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1.

SCIENCE & TECHNOLOGY

1.1

LEGIONELLOSIS DISEASE

Why in News?

Recently, a mysterious pneumonia outbreak in Argentina has been identified as 'Legionellosis'.

About the disease Legionellosis:

1. It's a **pneumonia-like illness** that varies in severity from mild febrile illness to a serious and sometimes fatal form of pneumonia.
2. The bacteria responsible for it is '**Legionella**'.
3. It includes **fever, muscle, abdominal pain and shortness of breath**.
4. The disease typically **spreads via inhalation of contaminated aerosols from contaminated water**, which could come from — air conditioning cooling, evaporative condensers associated with air conditioning, industrial cooling, hot and cold-water systems, humidifiers and whirlpool spas.
5. The people who have **co-morbidities like Hypertension, Diabetes, Obesity, Respiratory Problems, Chronic Obstructive Pulmonary Disease (COPD)**, or those who follow poor habits like smoking are more prone to it.

About the Treatment:

1. **Treatment exists, but there is no vaccine currently available for this disease.**
2. Patients with this disease always requires **antibiotic treatment after diagnosis.**
3. The **public health threat posed by legionellosis can be addressed by implementing water safety plans by authorities responsible for building safety or water system safety.**

1.2

WORLD RABIES DAY

Why in News?

World Rabies Day is observed every year on 28th September to raise awareness regarding the world's deadliest infectious disease.

1. The theme of World Rabies Day 2022 is: "**One Health, Zero Death**".

About Rabies:

1. Rabies is a **vaccine-preventable, zoonotic (spreads from animals to humans) viral disease.**
2. It is caused by a **Ribonucleic Acid (RNA) virus** that is **present in the saliva** of a **rabid animal (dog, cat, monkey, etc).**
3. It is **transmitted following a bite of an infected animal** that leads to **deposition of the saliva and the virus in the wound.**
4. **Once clinical symptoms appear, rabies is virtually 100% fatal.** The death invariably occurs in **4 days to 2 weeks** due to **cardio-respiratory failure.**



5. In up to 99% of cases, domestic dogs are responsible for rabies virus transmission to humans.

What is the Treatment?

1. It is important to remove the virus from the wound as early as possible by immediately washing the wound with water and soap followed by application of anti-septics that reduce/eliminate chances of nerve infection.
2. Rabies can be prevented by vaccinating pets, staying away from wildlife, and seeking medical care after potential exposures before symptoms start.
3. The first symptoms of rabies may be similar to flu and may last for a few days, which includes: Fever, Headache, Nausea, Vomiting, Anxiety, Confusion, Hyperactivity, Difficulty swallowing, Excessive salivation, Hallucinations, Insomnia.

India's Initiatives for Cure Against Rabies:

1. **National Action Plan for Dog Mediated Rabies Elimination by 2030:**
 - a) It is a multi-pronged strategy based on 'One Health Approach'.
 - b) The concept of One Health recognizes that the health of people is closely related with the health of animals, plants and their shared environment.
 - c) **Mission:** To achieve zero human deaths due to dog-mediated Rabies by 2030.

1.3 DARK SKY RESERVE IN LADAKH

Why in News?

Recently, the Department of Science & Technology (DST) has announced the setting up of India's 1st 'Dark Sky Reserve' in Hanle, Ladakh.

What is Dark Reserve?

1. A Dark Sky Reserve is a designation given to a place that has policies in place to ensure that a part of land or region has minimal artificial light interference.
2. The 'International Dark Sky Association' is a U.S.-based non-profit organisation that designates places as 'International Dark Sky Places, Parks, Sanctuaries and Reserves, depending on the criteria they meet.

Key Highlights of the Dark Reserve in Ladakh are:

1. **3 MoU for Setting up Dark Reserve:** 3 Memorandum of Understanding (MOUs) was signed among the Union Territory administration, Ladakh Autonomous Hill Development Council (LAHDC), Leh, and the Indian Institute of Astrophysics (IIA), Bengaluru, which uses and maintains the telescopes, for launching the Dark Space Reserve.
2. It will have activities to help in boosting local tourism and the economy through interventions of science and technology.
3. **Promote Tourism:** To promote Astro-tourism, villages around Hanle will be encouraged to promote homestays equipped with telescopes that visitors can use to view the night sky. Villagers and residents will also be trained to help visitors with astronomical observations.



4. **Wildlife Awareness:** A visitor centre will also be set up to inform people not only about astronomy but also about the **wildlife and plant life in the adjoining 'Changthang Wildlife Sanctuary'.**

Why was Ladakh chosen for Setting up the Dark Reserve?

1. **Cold Desert with Sparse Population:** The Indian Astronomical Observatory, the high-altitude station of IIA, is situated to the north of the Western Himalayas, at an altitude of 4,500 metres above mean sea level.
2. **Clear Skies:** The cloudless skies and low atmospheric water vapour make it one of the best sites in the world for optical, infrared, sub-millimetre, and millimetre wavelengths.
3. **Other Telescopes situated in Hanle Observatory:** The Himalayan Chandra Telescope (HCT), High Energy Gamma Ray telescope (HAGAR), the Major Atmospheric Cherenkov Experiment Telescope (MACE) and GROWTH-India are prominent telescopes located at the Hanle observatory.

1.4 STATE OF WORLD'S HEALTHCARE FACILITIES

Why in News?

As per the latest Joint Monitoring Programme (JMP) report by the World Health Organisation (WHO) and United Nations International Children's Emergency Fund (UNICEF), about half of the world's healthcare facilities lack basic hygiene services, putting 3.85 billion people at an increased risk of infections.

Key highlights of the report are:

1. About **half of the world's healthcare facilities lack basic hygiene services, putting 3.85 billion people at an increased risk of infections.**
2. These facilities **do not provide patients with water, soap or alcohol-based hand rubs.**
3. **Only 51% of healthcare facilities met the requirements for basic hygiene services.**
4. **Some 68% of them provided facilities for handwashing with water and soap at restrooms and 65% has such amenities at points of care.**
5. Furthermore, **just 1 in 11 medical facilities worldwide has both.**

Why it's a matter of concern?

1. **Hospitals and clinics without safe water and basic hygiene and sanitation services are a potential death trap for pregnant mothers, new-born's and children.**
2. Every year, **670,000 new-born's lose their lives to sepsis.** Sepsis is a potentially **life-threatening condition that occurs when the body's response to an infection damages its own tissues.**
3. Unhygienic hands and environment significantly **influence disease transmission in healthcare facilities and the emergence of antibiotic resistance.**
4. **Only 53% of healthcare institutions in the least developed countries have access to a safe water supply.**
5. The proportion for **eastern and south-eastern Asia is 90%, with hospitals performing better than smaller healthcare facilities.**

1.5 PRADHAN MANTRI TB MUKT BHARAT ABHYAN

Why in News?



Recently, to speed up the country's fight against tuberculosis (TB) and achieve the target set by the Prime Minister of eliminating the TB by 2025, Government of India launched the 'Pradhan Mantri TB Mukta Bharat Abhiyan'.

What Pradhan Mantri TB Mukta Bharat Abhiyan?

1. It's an initiative of Ministry of Health and Family Welfare (MOHFW) to accelerate the country's progress towards TB elimination by 2025.
2. Objective is to provide additional patient support to improve treatment outcomes of TB patients and to increase community involvement in meeting India's commitment to end TB by 2025.
3. Components:
 - a) Ni-kshay Mitra Initiative: It is to ensure additional diagnostic, nutritional, and vocational support to those on TB treatment.
 - b) Ni-kshay Mitra (Donor) are those who can support by adopting health facilities (for individual donor), blocks/urban wards/districts/states for accelerating response against TB to complement government efforts.
 - c) Ni-kshay Digital Portal: It will provide a platform for community support to the persons with TB.

What is Tuberculosis (TB)?

1. TB is caused by a bacterium called 'Mycobacterium tuberculosis', which belongs to the 'Mycobacteriaceae' family which consists of almost 200 members.
2. Some Mycobacteria cause diseases like TB and Leprosy in humans and others infect a wide range of animals too.
3. In humans, TB most commonly affect the lungs (pulmonary TB), but it can also affect other organs (extra-pulmonary TB) too.
4. TB is a very ancient disease and has been documented to have existed in Egypt as early as 3000 BC.
5. TB spreads from person to person through the air. When people with lung TB cough, sneeze or spit, they throw the TB germs into the air.
6. Common symptoms of active lung TB are cough with sputum and blood at times, chest pains, weakness, weight loss, fever and night sweats.
7. TB is a treatable and curable disease. It is treated with a standard 6-month course of 4 antimicrobial drugs.
8. Many Anti-TB medicines are in use from decades and it has led to development of resistance in bacteria for 1 or more of the TB drugs.
 - a) Multidrug-resistant tuberculosis (MDR-TB) is a form of TB caused by bacteria that do not respond to 'Isoniazid' and 'Rifampicin', the 2 most powerful, first-line anti-TB drugs. MDR-TB is treatable and curable by using second-line drugs.
 - b) Extensively drug-resistant TB (XDR-TB) is a more serious form of MDR-TB caused by bacteria that do not respond to the most effective second-line anti-TB drugs, often leaving patients without any further treatment options.

Additional Information:

About Nikshay Poshan Yojna (NPY)

1. The NPY was launched in 2018 by the Ministry of Health and Family Welfare.



2. It aims to support every Tuberculosis (TB) Patient by providing a Direct Benefit Transfer (DBT) of Rs 500 per month for nutritional needs.
3. Since its launch, almost Rs 1,488 crore has been paid to 5.73 million notified beneficiaries.
4. **Performance of NPY:**
 - a) As per 'India TB Report' 2022, only 62 % of 2.1 million notified cases across the country received at least one payment in 2021.
 - b) In Delhi, which has the highest burden of all forms of TB at 747 cases per 100,000 people, only 30.2 % of patients have got at least one DBT.
 - c) Other poor performers are Punjab, Jharkhand, Maharashtra, Bihar, Rajasthan and Uttar Pradesh. In the North East, Manipur and Meghalaya are the poor performers.

✎ Status of TB in India:

1. As per 'India TB Report' 2022, during 2021, the total number of TB patients in India was almost 19 lakhs. In 2020 it was around 16 lakhs, increasing by almost 19 %.
2. In India, the mortality rate due to all kinds of TB increased by 11% between 2019 and 2020.
3. The total number of estimated TB-related deaths for the year 2020 was 4.93 lakh, which is 13 % higher than the estimates of 2019.
4. Malnutrition, HIV, diabetes, alcohol, and tobacco smoking are the co-morbidities that impact a person suffering from TB.

✎ What are the Initiatives to Combat TB?

1. At Global level:

- a) The WHO has launched a joint initiative named "Find. Treat. All. #EndTB" with the Global Fund and Stop TB Partnership.
- b) WHO also released the 'Global Tuberculosis Report'.

2. India's Efforts:

- c) 'National Strategic Plan (NSP) for Tuberculosis Elimination (2017-2025)', 'The Nikshay Ecosystem (National TB information system)', 'Nikshay Poshan Yojana (NPY- financial support)', 'TB Harega, Desh Jeetega Campaign'.
- d) Currently, 2 vaccines named 'VPM (Vaccine Project Management) 1002' and 'MIP (Mycobacterium Indicus Pranii)' have been developed and identified for TB, and are under Phase-3 clinical trial.
- e) The Saksham Project: It is a project of the 'Tata Institute of Social Sciences (TISS)' that has been providing psycho-social counselling to TB patients.

1.6

DVORAK TECHNIQUE

✎ Why in News?

The American meteorologist Vernon Dvorak passed away at the age of 100.

- He was best credited for developing the Dvorak (read as Do-rack) technique in the early 1970s.

✎ Dvorak Technique:



1. It is a **statistical method** for estimating the intensity of tropical cyclones.
2. This works with the help of **satellite imagery**.
3. It uses **regular Infrared** and **Visible** imagery also.
4. It is based on a “**measurement**” of the cyclone’s cloud pattern.

🔗 Benefits:

1. It **helps forecasters to identify the patterns of clouds** from the observed structure of the storm.
2. It is the **Dvorak technique** which gives the **best estimates of the cyclone intensity** a vital **component** while issuing weather warnings.

🔗 Advancements:

1. **After a recent software update**, it has been named the **Advanced Dvorak Technique (ADT)**
2. The **updated technique will improve the tropical storm forecasts** as now forecasters will have access to **detailed images** than ever before.

