist literature, and engaging in hate campaigns against security forces
2. OGWs were arrested under Public Safety Act (PSA) and Unlawful Activities (Prevention) Act (UPA)
3. PSA 1978 of J&K is an administrative detention law that allows detention of any individual for up to two years without a trial or charge.

The Jammu & Kashmir Public Safety Act, 1978

1. It is a preventive detention law, under which a person is taken into custody for **2 years** to prevent him or her from acting in any manner that is prejudicial to "the security of the state or the maintenance of public order".
2. Preventive detention means detaining a person so as to prevent that person from commenting on any possible crime. In other words, preventive detention is an action

taken by the administration on the grounds of the suspicion that some wrong actions may be done by the person concerned which will be prejudicial to the state.

3. Detention of a person below the age of 18 is strictly prohibited under this Act, and an individual so detained shall be produced before the magistrate within 24 hours.

4. It comes into force by an administrative order passed either by the Divisional Commissioner or by the District Magistrate.

✎ UPA 1967:

1. The Act provides special procedures to handle terrorist activities, among other things.

2. It aims at the effective prevention of unlawful activities by associations in India.

3. Unlawful activity refers to any action taken by an individual or association intended to disrupt the territorial integrity and sovereignty of India.

2019 Amendment Under the UAPA Act, 1967:

1. The Union government may designate an **individual or an organisation** as a terrorist organisation if it:
    a. commits or participates in acts of terrorism, preparing or promoting terrorism.

2. Approval of **the Director-General** for the seizure of property if the investigation is conducted by an officer of the National Investigation Agency (NIA)

3. Officers of the rank of **Inspector or above in the NIA** can investigate cases.

4. **An International Convention for the Suppression of Acts of Nuclear Terrorism** (2005) is added to the schedule under which terrorist acts are committed.

✎ Key Points About the National Investigation Agency:

1. It is a central counter-terrorism agency functioning under the Ministry of Home Affairs.

2. It came into force after the Parliament passed the National Investigation Agency Act 2008.

3. It can investigate terror cases across the country without having to get permission from the states.

✎ Key Points International Convention for the Suppression of Acts of Nuclear Terrorism:

1. The Convention is the **1ˢᵗ anti-terrorism convention** adopted since the terrorist attacks of September 11, 2001.

2. This convention, initially proposed by the Russian Federation and was adopted by the UN General Assembly on September 14th, 2005.

3. India signed on July 24th, 2006 at the UN.

4. **HQ: New York.**

▶ 7.7 ABHYAS

1. The Integrated Test Range (ITR), Chandipur, successfully flight-tested the **High-Speed Expendable Aerial Target (HEAT)** off the coast of Odisha.

2. It consists of twin underslung boosters that provide initial acceleration to the vehicle.

3. Furthermore, the aerial vehicle is powered by a small gas turbine engine, allowing it to fly at high subsonic speeds for extended periods of time.

4. It is an **indigenous unmanned aerial** target system developed to meet the needs of the Indian Armed Forces in combating airborne threats.

    {An unmanned aerial vehicle (UAV) is **an aircraft that carries no human pilot or passengers**.}

5. **Aeronautical Development Establishment** designed and developed by the **DRDO.**

✎ **About DRDO:**

1. It stands for *Defence Research and Development Organization.*
2. **It was established in 1958** by the Government of India under the Ministry of Defence (Raksha Mantralay).

✎ **The DRDO's History:**

1. The Government of India established it in 1958 by combining three major defence organisations:
   a. Defence Science Organisation (DSO)
   b. Defence Technical Development Establishment (DTDE)
   c. Directorate of Technical Development and Production (DTDP)
2. Project Indigo was the DRDO's first major defence project, beginning in 1960 with a project on Surface-to-Air Missiles (SAM). This project was rejected due to failure.
3. **DRDO began** with only 10 different laboratories in the country and now has more than 50 labs across the country researching in various sectors of technology and defence.

▶ **7.8 AGNI-4 MISSILE**

Why in news?
A successful training launch of the nuclear-capable **Agni-4 ballistic missile** was carried from the APJ Abdul Kalam Island in Odisha.

About Agni-4 Missile:

1. It is **20-metre long** and **weighs 17 tonnes**.
2. It is an **Intermediate Range Ballistic Missile** with a range of around **4,000 km.**
3. It has been **developed by** the Defence Research and Development Organisation **(DRDO)**.