1.7

DOUBLE ASTEROID REDIRECTION TEST (DART) MISSION: NASA

🔗 Why in News?

In November, NASA will launch its **1st planetary defence test mission** named the **Double Asteroid Redirection Test (DART)**.

🔗 About the Mission:

1. It is a **planetary defence-driven test of technologies**.
2. It works to **prevent an impact on Earth** by a hazardous asteroid.
3. The **DART spacecraft will be launched on a SpaceX Falcon 9 rocket** from **Vandenberg Space Force Base in California**.

🔗 Objectives of the Mission:

1. DART is the **1ST technology demo of the kinetic impactor technique**.
2. It could be used to **lessen the threat of an asteroid hitting Earth**.
 - [The kinetic impactor mitigation technique is the **deflection of the asteroid through the sudden addition of momentum**.]

🔗 Configuration of the spacecraft:

1. It has **2 solar displays**.
2. It uses **hydrazine propellant** for manoeuvring the spacecraft.
3. It is considerably **low-cost spacecraft DART** whose **weight is** about **610 KG** at the time of its launch.
4. The **main structure of the box** **1.2 × 1.3 × 1.3 metres**.
5. It has been attached with a **high-resolution imager** called **Didymos Reconnaissance and Asteroid Camera for Optical Navigation (DRACO)**.



- DART will also carry a small satellite or **CubeSat** named **LICIACube** (Light Italian CubeSat for Imaging of Asteroids).

1.8) ETHEREUM MERGER

Why in News?

In September 2022, the **Ethereum blockchain platform** fully transitioned from 'proof of work' to a 'proof-of-stake' consensus mechanism.

- This shift is known as merger.

Issues:

- Mining farms were energy guzzlers** and they sometimes **consumed more electricity than entire countries** and were, therefore, a big concern in terms of **environmental sustainability**.
- The **crypto's total annual power consumption matches that to Finland** while its **carbon footprint is comparable to Switzerland**.
- European countries even eased the crypto mining ban, while **China actually carried out a nationwide crackdown on crypto miners, sending them escaping overseas**.

New Method:

- There will **not be any need for crypto miners and gigantic mining farms**.
- '**Proof-of-work**' (PoW) has now shifted to a '**proof-of-stake**' (PoS) mechanism that gives '**validators**' randomly to approve transactions and earn a small reward.
- [**Validators are unpaid worker on a computer to maintain the blockchain's integrity by constantly computing the linkage from the first block to the last.**]

Benefits:

- This would **eliminate the need for mineworkers** on the Ethereum network.
- It will **reduce Ethereum's energy consumption** by nearly 99.95%.
- It will make **transactions on the Ethereum network more secure**.

1.9) eSIMS

Why in News?

The eSIMs are becoming **first choice of the mainstream** due to **fitness-oriented smartwatches and smartphones**.

What is an eSIM?

- An eSIM is an **SIM with high technology**, essentially the same hardware of a regular **SIM card chip**.
- In this **permanently fixed part of the motherboard** of a watch or smartphone.
- eSIMs were **1st established a decade ago in 2012**.
- Despite their huge potential eSIMs have not completely made physical SIMs yet**.



➤ Advantages of eSIMs

1. It will also save a trip to a telecom store as you don't need to switch the operator when you switch country.
2. eSIM will prevent the misuse of the SIM as happens with conventional SIMs, as there is no physical element to pull out and use in another device.
3. Having an eSIM also means there is one less opening on the frame of your phone, which may reduce the possibility of dust and water entering the phone from yet another slot.

➤ Disadvantages of eSIMs:

1. Traditional SIMs can be quickly pulled out of the affected/Damaged phone and into another backup device or secondary phone. It is not possible with eSIMs.
2. It cannot be used in a country where the telecom operators simply don't support the technology yet.
3. In India, eSIM support is currently available only on expensive devices like the Apple iPhones, Google Pixel series etc

1.10 NATIONAL LIST OF ESSENTIAL MEDICINES (NLEM)

Why in News?

In September 2022, the Union Health Ministry launched the new National List of Essential Medicines (NLEM).

- As per the World Health Organisation (WHO), Essential Medicines are those that satisfy the priority health care needs of the population.

DRUGS LIST GETS A REJIG

▶ **Four major anti-cancer drugs** – bendamustine hydrochloride (leukemia), irinotecan HCl trihydrate (pancreatic cancer), lenalidomide (multiple myeloma), and leuprolide acetate (prostate and uterine cancer) – added to NLEM 2022

▶ **Insulin glargine and anti-diabetic drug** teneligliptin also included

▶ **Patented drugs dolutegravir** (anti-HIV), daclatasvir (Hepatitis C), and bedaquiline and delamanid (anti-TB) also part of the list

▶ **Common gastrointestinal drug** ranitidine removed

▶ **Disinfectants like bleaching powder** also taken off the list



➤ What is the National List of Essential Medicines (NLEM)?

1. The National List of Essential Medicines (NLEM) is a list released by the **Ministry of Health and Family Welfare**.
2. The medicines listed in the NLEM are sold below a price ceiling fixed by the **National Pharmaceutical Pricing Authority (NPPA)**.
3. In India, it was framed on the lines of the **Essential Medicines List (EML)** released by the WHO.



4. The Ministry of Health and Family Welfare prepared and released the first National List of Essential Medicines.
5. Promote the rational use of medicines.
6. Optimize the available health resources of a country. It can also be a guiding document for:
 - State governments to prepare their list of essential medicines.
 - Procurement and supply of medicines in the public sector.

What are the Criteria for a Medicine to be Included in NLEM?

1. A medicine should be essential considering the population at large.
2. At one point, TB might be more important to tackle. At the next Covid-19 may become more important. So, the ongoing disease is considered while preparing the list.
3. The medicine must have "clear" evidence of effectiveness and wider acceptance based on its safety to be included in the list.
4. The total price of the treatment must be considered while including the drug in NLEM.
5. The single-dose medicines are considered for inclusion in NLEM.
6. High sale is not considered as a benchmark for inclusion in the NLEM.

When is a Medicine Deleted from NLEM?

1. If it gets banned in India.
2. If reports of concerns about drug safety emerge.
3. If medicine with better efficacy or favourable safety profile and better cost-effectiveness is now available, then it is removed from NLEM.

1.11 CRISPR CAS-9 FOR SICKLE CELL ANAEMIA

Why in news?

In September 2022, India approved a 5-year project to develop Clustered Regularly Interspaced Short Palindromic Repeats (CRISPR) to cure sickle cell anaemia in 2021.

- Sickle cell anaemia is the first disease, targeted for CRISPR-based therapy in India.

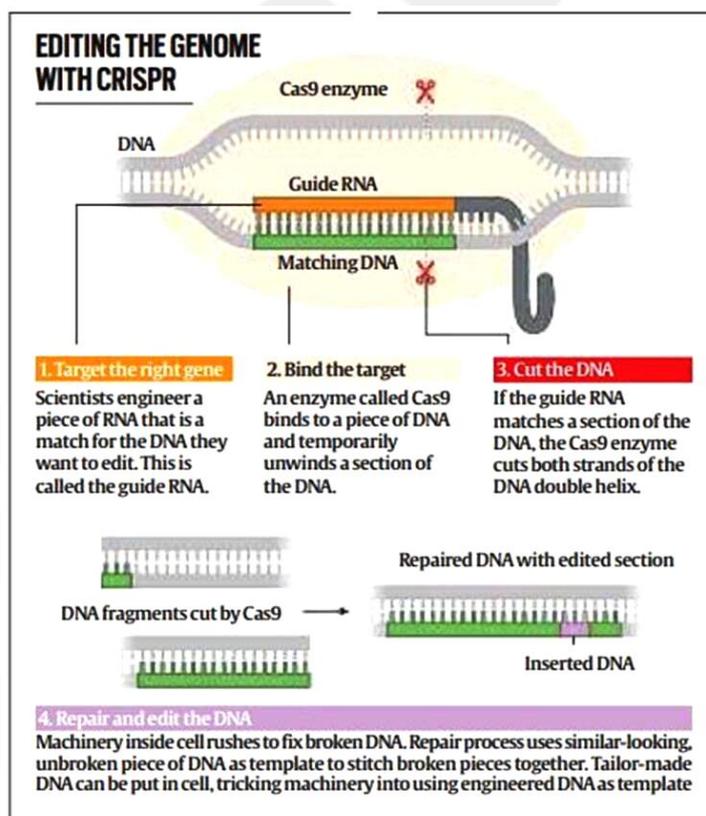
What is Clustered Regularly Interspaced Short Palindromic Repeats

(CRISPR)?

1. CRISPR is a genetic code or sequence found in bacteria.
2. These are formed due to the activity of the previous phages that had infected them.
3. Bacteria use CRISPR sequence to remember each specific virus that attacks them.
4. They do this by integrating the virus' DNA into their own bacterial genome.
5. This method then gives protection to the or immunity when a specific virus tries to attack again.
6. Cas 9 are the genes that are always located nearby.
7. Once activated, these genes make special enzymes that seem to have co-evolved with CRISPR.
8. The significance of these Cas enzymes is their ability to act as "molecular scissors" that can cut into DNA.



9. CRISPR is a **dynamic, versatile tool** that allows us to target nearly any genomic location and **repair broken genes**.
10. It can **remove, add or alter specific DNA sequences** in the genome of higher organisms.
11. CRISPR are **sections of DNA** and are sections of genetic code containing **short repetitions of base sequences**.
12. CAS-9 (CRISPR-associated protein 9) is an **enzyme**.
13. It **uses a synthetic guide RNA** to introduce a double strand break at a specific location within a strand of DNA.
14. It is a **system used by bacterial cells** to recognize and destroy viral DNA.
15. These are the 3 key elements to CRISPR-Cas9 work:
 - **Guide RNA:**
A piece of RNA that locates the targeted gene. This is engineered in a lab.
 - **CRISPR-Associated protein 9 (Cas9):**
The “scissors” that snip the undesired DNA out.
 - **DNA:**
The desired piece of DNA that is inserted after the break.



How does it work?

1. CRISPR scans the genome and then uses the Cas9 protein as molecular scissors to modify the DNA.
2. Cas9 endonuclease – guide RNAs to tell which particular DNA is to be edited.
3. The **genetic sequence of the RNA** matches the target sequence of the DNA that has to be edited.
4. When Cas9 cuts the target sequence, the **cell repairs the damage by replacing the original sequence with a changed version**.



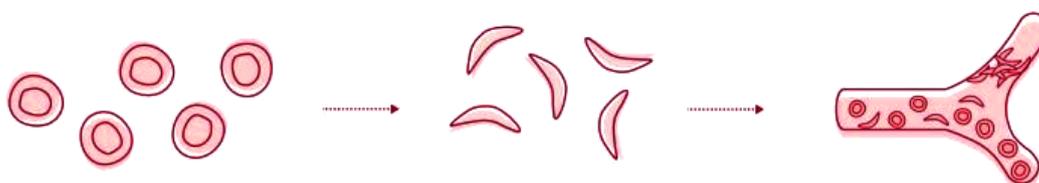
🦋 Benefits of CRISPR:

1. This can help in faster and efficient diagnosis of rare genetic diseases.
2. This enables cost-effective genetic tests, efficient diagnosis of heritable cancers, etc.
3. It can have a major impact on addressing food insecurity around the world by producing more water efficient crops and high yielding varieties of plants and animals.
4. CRISPR can bring customized therapies to market more quickly than was previously dreamed.
5. It can play a role in limiting agricultural emissions, making crops more resilient.

🦋 What is Sickle Cell Anaemia?

1. It is an inherited blood disease.
2. It is most common among people of African, Arabian and Indian origin.
3. It is a group of disorders that affects haemoglobin.
4. [Haemoglobin is the molecule in red blood cells that delivers oxygen to cells throughout the body.]
5. People with this disease have haemoglobin molecules that can distort red blood cells into a sickle, or crescent shape.
6. It restricts oxygen from reaching all parts of the body.

What is Sickle Cell Disease?



SCD is a blood disorder

Sickle Cell Disease (SCD) is an **inherited blood disorder** that affects red blood cells. Normal red blood cells are round and flexible, which lets them travel through small blood vessels to deliver oxygen to all parts of the body.

Causing misshapen blood cells

SCD causes red blood cells to **form into a crescent shape**, like a sickle.

Creating painful complications

The sickle-shaped red blood cells break apart easily, clump together, and stick to the walls of blood vessels, **blocking the flow of blood**, which can cause a range of serious health issues.

1.12

NOBEL PRIZE IN PHYSICS 2022

Why in News?

The Nobel Prize in Physics for 2022 is given to John F. Clauser, Alain Aspect and Anton Zeilinger for their work in quantum mechanics by the Royal Swedish Academy of Sciences.

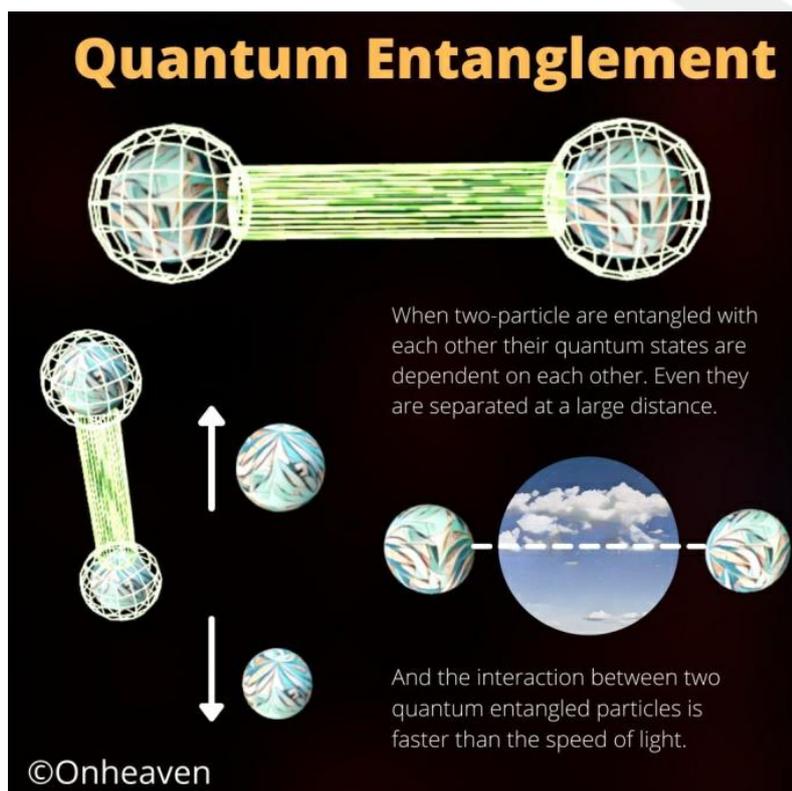
🦋 What is quantum Mechanics?

1. Quantum mechanics is a fundamental theory in physics.
2. It gives explanation of the physical properties of nature at the atomic and subatomic level.



What is quantum Entanglement (QE)?

1. It is the **physical phenomenon** in which group of particles is generated.
2. In QE the **particles interact with each other**.
3. During interaction **quantum state of any particle of the group cannot be defined independently** of the state of the other particles.
4. In this **quantum mechanical phenomenon**, the **quantum states of two or more objects have to be described** with reference to each other even after their separation.
5. This results in the **relations between observable physical properties of the systems as a whole**.
6. However, Albert Einstein dismissed this idea as a 'spooky action'.



What exactly was the work?

1. The Nobel prize was awarded **for experiments with entangled photons**.
2. The experiment was about **founding the original quantum information science**.

Individual Contribution of the scientists towards the work:

1. **John Clauser:**
 - He **built a device that emitted 2 entangled photons at a time**.
2. **Alain Aspect:**
 - He developed a setup to solve an important loophole.
 - He **was able to switch the measurement settings**, even after an entangled pair had left its source.
3. **Anton Zeilinger:**
 - He **researched entangled quantum states**.
 - His **area of research** has verified a phenomenon called **quantum teleportation**.
 - [Quantum teleportation makes it possible to transfer a quantum state from one particle to other particle at a distance.



Challenges associated with QE:

1. Entanglement is **fragile and can be easily lost** during the process itself.
2. The **devices used for verification of entanglement can be hacked** and cannot be trusted fully hence, there is an **issue of security and safety**.

Significance of QE:

1. Entangled states are **key resources** to get the **quantum cryptographic protocols which are significant for security purposes**.
2. The entangled pairs of electrons can be **used as resources for enabling quantum information**.
3. Quantum Entanglement and information out of it **helps in research and develop and boosting innovation**.

1.13

AATMANIRBHAR IN DIAMONIUM PHOSPHATE (DAP)

Why in News?

As part of Govt's **AatmaNirbhar Bharat's** initiative to promote self-sufficiency in Fertilizers, it is advising and supporting the Indian fertilizer companies to strengthen their supply chain.

What are Fertilizer's?

- 1) These are substances which are **supplied to the soil to increase it's productivity**.
- 2) The fertilizers contain the **essential nutrients** required by the plants such as **Nitrogen, Potassium and Phosphorus**.
- 3) They increase the **water holding capacity of the soil**.

What is Diammonium Phosphate (DAP) ?

- 1) It is the 2nd **most commonly used fertiliser in India after urea**.
- 2) Farmer's normally apply this fertiliser just before sowing of crop, as it is **high in phosphorus (P) that helps in root development**.
- 3) DAP has **46% Phosphorus** and **18% Nitrogen** in it and it is the preferred source of Phosphorus for farmers.
- 4) While **Urea** is the **preferred source of Nitrogen** containing **46% Nitrogen** in it.

Initiatives taken by Govt. to resolve DAP Dependency on other countries are:

- 1) In 2022 only, an Indian company purchased 45% equity share in **Baobab Mining and Chemicals Corporation (BMCC)** which is a **rock phosphate mining company located in Senegal**. Under the agreement, the mining will be done in Senegal and production of DAP will be done in India.
- 2) Government of India is partnering with the industry to increase investments so that the country can get security in Fertilizer's Supply.
- 3) Department of Mining and Geological Survey is **planning to do an exploration to find more potassic ore resources in Rajasthan's Satpura, Bharusari and Lakhasar and in other states like Uttar Pradesh, Madhya Pradesh, Rajasthan, Gujarat, Andhra Pradesh, and Karnataka**.

Importance of Fertilizer Industry for India:



- 1) **Agriculture** is 1 of the most important sector in India. It contributes almost **20% to the country's GDP**.
- 2) Around **47% of India's population is engaged in agricultural activities**.
- 3) The agricultural sector largely depends on the **fertilizer industry**, which manufactures some of the **most important nutrients required for the production of crops**.
- 4) Fertilizer Industry also provides **Employment** to a very large population.

Issues Fertilizer sector is facing are:

- 1) India largely depends on **phosphate rock** for the production of fertilizers and these rocks are found mainly in **Rajasthan and Madhya Pradesh only**.
- 2) **India imports 90% of its phosphate from other countries**.
- 3) **Blackmarketing of Urea** is also a big issue as it increases the price for Farmers.
- 4) Very few domestic companies are engaged in fertilizer production. **Indian Farmers Fertiliser Cooperative Limited (IFFCO)** is the largest fertilizer manufacturer and marketer in India.
- 6) **National Fertilizer Limited** is the 2nd largest fertilizer producer in India.



2. POLITY AND GOVERNANCE

2.1 NARCOTIC DRUGS AND PSYCHOTROPIC SUBSTANCES ACT, 1985

Why in News?

Recently, Karnataka High Court said that 'Bhang' does not come under prohibited drink or prohibited drug as per 'Narcotic Drugs and Psychotropic Substances (NDPS) Act', 1985.

1. The court relied on 2 earlier judgments, *Madhukar vs the State of Maharashtra, 2002* and *Arjun Singh vs State of Haryana, 2004*, where the courts had ruled that **bhang is not ganja** and is therefore not covered under the NDPS Act.
2. Earlier, Thailand has **legalized cultivating and possessing Marijuana** but for recreational use (Such as smoking) is still banned.

What is Bhang?

1. Bhang is the **edible preparation made from the leaves of the cannabis plant and often used for drinks such as thandai and lassi, along with various foods.**
2. Bhang has been consumed in the **Indian subcontinent from centuries**, and is frequently consumed during the **festivals of Holi and Mahashivratri.**
3. The **NDPS Act** is the main law, enacted in 1985, that deals with **drugs and their trafficking.**

About NDPS Act:

1. The NDPS Act **defines cannabis (hemp) as a narcotic drug based on the parts of the plant that come under its purview.** The Act lists these parts as:
 - a) **Charas:** The separated resin, in whatever form, whether crude or purified, obtained from the cannabis plant and also includes concentrated preparation and resin known as **hashish oil or liquid hashish.**
 - b) **Ganja:** The **flowering or fruiting top of the cannabis plant** (excluding the seeds and leaves when not accompanied by the tops).
2. The Act, in its definition, **excludes seeds and leaves "when not accompanied by the tops".**
3. **Bhang is not mentioned** in the NDPS Act.
4. **Section 20** of the NDPS Act lays out the **punishment for the production, manufacture, sale, purchase, import and inter-state export of cannabis, as defined in the Act.** The prescribed punishment under the act is based on the **amount of drugs seized.**
5. It also provides for the **death penalty** in some cases where a person is a **repeat offender.**

2.2 DILUTION OF LOKAYUKTA POWERS IN KERALA

Why in News?

Recently, the Kerala Legislative Assembly passed the Kerala 'Lokayukta (Amendment) Bill, 2022'.



✎ About the concept of Lokpal and Lokayuktas?

1. The **Lokpal and Lokayukta Act, 2013** provided for the establishment of Lokpal for the Union and Lokayukta for the states.
2. These institutions are the statutory bodies (formed through act of parliament) without any constitutional status.
3. They perform the function of an "ombudsman" and inquire into allegations of corruption against certain public functionaries.
4. The Lokpal and Lokayuktas Act, 2013 provides for the establishment of a Lokpal headed by a Chairperson, who is or has been a Chief Justice of India, or is or has been a judge of the Supreme Court, or an eminent person who fulfil the eligibility criteria as specified.
5. In case of other members, not exceeding 8, 50% are to be judicial members, provided that not less than 50% belong to the SCs, STs, OBCs, minorities, or women.
6. The Lokpal was appointed in March 2019 and it started functioning since March 2020 when its rules were framed.
7. The Lokpal at present is headed by former Chief Justice of Jharkhand High Court 'Pradip Kumar Mohanty'.
8. The Lokpal has jurisdiction to inquire into allegations of corruption against anyone who is or has been Prime Minister, or a Minister in the Union government, or a Member of Parliament, as well as officials of the Union government under Groups A, B, C and D.
9. Also covered are chairpersons, members, officers and directors of any board, corporation, society, trust or autonomous body either established by an Act of Parliament or wholly or partly funded by the Centre.
10. It also covers any society or trust or body that receives foreign contributions above Rs. 10 lakhs.

✎ About the amendments done by Kerala Government:

1. The amendment Bill has diluted the binding aspect of the Lokayukta order, allowing the competent authority to now either reject or accept the ombudsman's report.
2. With the amendment, the state government will get the power to either accept or reject the verdict of the anti-corruption body, after giving an opportunity to be heard.
3. The amendments will make 'Lokayukta' just a body for making recommendations or sending reports to the government.
4. It has also made the 'Legislative Assembly' a competent authority to review an indicting report against the Chief Minister. If a Lokayukta report shows the name of a cabinet minister, the bill vests the reviewing authority in the Chief Minister and in the case of legislators, the competent authority will be the House Speaker.
5. The bill exempts political leaders from the purview of the Act.
6. The bill allows for retired High Court judges to be appointed as the Lokayukta.
7. Section 14 of the act which has now been amended said that if the Lokayukta is satisfied on the complaint against the public servant that he or she should not continue to hold the post held by him, he shall make a declaration to that effect in his report to the competent authority who shall accept it and act upon it.

✎ So, What can be the Way Forward?

1. Battle against corruption can be won only through a comprehensive reform of our political, legal, administrative and judicial systems.



2. The Kerala Lokayukta Act should be re-examined by a committee of the assembly and should be brought on a par with the Lokpal Act.

2.3 ABORTION RIGHTS FOR SINGLE WOMEN

Why in News?

Recently, the Supreme Court has allowed all women in the country, regardless of marital status, to undergo an abortion up to the 24 weeks into pregnancy to access safe and legal abortion care.