Ballistic Missile:

1. It is a missile that has a ballistic trajectory over most of its flight path, regardless of whether or not it is a weapon-delivery vehicle.
2. They are categorised according to their range i.e., the maximum distance measured along the surface of the earth from the point of launch to the point of impact of the last element of the missile.
3. It can be launched from ships and land-based facilities.
4. For example, **Prithvi I, Prithvi II, Agni I, Agni II,** and **Dhanush ballistic missiles** are currently operational in the Indian defence forces.

NOTE: What is Ballistic Trajectory?
It refers to the path of an unpowered object, as a missile, moving only under the influence of gravity and possibly atmospheric friction and with its surface providing no significant lift to change the course of flight.
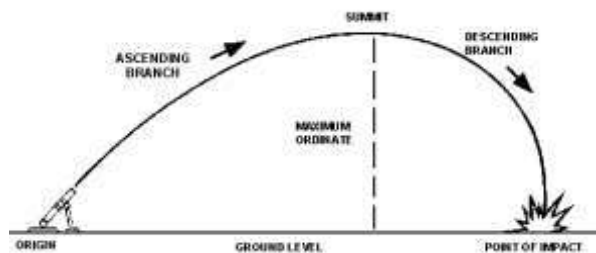
Agni Missile Family:

The name Agni originates from the Sanskrit word for fire and is taken in the context of Agni being one of the 5 primary elements of **Panch Mahabhutas.**

Agni I has a range of **700-800 km**.

Agni II has a range of over **2000 kilometers**.

Agni III has a range of over **2,500 kilometers**.

Agni IV has a range of over **3,500 kilometres** and can be launched from a road mobile launcher.

Agni-V: the longest of the Agni series, an Inter-Continental Ballistic Missile (ICBM) with a range of over **5,000 km.**

✍ Historical Background:

Before independence:
1. Several kingdoms in India were using rockets as part of their warfare technology.
2. **Mysore ruler Hyder Ali** started inducting **iron-cased rockets** into his army in the mid-18th century.

✍ After independence:

3. **At the time of independence:** India did not have any **indigenous missile capabilities**.
4. **1958:** Government created the **Special Weapons Development Team,** and this was later expanded and called the Defence Research and Development Laboratory (DRDL).
5. **1972: Project Devil** was initiated for the development of a medium-range surface-to-surface missile. The development of systems for **Project Devil** formed the technology basis for the future Integrated Guided Missiles Development Programme (IGMDP).
6. **1982:** DRDL was working on several missile technologies under the IGMDP.
7. **1982-83: The Integrated Guided Missile Development Programme** (IGMDP) was launched by the Indian Government which saw the projects of:
    i. Prithvi (Short range surface to surface missile)
    ii. Trishul (short range surface to air missile)
    iii. Aakash (Medium range surface to air missile)
    iv. Nag (Third generation anti-tank missile)
    v. Agni-I (Agni missile was later separated from the IGMDP due to its strategic importance)

▶ 7.9 HIMARS - USA'S MISSILE SYSTEM

Why in news?

USA will send M142 High Mobility Artillery Rocket System, also known as HIMARS, to Ukraine.

About HIMARS:

1. These are medium-range rocket systems.
2. These are high-tech, lightweight rocket launchers that are wheel-mounted, giving them more quickness and movability on the battlefield.
3. **Maximum range: 45 miles.**

Where was HIMARS used earlier?

1. The M142 HIMARS, a light multiple rocket launcher, was developed for the US Army in the late 1990s.

2. The system is mounted on a standard Army **M1140 truck frame**.
3. **2015:** the US Army used it to fire at least 400 rockets at the Islamic State in Iraq.
4. **2016:** the US announced the deployment of HIMARS in Turkey near its border with Syria and near Mosul to take on the Islamic State.
5. **2018:** HIMARS missiles killed at least 50 Taliban in Musa Qala, Afghanistan.