About SC's RulingP:

1. It has ruled over an old abortion law (The Medical Termination of Pregnancy Act of 1971) which bars unmarried women from terminating pregnancies which are up to 24-weeks old.
2. The Medical Termination of Pregnancy Act of 1971 and its Rules of 2003 prohibit unmarried women who are between 20 weeks to 24 weeks pregnant to abort with the help of registered medical practitioners. The latest amendment to the MTP Act was made in 2021.
3. SC held that the rights of reproductive autonomy, dignity and privacy under Article 21 of the Constitution gives an unmarried woman the right of choice as to whether or not to bear a child on a similar lines as that of a married woman.
4. SC also said that prohibiting single or unmarried pregnant women with pregnancies between 20 and 24 weeks from accessing abortion while allowing married women with the same term of pregnancy to access the care was violative of the right to equality before law and equal protection (Article 14).\
5. Artificial distinction between married and unmarried women is not constitutionally sustainable and the benefits of the law should be extended equally to single and married women.

History of India's Abortion Law:

1. Until the 1960s, abortion was illegal in India and a woman could face 3 years of imprisonment and/or a fine under Section 312 of the Indian Penal Code (IPC).
2. It was in the mid-1960s that the government set up the Shantilal Shah Committee and asked the group, headed by Dr Shantilal Shah, to look into the matter of abortions and decide if India needs a law for the same.
3. Based on the report of the Shantilal Shah Committee, a medical termination bill was passed by the Parliament in August 1971.
4. The Medical Termination of Pregnancy (MTP) Act, 1971 came into force on 1st of April 1972

About the Concerns:

1. Unsafe Abortions:
 - a) Unsafe abortions are the 3rd leading cause of maternal mortality in India, and close to 8 women die from causes related to unsafe abortions each day, as per the United Nations Population Fund (UNFPA)'s 'State of the World Population Report' 2022.
 - b) The women outside marriages and in poor families are left with no choice but to use unsafe or illegal ways to abort unwanted pregnancies.



2. Scarcity of Medical Experts in Rural India:

- a) According to a 2018 study in the Lancet, 15.6 million abortions were done every year in India as of 2015.
- b) The MTP Act mandated that abortion should be performed only by doctors with specialisation in gynaecology or obstetrics.
- c) However, the Ministry of Health and Family Welfare's 2019-20 report on Rural Health Statistics indicates that there is a 70% shortage of obstetrician-gynaecologists in rural India.

So, What is the Way Forward?

1. India's legal framework on abortion is largely considered as progressive, especially in comparison to many countries including the United States where abortion restrictions are severely restricted — both historically, and at present.
2. Further, there is a need for a serious rethink in public policy and to focus on women and their reproductive rights.

2.4

EXTENSION OF PRADHAN MANTRI AWAS YOJANA-URBAN (PMAY-U)

Why in News?

In September 2022, the Union Cabinet decided to extend the implementation period of PMAY-U till 31 December, 2024.

- PMAY-U has character of both Centrally Sponsored and Central Sector schemes.

Centrally Sponsored Schemes	Central Sector Schemes
These schemes are usually formulated on subjects placed in the state lists.	These are formulated on the subject placed under the union list.
State governments are the implementing agencies for these schemes	Implementing agency for these schemes is the Central government.
For these scheme funding is pre-determined and shared between centre government and state government.	Funding for these schemes is completely done by Central government.
Ex. MGNREGA, National Social Assistance Programme, PM Krishi Sinchai Yojan	Ex. Mudra Yojana, Bharat Net etc.

About Pradhan Mantri Awas Yojana (Urban) Programme:

1. It is a centrally sponsored/Sector scheme for urban housing.
2. It was launched by the Ministry of Housing and Urban Poverty Alleviation (MoHUPA).



3. **Vision** of the scheme is **Housing for All by 2022**, when the Nation completes 75 years of its Independence.
4. Beneficiaries (who can take benefits under the scheme) of the scheme are **Economically weaker section (EWS), low-income groups (LIGs) and Middle-Income Groups (MIGs)**.
5. **Full mission** will be implemented as **Centrally Sponsored Scheme (CSS)** except a **component of credit linked subsidy** which will be implemented as a **Central Sector Scheme**.
6. The mission tries to fulfil the housing requirements of urban poor including slum dwellers through following programmes:
 - **Participation of private developers** using land as a resource to provide **rehabilitation** to slum dwellers.
 - **Credit linked subsidy** to promote **affordable housing for weaker section**.
 - **Partnership with Public & Private sectors for investment** in affordable Housing in urban areas.
 - **Subsidy for individual house** construction /enhancement **depending** upon the **type of beneficiary**.
 - The scheme **aims to construct more than 2 crore houses** across the length and breadth of the **nation**.
 - Government **provide subsidy ranging between 1 lakh to 2.30 lakh** to people from **poor section** in order to make them secure.
 - The **government will provide an interest subsidy of 6.5% on housing loans** to beneficiaries **for a period of 15 years** from the start of loan.
 - The **scheme also empowers women**, as under this yojana the **ownership of the house** would be **allotted to preferably the female member of the family**.
 - It covers the **entire urban area** consisting of **4041 towns** with **initial focus on 500 cities**.

Phases of the Mission:

It has been implemented in phased manner as under: 3 Phases

Phase	1 st	2 nd	3 rd
Year	April 2015-March 2017	April 2017-March 2019	April 2019-March 2022
Coverage	to cover 100 Cities selected from States/UTs as per their willingness	to cover additional 200 Cities	to cover all other remaining Cities



Significance of the continuance of the scheme:

1. Scheme will **help in providing better quality of life to urban poor** by providing them affordable houses.
2. It will **improve the physical and social infrastructure** of the country.
3. Scheme will **help in empowering women by providing them ownership** of house.

Issues /Challenges associate with the scheme:

1. **The Credit Linked subsidy scheme (CLSS)** component of the scheme offers **lower interest rate on housing loans** to the Economically Weaker Section (EWS), low and middle-income groups.
 - But that **amount is insufficient for private housing** in major urban centres.
2. The **government-driven EWS projects** are **mainly located on** the outer of the cities, far away from the city's key economic centres.
 - These **places have lack of transport connectivity and other infrastructure facilities.**

Slum redevelopment and EWS projects have made little progress for a lack of private sector interest.

Way Forward:

1. Government should adopt **new construction technologies**, which are **adaptable, sustainable and low cost**, can be used for creating **large-scale affordable housing** at a rapid pace and reach out to a larger audience.
2. It is **important to bring necessary changes in land-use policies** at the state level, so that **adequate supply of land can be maintained.**
3. PMAY must be **made accessible and affordable to more people.**
4. There should be **increased awareness about the scheme so that more and more people can take benefits of the scheme.**

2.5

PRADHAN MANTRI MATSYA SAMPADA YOJANA (PMMSY).

Why in News?

In **September 2022**, the **2nd anniversary of PMMSY** has been celebrated.

About PMMSY:

1. It is a **flagship scheme for focused and sustainable development** of the fisheries sector.
2. It was **launched as a part of Aatmanirbhar Bharat package.**
3. PMMSY aims to **bring blue revolution through sustainable development of the fisheries sector in India.**
4. PMMSY will **help in doubling the income of fishers and fish farmers by reducing post-harvest losses** from 20-25% to 10%.
5. PMMSY will also **help in the generation of gainful employment opportunities in the sector.**
6. There will be a **well-structured implementation framework for the effective planning and implementation** of PMMSY.
7. The **government will follow 'Cluster or area-based approach' with proper forward and backward linkages.** (supply & demand)



8. It is **implemented as an umbrella scheme** with 2 separate components namely
 - **Central Sector Scheme:** The expenditure on the project will be borne by Central government. (i.e., 100% GoI Funding).
 - **Centrally Sponsored Scheme:** The scheme will be implemented by the States/UTs and the cost will be shared between Centre and State in a proportion as:
 - **North Eastern & Himalayan States:** 90% Central share and 10% State share.
 - **Other States:** 60% Central share and 40% State share.

🐟 Status of Fisheries Sector in India:

1. The fisheries sector has been **recognized as a powerful income and employment generator.**
2. Fishery sector **plays an important role in the socio-economic development of the country.**
3. India is the **3rd largest fish producing and 2nd largest aquaculture nation** in the world after China.
4. From 2019–20 to 2021–2022, the Fisheries sector had an **incredible growth of 14.3%.**
5. The **Blue Revolution in India** recognized the importance of the Fisheries and Aquaculture sector.
6. It is **considered as a sunrise sector.**

2.6 INNER PARTY DEMOCRACY

Why in News?

On 5th August 2022, Boris Johnson (Former UK's Prime Minister) has been removed as the leader of the British Conservative Party by its **Members of Parliament (MPs).**

- This incident has raised the issue in India also to seriously think on empowering its elected representative's (like MPs, MLAs) so that they can ensure accountability (make them answerable and responsible) of their party leadership.

What is Inner Party Democracy?

Taking the decisions on the basis of consensus of it's members in a political party is called Inner Party Democracy.

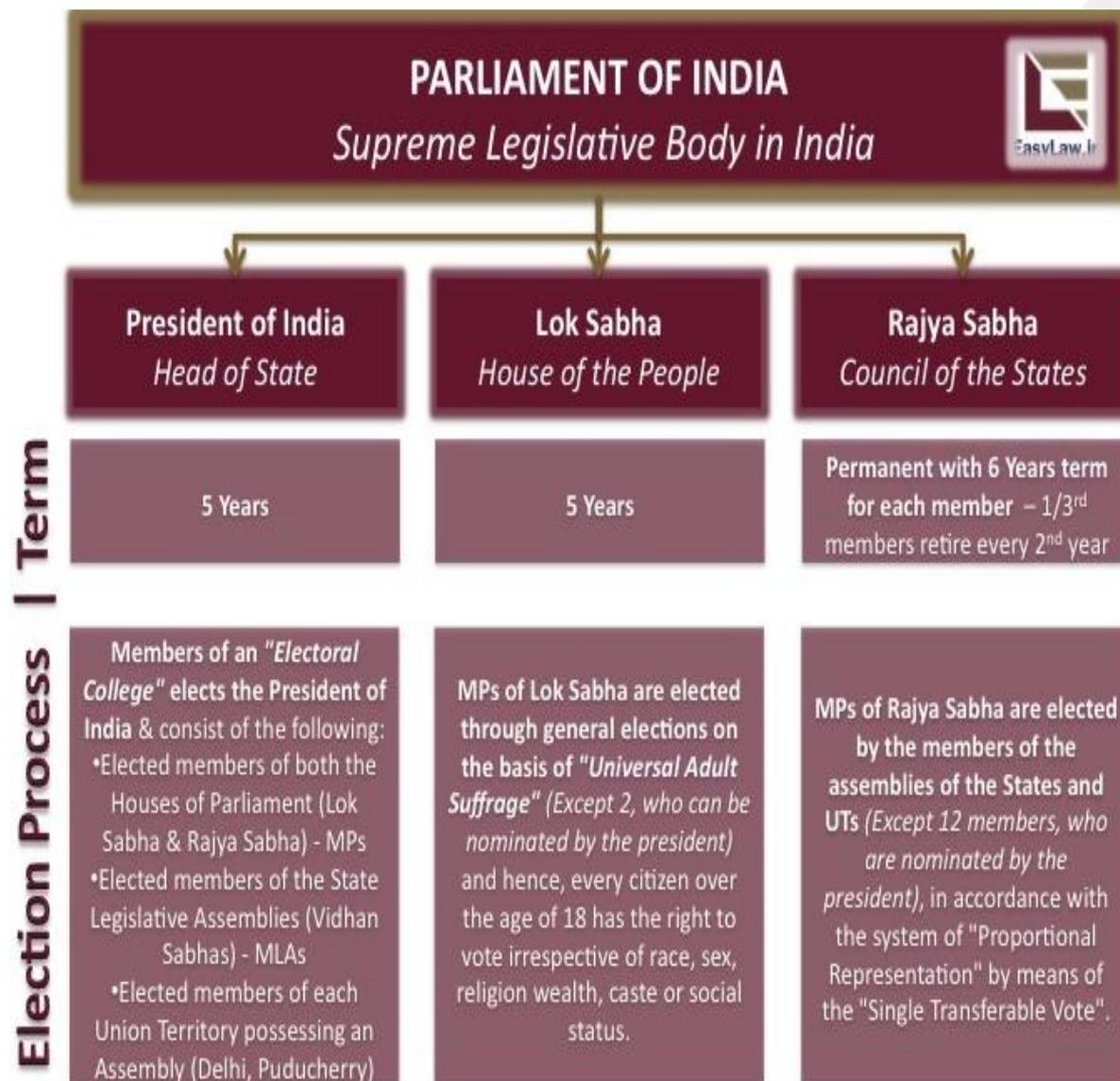
How are Members of Parliament elected in the United Kingdom?

- 1) To become an MP from a political party, a candidate must take a permission from the party's nominating officer and then he must win the most votes in his constituency.
- 2) The UK is divided into 650 areas called constituencies.
- 3) During an election, public votes for the candidate of their choice.
- 4) The candidate who gets the most votes becomes the MP from that area until the next election. If an MP dies or resigns, a by-election is held in that constituency to find a new MP for that area.
- 5) General elections happen every 5 years.



How are Members of Parliament elected in India?

Parliament of India consists of 2 houses: Lok Sabha and Rajya Sabha.



What Powers does an MP have in the UK against the Prime Minister?

- 1) A Prime Minister has to maintain the confidence of his ministers at all time to run a stable government.
- 2) If there is a doubt that the leader is no longer acceptable to the country, then a well-structured body in the party come into action to protect the party's electoral gains (seats win by the party) by providing new leadership.
 - 3) Individual MPs can write to their party Committee (which includes senior MPs) expressing that they have "no confidence" in their leader.
 - 4) If 15% of the party MPs writes to the committee then the leader will be forced to get the fresh support from his parliamentary party.



What Powers does an MP have in India against the Prime Minister?

- 1) A No-Confidence-Motion is a parliamentary motion which is moved in the Lok Sabha against the entire **Council Of Ministers (COM)**, stating that the present COM is not fit to run the government.
- 2) **Article 75 of the Indian constitution** says that ‘the Council of Ministers shall be **collectively responsible to the Lok Sabha**’.
- 3) No reason needs to be mentioned for the adoption of No-Confidence Motion.
- 4) If the motion is passed in the house, the Government has to vacate the office.
- 5) A no-confidence motion can be passed by majority vote in the House. If MPs or the parties absents from voting then those numbers will be removed from the overall strength of the House and then the majority will be taken into account.

What can be considered as barrier to MPs Liberty in India?

Anti-Defection Law(1985):

- 1) The anti-defection law applies when an MP or a MLA leaves his or her party or doesn't obey his party.
- 2) Parliament added it to the Constitution as the 10th Schedule in 1985. Its purpose was to bring stability in the governments by discouraging MPs or MLAs from changing parties regularly.
- 3) However, this law will not apply if defection is done by 1/3 of the elected MPs or MLAs of that party in the house.
- 4) This law does not apply on political parties for encouraging or accepting defecting MPs or MLAs.
- 5) The members disqualified under the law can contest elections from any political party for a seat in the same House also.
- 6) The decision on questions as to disqualification on ground of defection are taken by the **Chairman or the Speaker** of such House.

Conclusion:

So, we need to find a system where a balance can be made between the Liberty of Representatives to make their leaders Accountable and stability of Govts. If we focus only on any 1 of the above then it will not be in the Interest of the Democracy or the Development of the country.

2.7

INDIA'S COVID 19 PROCUREMENT: CHALLENGES, INNOVATIONS AND LESSONS

Why in News?

Recently, the World Bank has released a report titled “India’s Covid-19 procurement: challenges, innovations, and lessons”, saying India managed to get many things right in its management of the pandemic.

What are the Findings?



1. **At Global level:** The health systems of most countries, including those rated high on the Global Health Security Index, **faced new challenges in responding to the pandemic.**
2. **Indian Initiatives:**
 - a) India managed to provide efficient **distribution of medical supplies nationwide, put in early restrictions and also created empowered inter-ministerial groups to achieve procurement decisions during emergencies.**
 - b) India managed to scale up from **18 to over 2,500 testing laboratories rapidly within a span of 4 months** and became ready to face future pandemics and health emergencies that pose serious challenges for global supply chains.
 - c) India also **created a favourable environment for the growth of indigenous medical devices industry.**
 - d) Before the Covid-19 pandemic, **India was mostly importing ventilators** but 25 manufacturers including several newcomers came forward to produce ventilators with limited financial and infrastructure capacity.
 - e) The government **made use of several automobile and electrical manufacturing companies** to handhold these new entrepreneurs to produce ventilators.

Additional Information:

About the World Bank

1. It was created in **1944, as the International Bank for Reconstruction and Development (IBRD) along with the International Monetary Fund (IMF).** The IBRD later became the **World Bank.**
2. The **World Bank Group** is a unique global partnership of **5 institutions** working for sustainable solutions to reduce poverty and build shared prosperity in developing countries.
3. **Members:**
 - a) It has **189 member countries.**
 - b) **India is also a member country.**
4. **Major reports:**
 - a) Ease of Doing Business (Stopped publishing recently).
 - b) Human Capital Index.
 - c) World Development Report.
5. **Its Five development institutions are:**
 - a. International Bank for Reconstruction and Development (IBRD)
 - b. International Development Association (IDA)
 - c. International Finance Corporation (IFC).
 - d. Multilateral Guarantee Agency (MIGA)
 - e. International Centre for the Settlement of Investment Disputes (ICSID) and India is not a member of this.

2.8

HEALTHCARE SECTOR IN INDIA

Why in News?

As per the recent study, Healthcare sector has become more focused on innovation and technology over the past 2 years and 80% of healthcare systems are aiming to increase their investment in digital healthcare tools in the coming 5 years.



Scenario of the Healthcare Sector in India:

1. Healthcare industry comprises **hospitals, medical devices, clinical trials, outsourcing, telemedicine, medical tourism, health insurance, medical equipment** etc.
2. India's healthcare delivery system can be categorised into 2 major components - **Public and Private**.
 - a) The government (public healthcare system) includes **limited secondary and tertiary care institutions** in key cities and focuses on providing basic healthcare facilities in the form of **Primary Healthcare Centres (PHCs)** in rural areas.
 - b) The private sector provides a **majority of secondary, tertiary, and quaternary care institutions** with major concentration in metros, **tier-I and tier-II cities**.
3. **Market Statistics:**
 - a) The Indian healthcare sector is expected to record a **3-fold rise, growing at a CAGR (Compound Annual Growth Rate) of 22% between 2016–22 to reach USD 372 billion in 2022 from USD 110 billion in 2016**.
 - b) In the **Economic Survey of 2022**, India's **public expenditure** on healthcare stood at **2.1% of GDP in 2021-22 against 1.8% in 2020-21 and 1.3% in 2019-20**.
 - c) The Indian **medical tourism market** was valued at **USD 2.89 billion in 2020 and is expected to reach USD 13.42 billion by 2026**. **Telemedicine** is also expected to reach **USD 5.5 billion by 2025**.

Challenges with the Health Sector in India are:

- 1) **Inadequate access to basic healthcare services such as shortage of medical professionals, a lack of quality assurance, insufficient health spending, and insufficient research funding are the biggest concerns.**
- 2) **India's public expenditure on healthcare is only 2.1% of GDP in 2021-22 while Japan, Canada and France spend about 10% of their GDP on public healthcare. Even neighbouring countries like Bangladesh and Pakistan have over 3% of their GDP going towards the public healthcare system.**
- 3) Preventive care is **undervalued in India**, despite the fact that it has been shown to be quite beneficial for the patients in terms of unhappiness and financial losses.
- 4) In India, R&D and cutting-edge **technology-led new projects receive little attention**.
- 5) Policymaking is crucial in providing effective and efficient healthcare services. In India, the issue is of supply rather than demand, and policymaking can help.
- 6) In India, **there is a shortage of doctors, nurses, and other healthcare professionals**.

Way Forward:

1. There is an **urgent need to improve the infrastructure of public hospitals**, which are overburdened as a result of India's large population.
2. The government **should encourage private hospitals** because they make a significant contribution and the difficulties are severe and cannot be tackled just by the government, the **private sector must also engage**.

To improve the sector's capabilities and efficiency, **more medical personnel must be inducted**.



2.9

QUALITY COUNCIL OF INDIA

Why in News?

Recently, the Quality Council of India (QCI) has completed 25 years of its existence.

1. On this occasion, the QCI has launched a campaign, 'Gunvatta Se Atmanirbharta: India's Quality Movement'.
2. It has been launched to create awareness about India's landmark achievements and inform people about the initiatives to enhance the quality of life of all citizens.

About the Quality Council of India (QCI):

1. Quality Council of India (QCI) was established as a national body for 'Accreditation' (certification of quality) in 1996.
2. It's a non-profit organization registered under the Societies Registration Act XXI of 1860.
3. Nodal department of the QCI is the Department of Industrial Policy and Promotion under the Ministry of Commerce and Industry.
4. It was set up as an independent autonomous organization with the support of Government of India and the Indian Industry represented by the 3 premier industry associations and these are:
 - a) Associated Chambers of Commerce and Industry of India (ASSOCHAM)
 - b) Confederation of Indian Industry (CII)
 - c) Federation of Indian Chambers of Commerce and Industry (FICCI)
5. It is governed by a Council of 38 members with equal representation of government, industry and consumers.
6. Chairman of QCI is appointed by the Prime Minister on the recommendation of the Industry.

About the Objective of the QCI?

1. To create a mechanism for independent 3rd party assessment of products, services, and processes.
2. It plays an important role at the national level in propagating, adoption and adherence to the quality standards in all important spheres of activities including education, healthcare, environmental protection, governance, social sectors, infrastructure sector and such other areas of organized activities that have significant role in improving the quality of life and wellbeing of the citizens of India.

So, How QCI has contributed in Quality improvement in India?

1. Transformation in the Coal Sector:
 - a) QCI has brought quality consciousness into the entire coal ecosystem and this initiative of QCI has been in the spirit of national service because it has transformed the way the coal industry perceived quality.
 - b) Once QCI stepped in and started undertaking initiatives like 3rd party sampling of coal then there was a transformative improvement in the quality .
2. Collaboration with FCI:



- a) **Food Corporation of India's (FCI)** collaboration with the QCI has led to **improvement of quality** which has resulted in better quality food grains reaching consumers who were mostly underprivileged.
- b) The process of distribution of these food grains has now become completely technologically enabled using biometrics and under '**One Nation One Ration Card (ONORC)**', beneficiaries can pick up their food grains from anywhere in the nation.
- 3. One District One Product (ODOP) Initiative:**
- a) QCI has also played an important role in the **One District One Product (ODOP)** initiative to encourage products from remote areas to find markets in India and the abroad.
- b) QCI had also contributed significantly in the GI tagging initiative and in completing the '**Swachh Surveykshan**'.

☞ Some of the key achievements of QCI are:

1. Measuring the number of toilets built under the **Swachh Bharat Mission**.
2. The quality of electricity delivered in villages.
3. Houses constructed under **PM Awas Yojana**.
4. Gas cylinders delivery under **Ujjwala yojana**.

2.10

PM SHRI SCHOOLS

Why in News?

On the occasion of Teacher's Day (5th September), the Prime Minister of India announced a new initiative with the name '**PM SHRI Schools**' (PM Schools for Rising India).

☞ Why is Teacher's Day celebrated in India?

1. Teacher's Day is celebrated every year, since 1962, on September 5, to recognise and celebrate the **works of educators including teachers, researchers and professors in India**.
2. After **Dr Sarvepalli Radhakrishnan** became the President of India in 1962, some students sought permission from him to celebrate his birthday. Dr Radhakrishnan, however, did not approve any fancy celebration but rather requested that the day be observed as '**Teachers' Day**'.
3. **Dr. S. Radhakrishnan** was born into a **Telugu family in Tiruttani town of Tamil Nadu, on September 5, 1888**.
4. He studied **philosophy** at the **Christian College, Madras**.



5. After completing his degree, he became a **Professor of Philosophy at Madras Presidency College** and then subsequently **Professor of Philosophy at the University of Mysore**.
6. He served as the **first Vice-President of India** from 1952 to 1962 and the **second President of India** from 1962 to 1967.
7. He was also the **Ambassador of India to the Soviet Union** from 1949 to 1952.
8. He also served as the 4th **Vice-Chancellor of Banaras Hindu University (BHU)** from 1939 to 1948.
9. In 1984, he was **posthumously (after death) awarded 'Bharat Ratna'**.
10. On the occasion of **Teacher's Day (5th September)**, the **President of India** conferred the **'National Teachers Awards 2022'** to 45 exceptional teachers from **across India**.