7.10 MILITARY EXERCISES IN NEWS

1. **"EX SAMPRITI-X"** is a military training exercise conducted jointly by India and Bangladesh.
   a. During the Ex SAMPRITI-X joint military exercise, armies from both countries will share expertise in multiple scenarios of **counter-terrorism, humanitarian assistance and disaster relief, and UN Peacekeeping Force under UN mandate.**
   b. This exercise provides an opportunity for greater cultural understanding to strengthen trust and cooperation between armies of both nations.
   c. The exercise will benefit both armies by allowing them to learn from each other's vast experience, which will contribute to **regional peace and stability.**

2. Ex Khaan Quest 2022:
   a. It is a **multinational peacekeeping exercise held in Mongolia.**
   b. It consists of a United Nations Peacekeeping Mission command post exercise and a **UN PKO (Peacekeeping Operation)** Mission field training exercise at the Five Hills Training Area of the Mongolian Armed Forces.
   c. This exercise involves 16 countries, including India.
   d. The **President of Mongolia** has officially launched this exercise.
   e. A group from the Indian Army's Ladakh Scouts is present.

Aim:
   1. To improve **connectivity, strengthen military-to-military relationships, expand peacekeeping operations**, and boost military capabilities among participating nations.
   2. The military exercise will strengthen bilateral relations between India and Mongolia by improving defence cooperation between the Indian Army and participating countries, particularly the Mongolian Armed Forces.

✎ IND-INDO CORPAT:

1. The Indian and Indonesian navies are conducting a joint Collaborative Patrol.
2. **Since 2002,** the 2 navies have carried out CORPATs along **the International Maritime Boundary Line (IMBL)** in an effort to maintain safety and security for commercial shipping and international trade in this critical area of the Indian Ocean Region.
   Note: A maritime boundary is a theoretical division of Earth's water surface areas based on geopolitical criteria. As such, it generally includes maritime **features, limits, and zones, as well as areas of exclusive national rights over mineral and biological resources**.

7.11 OPERATION SANKALP

1. As part of Operation Sankalp, the Indian **Navy's ship Trikand** is currently stationed in the Persian Gulf and the Gulf of Oman.

2. The formation aims to boost marine community confidence and contribute to regional maritime security.

About INS Trikand:

a. It is a Talwar-class frigate of the Indian Navy.
b. It is the **3rd** and final ship of the **Indian Navy's 2nd batch of Talwar-class frigates.**
c. It was built by the Yantar shipyard in Kaliningrad, Russia.
d. It was authorised into Indian Navy service on June 29, 2013.

About Operation Sankalp:

It was launched in June 2019 in response to explosions of 2 oil tanker ships in the **Gulf of Oman,** amid rising tensions between Iran and the United States.

What Is the Objective?

1. It was established in order to ensure the **safety and security of Indian ships.**
2. Maintaining a frontline ship, empower trust in the maritime community, and **contribute to regional maritime security.**

Significance:

1. Imports supply approximately **85% of India's oil requirements**.
2. The Gulf region supplied approximately 62 percent of India's $66 billion in oil imports in 2019-2020.

About the Persian Gulf:

1. It is a shallow Indian Ocean marginal sea located between the **Arabian Peninsula and southwestern Iran.** It is also known as the **Arabian Gulf.**
2. The Persian Gulf borders Iran, Iraq, Kuwait, Saudi Arabia, Bahrain, Qatar, the United Arab Emirates, and Oman.
3. It has a length of about 990 kilometres and a width that varies between 340 and 55 kilometres in the Strait of Hormuz.
4. This region produces nearly a **3rd of the world's oil** and holds more than half of the world's crude oil reserves as well as a significant portion of the **world's natural gas reserves.**
5. The gulf receives a substantial amount of sea trade, resulting in heavy traffic in the area.
6. Large tankers continue to transport oil from major maritime terminals in Iran, Kuwait, Saudi Arabia, Bahrain, the United Arab Emirates, and other locations around the world.

About the Gulf of Oman:

1. It is the Arabian Sea's northwest arm, located between the Arabian Peninsula's eastern portion (Oman) and Iran.
2. It is 560 kilometres long and connects to the **Persian Gulf via the Strait of Hormuz.**
3. It is a maritime route that connects the Persian Gulf oil-producing region to the rest of the world.
4. It is the only way into the **Persian Gulf from the Arabian Sea and the Indian Ocean,** the world's major oil suppliers and importers are all concerned about its security.

8.   CULTURE

▶ **8.1 SANT TUKARAM**

Why in news?