➤ About the 'Pradhan Mantri Schools for Rising India (PM-SHRI) Yojana':

1. It is a **centrally sponsored scheme** for the **upgradation and development of more than 14,500 Schools** across the country.
2. It aims at **strengthening the selected existing schools** from amongst schools **managed by Central Government/ State/ UT Governments/ local bodies**.
3. It will adopt all the components of the **'National Education Policy 2020'**.
4. The aim of these schools will not only be qualitative teaching, learning and cognitive development, **but also creating holistic and well-rounded individuals** equipped with key 21st century skills.
5. Focus will be on **achieving proficiency in learning outcomes** of every child in every grade.
6. These schools will be equipped with **modern infrastructure including labs, smart classrooms, libraries, sports equipments, art room etc.** which will be **inclusive and accessible**.
7. These schools will be developed as **green schools** with **water conservation, waste recycling, energy-efficient infrastructure and integration of organic lifestyle** in curriculum.



3.

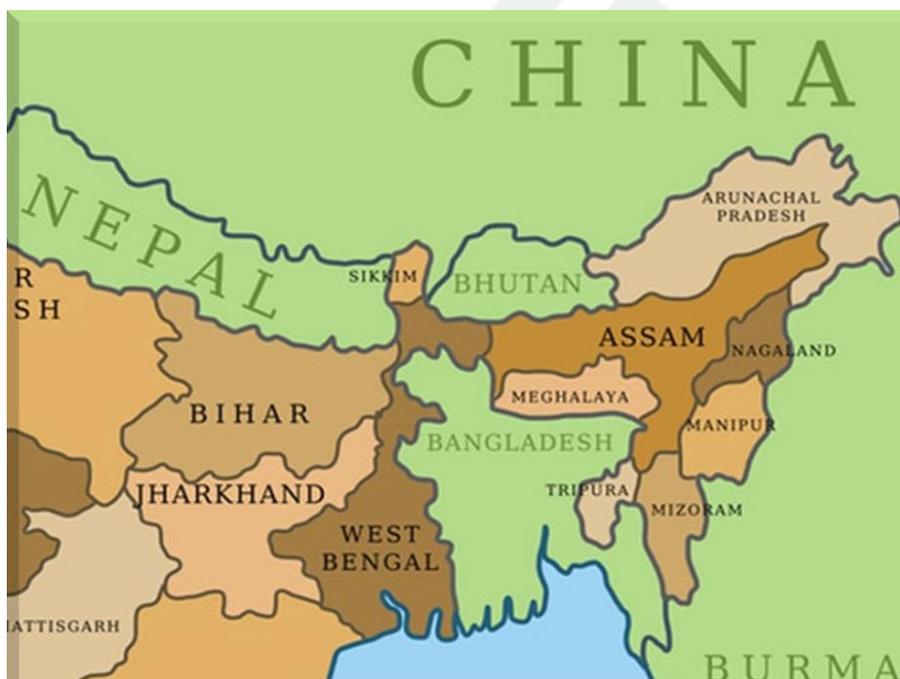
INTERNATIONAL RELATIONS

3.1 INDIA-BANGLADESH AGREEMENTS

Why in News?

Recently, the PM of Bangladesh visited India and held talks with Indian PM.

1. India and Bangladesh have signed 7 agreements for cooperation in many areas ranging from **sharing of river waters** to space.



Key Highlights of the Meeting are:

1. The 2 sides have signed 7 Memorandum of Understanding (MoUs), which includes: The withdrawal of water from the cross-border **Kushiyara river**. The agreement will **benefit southern Assam** in India and the **Sylhet region** of Bangladesh.
2. Cooperation in **space technology** and collaboration on **Information Technology** systems used by **railways** in areas such as **movement of freight**.
3. Training of **Bangladesh Railway personnel** and **Bangladeshi judicial officers** in India and cooperation in broadcasting between **Prasar Bharati** and **Bangladesh Television**.
4. The 2 nations unveiled the 1st unit of the '**Maitree super thermal power project**' being built in **Khulna division** of Bangladesh with **concessional funding** from India and the unit was **connected with Bangladesh power grid** in August 2022 and the project will **generate 1,320MW**, when completed fully.
5. **India will provide more loans to Bangladesh**. India has provided **concessional loans worth USD 9.5 billion** for development projects in Bangladesh, which includes:
 - a) Rail connectivity between **Khulna and Dhaka, Chilahati and Rajshah**.



- b) Connecting Mongla port with Darshana-Gede.
- c) **The Parbatipur-Kaunia rail project** to facilitate the transportation of fuel is being built at a cost of USD 120 million.
- d) Supply of **road construction equipment and machinery** worth USD 41 million to repair and maintain Bangladesh's road network.
6. In 2018, India has provided **USD 500 million defence Line of Credit (LoC)** to Bangladesh and will provide more LOC to Bangladesh for defence sector.
 - a) In May 2018, Defence public sector undertaking of Kolkata has signed a **Memorandum of Understanding** with Bangladesh to provide **assistance and know-how in the design and construction of warships**.
7. Bangladesh has shared a **wish list of military platforms and systems** that its armed forces would like to procure from India.

3.2

10th NON-PROLIFERATION TREATY REVIEW CONFERENCE

Why in News?

Recently, the **Non-Proliferation Treaty Review Conference** which was held in New York ended without any fruitful conclusion due to Russia's objection.

About the Nuclear Proliferation Treaty (NPT):

1. NPT is an **international treaty** whose objective is to **prevent the spread of nuclear weapons and weapons technology** and to promote the peaceful use of nuclear energy and to fulfil the goal of disarmament.
2. The treaty was **signed in 1968 and entered into force in 1970**. Presently, it has **191 member states**. India is not a member of NPT.
3. It requires **countries to give up any present or future plans to build nuclear weapons in return for access to peaceful use of nuclear energy**.
4. It represents the **only binding commitment in a multilateral treaty to the goal of disarmament by the nuclear-weapon States**.
5. Nuclear-weapon states under the NPT are defined as **those that manufactured and exploded a nuclear weapon or other nuclear explosive devices before 1st January, 1967**.
6. **India is 1 of the only 5 countries** that either have not signed the NPT or signed but **withdrew later**, thus becoming part of a list that includes **Pakistan, Israel, North Korea and South Sudan**.
7. India has always considered the NPT as **discriminatory and has refused to sign it**.
8. India has **opposed the international treaties** which are aimed at non-proliferation since they are **selectively applicable to the non-nuclear powers and legitimised the monopoly of the 5 nuclear weapons powers**.

Concerns arising out of Russia's disagreement are:

1. The **occupation of the 'Zaporizhzhia nuclear plant'** by Russia in south-eastern Ukraine as well as the **takeover of the 'Chernobyl nuclear plant'** renewed global fears of **another nuclear emergency**.
2. The **threat of nuclear weapons today is higher than at any time since the heights of the Cold War**.
3. This NPT conference represents a **missed opportunity to strengthen the treaty and global security by agreeing to a specific action plan with benchmarks and**



timeframes to effectively address the growing dangers of nuclear arms race and nuclear weapons use.

3.3

ICAO JOINS INTERNATIONAL SOLAR ALLIANCE

Why in News?

Recently, the 'International Civil Aviation Organization' (ICAO) signed a Memorandum of Understanding (MoU) with the 'International Solar Alliance' (ISA) during the 42nd session of ICAO Assembly in Montreal, Canada.

1. Cochin International Airport of India became the world's 1st fully solar powered airport in 2015.

About the MoU:

1. The MoU carries forward the agenda of ISA.
2. The event marks a new beginning for solar energy use in the global civil aviation sector.
3. It will enable the **solarization of the aviation sector** across all member states of ISA.
4. It aims to check the growth of CO₂ emissions in the **Aviation sector**, leading to India's **Net Zero Targets**.

So, what is the India's 'Net Zero' Target?

1. India has pledged for Net Zero Carbon goal by 2070 in Conference of Parties (COP) 26.
2. India has also pledged a target of installing 175 GW of renewable energy of which 100 GW will be solar energy by 2022 and reduction in emission intensity by 33-35% by 2030.

Additional Information:

International Solar Alliance (ISA)

1. It was co-founded by India and France during 2015.
2. The ISA is an action-oriented, member-driven, collaborative platform for increased deployment of **solar energy** technologies.
3. It's basic motive is to **facilitate energy access, ensure energy security** in its member countries.
4. ISA is the nodal agency for implementing '**One Sun One World One Grid' (OSOWOG)**, which seeks to transfer solar power generated in one region to feed the electricity demands of others.
5. The Headquarter of ISA is in India with its Interim Secretariat being set up in Gurugram.
6. A total of 109 countries have signed the ISA framework agreement and 90 have ratified it.
7. All member states of the **United Nations** are eligible to join the ISA.

About International Civil Aviation Organisation (ICAO)

1. ICAO is a United Nations (UN) specialized agency which was established in 1944, which laid the foundation for the standards and procedures for peaceful global air navigation.



2. The 'Convention on International Civil Aviation' was signed on 7th December 1944 in Chicago which is commonly known as the 'Chicago Convention'.
3. India is among its 193 members.
4. It is headquartered in Montreal, Canada.

3.4 G20 EDUCATION MINISTER'S MEETING

Why in News?

Recently, the Minister of Education has taken part in G-20 Education Ministers' meeting in Bali, Indonesia.

1. Theme: Recovery, Re-imagine and Rebuild Stronger.
2. The G20 presidency is scheduled to move from Indonesia to India in December 2022.

Key Highlights of the meeting

1. It emphasized on the importance of sharing mutual experiences & working together to create a new world in which education remains the focus point for addressing all common challenges.
2. The National Education Policy 2020, based on the foundational principles of access, equity, quality, affordability and accountability is India's guiding light for promoting lifelong learning opportunities and achieving the shared vision of G20.
3. India highlighted its commitment towards building a more resilient and inclusive education and skilling ecosystem and realising the creative potential of each learner through the implementation of NEP 2020.
4. India is giving special emphasis on formalizing early childhood care & education, supporting differently-abled children.

About G20

1. It is a group of 19 countries and the European Union (EU) which was founded in 1999, with representatives of the International Monetary Fund and the World Bank.
2. Its members are: Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, Republic of Korea, Mexico, Russia, Saudi Arabia, South Africa, Turkey, the United Kingdom, the United States and the EU.
3. The membership comprises a mix of the world's largest advanced and emerging economies, representing about 2/3 of the world's population.
4. The G20 holds a strategic role in securing future global economic growth and prosperity.
5. Together, the G20 members represent more than 80% of world's GDP, 75% of international trade and 60% of the world population.
6. The G-20 has no fixed headquarters, and the secretariat moves by rotation between the countries hosting or assuming presidency of the grouping each year.
7. The members are divided into 5 groups (India is in Group 2, along with Russia, South Africa and Turkey).

3.5 IMF BAILOUT TO SRI LANKA

Why in News?



Recently, the International Monetary Fund (IMF) approved a preliminary agreement with Sri Lanka on a 4 year, USD 2.9 billion bailout package which is aimed at restoring economic stability and debt sustainability.

✎ About the bailout package offered to Sri Lanka:

1. The **Economic Crisis** of Sri Lanka with **USD 51 billion debt** was caused due to various reasons:
 - a) The **Easter bomb blasts of April 2019** in churches in Colombo leads to withdrawn of Investment from the country.
 - b) The government's policy of **lower tax rates and wide-ranging subsidies for farmers** during their election campaign.
 - c) The **Covid-19 pandemic in 2020** impacted **exports of tea, rubber, spices, garments and the tourism sector**.
2. The IMF package will be given to Sri Lanka in instalments over the next 4 years, which is less than what India has provided to Sri Lanka over the period of 4 months.
3. It boosts the receiving country's credit ratings and the confidence of international creditors and investors.

✎ What are the measures taken by Sri Lanka to improve its Economy?