Prime Minister inaugurated the Sant Tukaram Shila (rock) Mandir in the temple town of **Dehu in Maharashtra.**

About Sant Tukaram (1608 – 1650)

1. He was 1 of the saints of the **Bhakti movement** in Maharashtra and greatest poets in the Marathi language.
   a. **{The Bhakti movement** was a religious reform movement started by Hindu saints to bring religious reforms through the method of devotion to achieve salvation. This movement resulted in various rituals through the exercise of devotional rituals among Hindus, Muslims, and Sikhs in the Indian subcontinent. They expressed themselves by singing devotional compositions in temples, gurudwaras, and musjids.}
2. **Tukoba, Tukaram Bolhoba Ambile,** and other names were given to him.

✎ **Literary works:**

1. He created a Marathi literary style known as Abhanga poetry, which combines folk stories with spiritual themes.
2. The themes of abhangs included ecology, equality, brotherhood, and God's love.
3. His kirtans, or spiritual songs, were dedicated to Vithoba or Vitthala, an expression of the Hindu god Vishnu.
4. He wrote "**Tukaram Gatha,**" a Marathi language compilation of his works, **between 1632 and 1650.** It's also known as "**Abhanga Gatha,**" and it's said to have 4,500 abhangas.

✎ **Social reforms & other contribution:**

1. He was against caste hierarchy and rituals.
2. He accepted both male and female disciples and people of faith.
3. He wrote literary works that contributed to the acceptance of the Varkari tradition in Indian Bhakti literature.
   {Varkari is an individual or group who makes a pilgrimage to the temple of Lord Vithoba or Vitthala in the town of Pandharpur in the western Indian state of Maharashtra.}
4. He is credited with beginning the **Wari pilgrimage.**
   Note: Warkari people undertake an annual pilgrimage called wari, is **a yatra to Pandharpur, Maharashtra, to honor Vithoba**.
5. Shivaji, the great Maharashtrian warrior king, admired the saint greatly.
6. He was instrumental in uniting the Marathas and enabling them to stand up to the Mughals.
7. While **imprisoned at Yerwada Central Jail in the early 19th century, Mahatma Gandhi read and translated his poetry.**

✎ **About Sant Tukaram Maharaj - Gatha Temple:**

1. It is located in the village of Dehu, about 30 kilometers from Pune.
2. It is made of white marbles and is located near the old temple of Sant Tukaram Maharaj on the bank of the **Indrayani River.**

▶ **8.2 CHAPEKAR BROTHERS' CASE**

1. The Chapekar brothers assassinated British official W. C. Rand and **his military escort, Lieutenant Ayerst,** on June 22, 1897, in Pune, Maharashtra.
2. Hari Chapekar and Vasudeo Hari Chapekar were **Indian revolutionaries** who murdered **W. C. Rand** in the late **19th century**.
3. "**Indian revolutionaries**" were groups believing in armed revolution against the ruling British.
4. Mahadev Vinayak Ranade was also associated with the murder.
5. This was the 1st instance of militant nationalism in the country after the **1857 Revolt.**

What were the issues?

1. **The Bubonic plague**, also known as the Poona plague, spread in Pune (Poona) in 1896–97.
2. **In 1897**, the government established the **Special Plague Committee**, led by Charles Walter Rand, to deal with the threat and control the spread of the disease.
3. Instead of hiring doctors, the commission assigned over 800 officers and soldiers to duty in Pune.
4. **People were denied the right to hold funerals for their loved ones,** and harassment of local Indian people began to emerge by British soldiers.
5. Regular harassment of the **Rand commission** by the Chapekar brothers and other revolutionary "**Chapekar Club**" members motivated them to take action against Rand.
6. The Chapekar brothers established the "**Chapekar Club**" for physical and military training.

✎ **Supporters of the Chapekar Brothers:**

1. **Gopal Krishna Gokhale** stated that he had authentic reports that 2 women were raped by British soldiers under the guise of disease control. He claimed the soldiers had been "**let loose on the town**." Rand denied that there had been any cases of soldiers abusing women.
2. The methods of the British authorities to deal with the epidemic created a lot of frustration and anti-government sentiment among the people.
3. **Bal Gangadhar Tilak wrote,** "Her Majesty the Queen, the Secretary of State and his Council, should not have issued the orders for practising tyranny (a cruel act) upon the people of India without any special advantage to be gained."