1. The country's budget aimed at increasing revenue to 15% of GDP by 2025 from 8.2% at the end of 2021 by reducing public debt.
2. An increase in VAT from 12 to 15%, and compulsory tax registration for everyone aged 18 years and older in order to widen personal income tax collections.
3. Almost 50 state-owned companies are listed for privatisation.
4. The age of retirement in government and semi-government organisations has been brought down to 60 from 65 and 62.
5. Staff and depositors are to be offered a 20% shareholding in state banks to address recapitalization requirements arising out of non-repayment of loans due to the economic meltdown.

✎ Additional Information:

About International Monetary Fund (IMF)

1. It's an international organization that promotes global economic growth and financial stability, encourages international trade, and reduces poverty.
2. IMF is the major financial agency of the **United Nations** which is headquartered in **Washington, D.C.**
3. IMF has a total of **190 countries**.
4. It was **formed in 1944**.
5. When a country borrows from the IMF, its government agrees to adjust its economic policies to overcome the problems that led it to seek financial aid.



CHINA PAKISTAN ECONOMIC CORRIDOR (CPEC)

✎ Why in News?



Recently, China and Pakistan have decided to invite interested countries to join the CPEC project. Both are also planning to expand CPEC project to Afghanistan.

✎ About CPEC Project:

1. It's a 3,000 km long route of infrastructure projects connecting Pakistan's Gwadar port in Balochistan province to China's North-Western Xinjiang region.
2. CPEC is the part of China's 'Belt and Road Initiative' (BRI).
3. India has repeatedly registered its protests over the CPEC.

✎ About BRI (Belt and Road Initiative) :

- 1) It is a transcontinental (passes through many continents) policy and investment program which aims for infrastructure development and increase in the economic connection of the 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) It 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 1/3 of the world's GDP and almost 2/3 of the world's population.
- 5) BRI includes 2 components: 1) The Silk Road Economic Belt (its land based route) 2) 21st Century Maritime Silk Road (its water based route).

✎ What are the India's objections over the CPEC ?

1. **Violating India's Sovereignty and Territorial Integrity:** CPEC passes through the parts of the Union Territories of Jammu & Kashmir and Ladakh which are under illegal occupation of Pakistan.
2. **Encircling India:** Many experts believes that the aim of China and Pakistan through the CPEC is to encircle India.
3. **Lack of transparency:** There are also the fears that the inability to repay loans will provide the way for Chinese interference in the internal affairs of defaulting countries as it has done in Sri Lanka.
4. **Possible security threats:** Those parts of the roads built within the project can work as a safe corridor for the Terrorists.

✎ What is India's overall approach to the China's BRI ?

1. **Active cooperation with other international partners** to develop an alternative to BRI. For Eg: Through Asia-Africa Growth Corridor (AAGC), India and Japan is offering rules based alternative to the BRI.
2. India is cooperating with the US, Japan and Australia through the Quadrilateral Security Dialogue (Quad) to counter China's rise in the region.
3. India is increasing the regional cooperation with countries such as the Bangladesh, Bhutan, Nepal etc and promoting its 'Neighbourhood First' Policy.

✎ Why India's stand on BRI projects matters to China?





1. India as an **immediate neighbour** and an important player in the region remains very relevant to Chinese neighbourhood policy.
2. To **make BRI more popular**, China needs India with him on this project.
3. There are **5 priority areas of the BRI** namely: 1) Policy coordination 2) Increasing connectivity 3) Unrestricted trade 4) Financial connection 5) People-to-people connection and **all these can be better achieved at various levels with the Indian cooperation only.**
4. **Indian market is attracting China more than ever. So, involving India in the BRI can give him more access to the Indian market.**

Conclusion

1. India is of the view that **connectivity projects must be based on international laws.**
2. These projects **must follow the principles of transparency(openness) and financial responsibility** and must be done in a manner that **respects sovereignty, equality and territorial integrity of other nations.**

3.7) QUAD GROUPINGS

Why in News?

In September 2022, Foreign Ministers of the **Quad (India, the U.S., Australia, and Japan)** have met.

About QUAD

1. It is an **informal group** of India, US, Japan and Australia.
2. QUAD is also known as **Quadrilateral Security Dialogue (QSD).**
3. Its **objective is to ensure a free, open, inclusive and prosperous Indo Pacific.**
4. Shared values between the nations are:
 - Political democracies
 - Market economies
 - Pluralistic societies

Backdrop of QUAD Formation:

1. India China Standoff
2. Rising Chinese Influence in pacific region
3. Chinese claim over Nine-Dash Line and ignorance of International Court of Arbitration Verdict
4. China's Imperialistic attitude toward Taiwan

Challenges before QUAD:

1. China is **constantly showing its displeasure over the QUAD meetings.**
2. It is **being termed as Asian NATO.**
3. **China is trying to strengthen its position in Trade and Commerce** to affect other nations especially China and Japan.
4. China often **threatens Japanese electronics industry to stop the supply of rare earth metals.**



5. The **Corona pandemic** also affected the **Global supply chain badly** due to lockdown in China.
6. **Different Aspirations of QUAD Nations and lack of coherency** is also one of the major issues.

Way Forward:

1. All 4 countries of QUAD **must pool their resources and should work with a unified approach** to control the growing economic influence of China.
2. The **formalisation of the group** may also help to give QUAD a more structured format.

3.8 FUTURE OF COMMONWEALTH

Why in News?

The death of **Queen Elizabeth II** marks **not only the end of an era for the British monarchy but also a turning point for future course of the Commonwealth** nations.

What is Commonwealth of Nations?

1. **Commonwealth nations** also known as the '**Commonwealth**' and it's a political organisation of **56 countries**.
2. **It's Headquarter is located in London.**
3. It was originally created as the **British Commonwealth of Nations** through the '**Balfour Declaration of 1926**'.
4. The current commonwealth of nations was formally started by the **London Declaration in 1949** with the theme "**free and equal**".
5. Majority of the countries in the organisation are **former territories of the British Empire**.
6. The chief institutions of the organisation are the two: 1) **Commonwealth Secretariat**, which focuses on **intergovernmental relations** between the member states 2) **Commonwealth Foundation**, which focuses on **non-governmental relations** among the member states.
7. Currently the **head of the organisation is Queen Elizabeth II**.
8. The 2018 commonwealth heads of government meeting appointed **Prince Charles to be the next head of the organisation**.
9. Member states have **no legal obligations to one another** but they are connected through their use of the English language and historical ties.
10. The '**Commonwealth Charter**' defines their shared values of **democracy, human rights and the rule of law**.
11. **India became its member in 1947.**

About Commonwealth Games:

1. Also known as the '**Friendly Games**'.
2. It's a **multi-sport event which is held once in every 4 years** in which the countries of the commonwealth takes participation.



3. The event was **1st held in 1930** and with the exception of 1942 and 1946 (cancelled due to World War 2) it had occurred after every 4 years.
4. Athletes with a **disability are included as full members** of their national teams since 2002, making the Commonwealth Games the 1st fully inclusive international sports event.
5. **2022 Commonwealth games are going on in Birmingham (Britain).**

What is the Commonwealth's Relevance in Today's World?

1. In the age of multilateral diplomacy, the **Commonwealth works as a forum where countries can express their opinion.**
2. The monarch is **only the symbolic head**, the leaders of the free world make the Commonwealth work.
3. Throughout her reign, **Queen Elizabeth played a critical role in championing the organisation, and it will continue to hold important place in world even after her death.**

What is the Future of Commonwealth?

1. There is **possibility that Australia, Newzealand, and the Bahamas will become Republics in future.**
2. Governments in **5 other Caribbean nations** such as **Antigua and Barbuda, Belize, Grenada, Jamaica and Saint Kitts and Nevis** have also shown **their intention to act with commonwealth.**

3.9

SHANGHAI COOPERATION ORGANISATION (SCO) SUMMIT 2022

Why in News?

The **Shanghai Cooperation Organisation (SCO)** summit 2022 was **held recently in Samarkand, Uzbekistan.**

- **Samarkand declaration** was **signed by the SCO member states.**
- **India** takes over **Presidency of the SCO for 2023.**

Shanghai Co-Operation Organization-Key Points:

1.	What it is?	<ol style="list-style-type: none"> 1. SCO is a permanent intergovernmental international organization. 2. It's a Eurasian political, economic and military organization aiming to maintain peace, security and stability in the region. It was created in 2001. 3. The SCO Charter was signed in 2002, and entered into force in 2003.
2.	Formation	<ol style="list-style-type: none"> 1. Before the creation of SCO in 2001, Kazakhstan, China, Kyrgyzstan, Russia and Tajikistan were members of the Shanghai Five.



		<ol style="list-style-type: none"> 2. Shanghai Five (1996) emerged from a series of border demarcation and demilitarization talks which the four former Soviet republics held with China to ensure stability along the borders. 3. Following the accession of Uzbekistan to the organization in 2001, the Shanghai Five was renamed the SCO. 4. India and Pakistan became members in 2017. 5. In September, 2021, it was announced that Iran would become a full member of the SCO.
3.	Objectives	<ol style="list-style-type: none"> 1. Strengthening mutual trust and neighborliness among the member states. 2. Promoting effective cooperation in -politics, trade & economy, research & technology and culture. 3. Enhancing ties in education, energy, transport, tourism, environmental protection, etc. 4. Maintain and ensure peace, security and stability in the region. 5. Establishment of a democratic, fair and rational new international political & economic order.
4.	Structure	<ol style="list-style-type: none"> 1. Heads of State Council – The supreme SCO body which decides its internal functioning and its interaction with other States & international organizations, and considers international issues. 2. Heads of Government Council – Approves the budget, considers and decides upon issues related to economic spheres of interaction within SCO. 3. Council of Ministers of Foreign Affairs – Considers issues related to day-to-day activities. 4. Regional Anti-Terrorist Structure (RATS) – Established to combat terrorism, separatism and extremism.
5.	Membership	Kazakhstan, China, Kyrgyzstan, Russia, Tajikistan, Uzbekistan, India, Pakistan and Iran.

What are the Key Highlights of the Summit?

1. Summit emphasizes on the peaceful settlement of differences and disputes between countries through dialogue and consultation”.
2. They stress that the principles of mutual respect for sovereignty, independence, territorial integrity of States, equality, mutual benefit, are the basis for sustainable development of international relations.
3. Plan to develop common approaches and **unified list of terrorists, with the help of member countries.**
4. **Separatist and extremist organizations** whose activities are prohibited on the territories of the SCO member states.
5. Russia is also looking at **more customers for its gas.**
6. Russia suggested that the organisation should think about holding its own big physical event.

3.10

CHINA OBJECTS INDO-US MILITARY DRILL NEAR LAC



Why in News?

In September 2022, **China opposed the military drill between India and the US near the disputed LAC**, saying it's an **interference in the bilateral boundary issue**.

What is Line of Actual Control (LAC)?

1. It's an **imaginary line that separates Indian-controlled territory from the Chinese-controlled territory**.
2. LAC is different from the **Line of Control (LoC) with Pakistan**:
3. The **LoC was agreed in 1972 after the Shimla Agreement between India and Pakistan. It is delineated(drawn) on the map**.
4. The **LAC on the other hand is only a concept. It is not agreed upon by the 2 countries, neither delineated on a map or demarcated(divided) on the ground**.
5. India considers the length of LAC to be **3,488 km long**, while the China consider it to be only around **2,000 km**.
6. **LAC is divided into 3 sectors and these are:**
 - **Eastern Sector:** It goes from Arunachal Pradesh to Sikkim (1346 km).
 - **Middle Sector:** It goes from Uttarakhand to Himachal Pradesh (545 km)
 - **Western Sector:** It runs after Himachal Pradesh till Ladakh (1597 km).
7. The LAC in the eastern sector is as per the **McMahon Line (1914)**.
8. The **McMahon line was drawn to separate the British India with Tibet**.
9. The **middle sector of the LAC is the least disputed sector, while the western sector witnesses the highest disputes between the 2 countries**.

Why Does China Oppose the Military Drill near LAC?

1. China says both countries have agreed that **no military drill will be held near the LAC**.
2. China **named 2 agreements signed by India and China in 1993 and 1996, saying the exercise violates both**.
 - **1993 Agreement** on the Maintenance of Peace along the Line of Actual Control in the India-China Border Areas.
 - **1996 Agreement** on Confidence-Building Measures in the Military Field Along the LAC.

Why do such aggressive incidents keep happening over the LAC?