✎ **Important Events Associated with the Chapekar Brothers' Case:**

1. **On June 22nd, 1897**, the British monarch, Queen Victoria's diamond jubilee celebrations, were being held at Pune. The brothers expected all government officers to arrive for the function.
2. Carrying weapons with them, Damodar, the eldest, and Balkrishna waited for Rand's carriage to pass by a selected spot on Ganeshkhind Road. Balkrishna shot at Rand. Rand's military escort, Lt. Ayerst, was also shot at.
3. Damodar was arrested after being informed by the Dravid brothers.
4. Balkrishna avoided arrest until 1899, when he was caught and tried by the police. He was hanged on May 12th, 1899.
5. The 3rd brother, **Vasudeo, and his friends, Khando Vishnu Sathe and Mahadev Vinayak Ranade,** killed the police informants, the Dravid brothers. Vasudeo was hanged on May 8th, 1899. Ranade was hanged later.

8.3 MUMBAI SAMACHAR

Why in news?

The Prime Minister attends the Dwishatabdi (200) Mahotsav of Mumbai Samachar, a newspaper that has been in continuous publication for 200 years.

About Mumbai Samachar

1. It was a Gujrati newspaper started in 1july 1882 by Fardunjee Marzbanji, a Parsi scholar.
2. The printing of Mumbai Samachar, then called Bombay Samachar.
   It was published **weekly until 1832, biweekly until 1855**, and d**aily since then.**
3. It has grown to become one of Western India's premier newspapers, read by a large segment of Gujarati-speaking people both in India and abroad.
4. During India's independence struggle, freedom fighters such as **Mahatma Gandhi, Jawaharlal Nehru, Vallabhbhai Patel,** and others broadly quoted the Mumbai Samachar.
5. The **editorial policy** has been to objectively report events in a fair and honest manner rather than advertise news, with recovery and independence of thought **remaining a unique quality.**

8.4 KODAVAS

Why in News

Kodava Takke, an endangered language, has been brought to light by a book of poems written by a veteran Kodagu poet.

About Kodava Takke

1. It an endangered language (by UNESCO) belonging to Dravidian Group of Language
2. It has no separate script and is traditionally written using the Kannada script.
3. According to the 2001 census, **only 166,187 people speak Kodava takke**.

About Kodavas

1. They small **martial arts community** in the Kodagu district of Karnataka.
2. They are a warlike tribe divided into 3 major groups known as **Kodava Mophlas or Kodava Mappilas, Kodagu Gowdas, and The Bearys.**
3. They are ethno-**linguistic tribe** that claims to be the original inhabitants of Kodagu.
   {An ethnolinguistic group is **a group that is unified by both a common ethnicity and language**}
4. They have unique customs and rituals, such as no dowry system, no priestly role in marriage, and so on.
5. They are traditionally landowners and agriculturists.
6. The community has rituals based primarily on guns and weapons such as swords.
7. The Kodavas were granted the special privilege of owning firearms without a license.

8.5 BHARAT GAURAV TRAIN

India's 1ˢᵗ private train, under the Bharat Gaurav Scheme, began its journey from Coimbatore in Tamil Nadu to Srinagar Shirdi in Maharashtra.
They are theme-based trains launched by Indian Railways in November 2021.

What is a theme-based circuit?

It can be limited to 1 state or it can be a regional circuit which includes multiple states or Union territories.

What is regional circuit?

It is a geographical area in which the Department and community-based care lead agencies plan and implement their programmes.

Objective: To showcase India's **rich cultural heritage and glorious historical places to the people of India and the world.**

Aim:

1. To utilise India's massive tourist potential, use tourism's core strengths to run theme-based trains.
2. Bharat Gaurav Scheme guidelines apply to already running **tourist circuit trains** by IRCTC as well, such as the Buddhist Circuit Tourist Train.

What is a Tourist Circuit?

1. It is defined as a route that includes at least three major tourist destinations that are not in the same town, village, or city and are not separated by a long distance.
2. Tourist Circuits based on specific themes such as religion, culture, ethnicity, niche, and so on.

About Train:

1. The trains will be Completely Toxic-free and Smoke-free
2. It has **Sleeper, 3-AC, 2-AC, and 1-AC coaches.**
3. There will be a doctor on board to attend any emergency
4. Electricians and AC Mechanic, Fire and Safety Officers will be onboard.
5. Private security will be hired in addition to the Railway Police Force to protect the train from harm.

Bharat Gaurav Scheme

1. The Railway Ministry launched the scheme in November 2021, allowing private entities to operate theme-based train services across various circuits.
2. Previously, there were **2 segments** in Indian Railways: **passenger segments and goods segments;** however, this scheme adds a **3rd segment for tourism**.
3. Under this scheme, *the trains will not be regular trains* that run according to a timetable, but will be more along the lines of the IRCTC's Ramayana Express.
4. Trains will cover locations associated with a specific theme, **such as Guru Kripa trains for important Sikh cultural sites, Ramayana trains for locations associated with Lord Shri Ram,** and so on.
5. These trains will be **operated by both private companies and the IRCTC.**
6. The Southern Railway became the **1st zone in Indian Railways** to have **the 1st registered service provider.**
7. **The Shri Ramayana Yatra train** will also depart from Delhi under the Bharat Gaurav scheme.

Features of Bharat Gaurav Scheme

1. It allows any operator, provider, or individual to rent trains from Indian Railways to run on a themed circuit as part of a special tourism package.
2. Private players and tour operators can hire trains from railways and use them on any route they want.

3.   Tourism's core strength would be used to create or identify tourist circuits and run theme-based trains.
4.   The duration of this public-private partnership is a minimum of two years and a maximum of the coach's service life.
5.   The operator has full control over the route, halts, services provided, and tariff under the Bharat Gaurav scheme.
6.   The railways, on the other hand, will ensure that there are no price random errors.

Who can apply for the Scheme?

Individuals, societies, trusts, groups, tour operators, and even state governments can apply to take these trains and operate them.

Scope of Service Providers under the Scheme

1.   The themes of the tours would be determined by the service providers.
2.   Tourists will be offered all-inclusive packages that include rail travel, hotel accommodations, sightseeing arrangements, visits to historical and heritage sites, tour guides, and so on.
3.   Complete control over package costs based on the level of services provided.
4.   The interiors of the coaches may be designed or furnished in accordance with the theme.
5.   Both inside and outside of the train, branding and advertising are permitted.
6.   The application process for these trains will be a **one-step transparent online registration process with a Rs 100,000 fee.**

▶ 8.6 RASHTRIYA PURUSKAR PORTAL

To ensure transparency and public partnership, the Union Government has launched the Rashtriya Puraskar Portal, which invites nominations for various awards given by various Ministries, Departments, and Agencies.

About:

1.   This common portal was created by the government to combine all awards onto a single digital platform.
2.   The Portal aims to make it easier for citizens to nominate individuals and organisations for various Government of India awards.

✎ **Currently, nominations/recommendations for the following Awards are open:**

1.   **Padma Awards-** Nomination open till 15/09/2022
     The Padma Awards are **one of the highest civilian honours of India announced annually on the eve of Republic Day**.
     The Awards are given in 3 categories:
     a.   Padma Vibhushan (for exceptional and distinguished service in various field),
     b.   Padma Bhushan (distinguished service of higher order)
     c.   Padma Shri (distinguished service).
2.   **Sardar Patel National Unity Award-** Nomination open till 31/07/2022
     a.   It is a government of India award given by the Ministry of Home Affairs.
     b.   The awards recognize Indian citizens who have contributed to promoting India's national unity and integrity.
3. **Tenzing Norgay National Adventure Award-** Nomination open till 16/06/2022
     a.   It was formerly known as the National Adventure Awards and is the Republic of India's highest adventure sports honour.

b. Tenzing Norgay was one of the first **2** people, along with **Edmund Hillary,** to reach the summit of **Mount Everest in 1953.**

c. The Ministry of Youth Affairs and Sports gives it on an annual basis.

4.Jeevan Raksha Padak series of Awards- Nomination open till 30/09/2022

a. The Government of India gives this civilian lifesaving award.

b. On September 30, 1961, the company was founded.

c. It is given to civilians to identify their efforts in saving lives from drowning, fire, or mine accidents.

5.Pandit Deendayal Upadhyaya Telecom Skill Excellence Award- Nomination open till 16/06/2022.

In 2017**, the Department of Telecom launched the Pandit Deendayal Upadhyay Telecom Skill Excellence Awards scheme** to identify successful telecom skilled individuals for their exceptional contributions in the areas of Telecom **Skilling, Services, Manufacturing.**