1. The biggest reason is that **LAC is not fully demarcated(divided)** and there are **differences in understanding** due to which such incidents keep happening.
2. To maintain peace and stability along the LAC, the **2 sides are regularly holding talks at various levels**.
3. Since the aggression began in **eastern Ladakh in May 2020**, both sides have deployed air assets along the LAC and also increased air defence.

What is the status of India-China recent conflicts?

1. In **June 2020, clash happened at Galwan Valley (located near Ladakh)** and it was fought with sticks not guns. It was the **1st face to face violent incident between the 2 sides since 1975**.



2. The most recent conflict was in **January 2021**. It took place along the border in India's **Sikkim state**, which is **between Bhutan and Nepal**.
3. Recently, the Chinese are **complaining about the Indian Air Force (IAF) upgrading its capabilities to detect Chinese Air Force aircraft's operating within the territory** controlled by them in the Tibet region.
4. The 2 sides have **resolved the 3 disputed areas in the eastern Ladakh**.
5. Both the countries have **conducted almost 16 rounds of commander-level talks to de-escalate the situation** and tensions which began after the Chinese tried to change the boundary on the LAC in 2020.

3.11 A ROADMAP FOR INDIA-EU TIES

Why in News?

While India celebrates its 75th year of Independence, it is also celebrating 60 years of its diplomatic relations with the European Union (EU).

About European Union (EU)

1. EU is a group of 27 European countries that functions as a unified economic and political group.
2. It was established in the year 1948.
3. "Euro" is the official currency of 19 of these countries.
4. While, Euro is not used by 8 EU members (Bulgaria, Croatia, the Czech Republic, Denmark, Hungary, Poland, Romania, Sweden).
5. EU was formed to create a unified European political and economic entity and to end centuries of warfare between European countries.
6. In 2012, the EU was awarded the Nobel Peace Prize for promoting the peace, democracy and human rights in Europe.

About India-EU relations:

1. 1962: India was one of the 1st country to establish relations with the European Union.
2. Cooperation agreement (1994): It was signed to define the relationship between India and the EU.
3. First India-EU Summit (2000): In this summit, the focus was on to increase the Bilateral Trade between India and EU.
4. 2004: The relation between 2 was upgraded to 'Strategic Partnership'.
5. Joint Action Plan (2005): It was made to enhance trade and investment and to bring people and cultures together.
6. 15th India-EU Summit (2020): It highlighted engagement across these areas:
 - a. Foreign policy and security cooperation
 - b. Trade and economy
 - c. Global governance
 - d. People-to-people relations.

Areas of cooperation:

1. **Bilateral trade:** Bilateral trade between the 2 surpassed \$116 billion in 2021-22. The EU is India's 2nd largest trading partner after the US.



2. Defence Cooperation:

- a. India and the EU regularly conducts joint military and naval exercises which reflects their commitment to a free, open, inclusive and rule-based order in the Indo-Pacific.
- b. France has delivered 36 Rafale fighter jets on time and is willing to offer 'Barracuda nuclear attack submarine' to the Indian Navy.
- c. Leading European defence equipment manufacturer are willing to partner with Indian companies in the 'Make in India' programme.

3. Free-Trade Agreement: India and the EU has launched talks to conclude Free Trade Agreement (FTA) very soon.

4. Start-up and innovation ecosystem:

- a. Science and Technology Joint Steering Committee between the 2 focuses on areas such as healthcare, Artificial Intelligence, and earth sciences.
- b. In 2020, there was an agreement for research and development cooperation in the peaceful use of nuclear energy between the European Atomic Energy Community and the Government of India.

Conclusion:

1. There is a difference of opinion between 2 on many issues but they should not let these differences in spoiling the relation.
2. India-EU free trade and investment agreement should be concluded as soon as possible.
3. European partners acknowledge India as an important pillar in ensuring stability in the Indo-Pacific region.
4. The EU wants India to be more than just a trading partner and is seeking alliances with like-minded countries like India.
5. Indian External Affairs Minister S. Jaishankar rightly said, " India and the EU are 2 political and economic poles in an increasingly multi-polar world"

3.12

ALTERNATIVES TO BELT AND ROAD INITIATIVE (RBI)

Why in news?

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

- 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. This Initiative was launched in 2021 by G7 countries.



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

About G7

- 1) Formed in the year 1975.
- 2) It's an informal forum (it's not bound by any agreement or treaty) of leading Industrialised nations.
- 3) It has a total of 7 members and these are: 1)US 2)UK 3)France 4)Germany 5)Canada 6)Italy 7)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: 1) Clean energy 2) Health systems 3) Gender equality 4) Information and Communications technology.
- 3) At the centre of PGII is a different approach to financing infrastructure projects: using limited government funding and promote greater volumes of private capital (pension funds, private equity funds and insurance funds etc) while BRI of China provides financing largely through State to State channels and thus creating huge Debts for countries.

About BRI (Belt and Road Initiative)

- 6) 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.
- 7) 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.
- 8) It was launched in 2013 by China and until 2016, was known as OBOR (One Belt One Road).
- 9) According to the Belt and Road Portal, currently 71 countries are taking part in this Initiative, which together represents more than 1/3 of the world's GDP and 2/3 of the world's population.
- 10) BRI includes 2 components: 1) The Silk Road Economic Belt (its land based route) 2) 21st Century Maritime Silk Road (its water based route).

What are the other Alternatives to BRI ?

- 1) EU's Global Gateway Project: The project aims to raise up to €300 billion in investments between 2021 and 2027.
 - a) Investments will be done in quality infrastructure, respecting highest social and environmental standards which are in line with international norms and standards.



- b) 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): India and Japan launched this in 2017. It aims to create quality and sustainable (social and transport) infrastructure, development projects, and connectivity in Africa. 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.
- 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 there governments. Eg: Hambantota Port-The 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 Neighbour countries and the Indian Ocean littoral states. India has traditionally maintained a Influence over them, so it is possible that BRI projects can increase China's stature and undermine India's influence over these countries.
- 2) Sovereignty and security concerns: India is opposed to 1 of the flagship projects of the BRI i.e. China-Pakistan Economic Corridor (CPEC) which connects China's Xinjiang autonomous region with Pakistan's Baluchistan Province. The project runs through the Pakistan Occupied Kashmir (POK) and hence it violates India's sovereignty.
- 3) 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.

3.13 India-UK Relations

Why in News?

As per a report named 'Britain Meets India' (BMI) , trade between India and the UK is expected to double by 2030.

1. It can only be possible if both sides enter into Free Trade Agreement(FTA), invest in technology, work more towards ease of doing business etc.



2. Britain Meets India (BMI) Report is published by Grant Thorton Bharat in partnership with The Confederation of Indian Industry (CII).



What is a Free Trade Agreement (FTA) ?

1. It's an agreement between 2 or more countries to reduce the barriers on import and export between them.
2. Under an FTA, goods and services can be purchased and sold across international borders with little or no government tariffs, quotas, subsidies etc.
3. The concept of free trade is exactly opposite to trade protectionism (restrictions on open and free trade).

About India-UK proposed Free Trade Agreement (FTA) ?

1. The proposed FTA is expected to boost Indian exports in labour-intensive sectors such as leather, textile, jewellery, processed agri-products and marine products, education, pharma and health care.
2. While UK wants that India should reduce the tariff(tax) on products such as apples, UK-manufactured medical devices and machinery.
3. UK companies also want that India should take measures to strengthen data privacy and enforcing the contracts.

About India-UK Trade



1. UK is the 6th largest investor in India, with a total investment of almost USD 32 billion during 2000-2022.
2. This investment by UK accounts for almost 5.5% of the total Foreign Direct Investment (FDI) into India during 2000-2022.
3. India's trade in goods and services with the UK is almost USD 31 billion in FY 2022(it was 19.5 billion in 2015).
4. Currently, almost 620 UK companies are working in India and they together employ approximately 4.5 lakh people and have a combined turnover of almost Rs 3,635 billion.

What are the recent developments in India-UK relations?

1. Even after the difference in views on Ukraine crisis (UK is the member of NATO and is against the Russian invasion to Ukraine but India till today has not condemned the Russian invasion), the India-UK relationship has been going upward.
2. In 2021, both signed the Comprehensive Strategic Partnership. This partnership will provide an ease to UK-India relations across health, climate, trade, education, science and technology, defence etc.
3. Both the countries are regularly engaged in talks on defence-related trade and deepening cyber security and defence cooperation between the 2 countries.
4. Both have agreed to announce a joint cyber security programme in the coming days to protect online infrastructure in India and the UK.
5. India and the UK is also planning to conduct the 1st 'Strategic Tech Dialogue'. It will be a ministerial-level summit on emerging technologies.
6. Additionally, the UK and India have agreed to strengthen their cooperation in the maritime domain (in ocean area) too as the UK will join India's Indo-Pacific Ocean Initiative soon and will become a major partner on maritime security issues in Southeast Asia.
7. In January 2022, India and the UK concluded the 1st round of talks on India-UK Free Trade Agreement.



4.

SOCIAL ISSUES

4.1 NMC BANNED CONVERSION THERAPY FOR THE LGBTQIA+ COMMUNITY

Why in News?

Recently, the National Medical Commission (NMC), has written to all the State Medical Councils (SMCs) and ordered them to ban 'Conversion Therapy' of LGBTQIA+ Community by calling it a "professional misconduct".

What is LGBTQIA+?

1. The LGBTQIA+ (lesbian, gay, bisexual, transgender, queer, intersex, asexual or of any other orientation) are the people who don't identify themselves with the cisgender (sex assigned at birth).
2. The 'plus' is used to signify all of the gender identities and sexual orientations that letters and words cannot yet fully describe.
3. In India, the LGBTQIA+ community also include a specific social group, a distinct community: 'the Hijras'. They are culturally defined either as "neither men, nor women", or as a men who behave like a woman.
4. At present, they are referred to as the 3rd Gender.
5. Supreme Court in 2018 decriminalised section 377[1], which titled homosexual relations as "unnatural offences".

What is 'Conversion Therapy' and its associated Risk?

1. Conversion or reparative therapy is an intervention aimed at changing the sexual orientation or gender identity of an individual with the use of either psychiatric treatment, drugs, exorcism (Evil Ceremonial Practices) and even violence, with the aim being to make the individual heterosexual.
2. It includes efforts to change the core identity of the person whose gender identity is not same with their sex anatomy.
3. Conversion therapy poses the risk of causing mental health conditions, like anxiety, stress and drug use which sometimes even lead to suicide.

What are the directives of the Madras High Court?

1. The Madras High court ruling prohibited any attempt to medically "cure" or change the sexual orientation of LGBTQIA+ (lesbian, gay, bisexual, transgender, queer, intersex, asexual or of any other orientation) people.
2. It urged the authorities to take action against professionals involved in any form or method of conversion therapy.



3. The court gave an order to the National Medical Commission directing it to “issue necessary official notification by enlisting ‘Conversion Therapy’ as a professional misconduct.”
4. The court said that the **community should be provided with legal assistance by the District Legal Services Authority** in coordination with law enforcement agencies.

4.2 STATUS OF SOCIAL PROTECTION IN INDIA

Why in News?

As per the latest report (World Social Protection Report 2020-22: Regional companion report for Asia and the Pacific) on social protection by the **International Labour Organisation (ILO)**, only 24.4% of Indians, even fewer than Bangladesh (28.4%), are under any sort of social protection benefit.

So, What is Social Protection?

Social protection system helps individuals and families, especially the poor and vulnerable to handle the crisis and shocks, find jobs, improve productivity, invest in the health and education of their children and protect the aging population.

Key Highlights of the Report are:

1. The Report is a companion to the ILO’s ‘World Social Protection Report 2021-22’, that gives a regional overview of the social protection in the Asia and the Pacific region.
2. It notes that Mongolia, New Zealand, Singapore and Australia have 100% social protection net, while in Myanmar and Cambodia, the number stands below 10%.
3. As per the report, 3 out of 4 workers in the Asia Pacific region are not protected in the event of illness or injury sustained at work.
4. Countries with lower **Gross Domestic Product (GDP)** per capita tend to have low levels of work injury coverage for example, Afghanistan, India, Nepal and Pakistan cover fewer than 5% of their workers.
5. According to the report, as of 2020, only 46.9% of the global population was effectively covered by at least 1 social protection benefit, while the remaining 53% as many as 4.1 billion people were left wholly unprotected.
6. The report further noted that the large majority of the working-age population in the world 69.4%, or 4 billion people, are only partially protected or not protected at all.
7. In Indian context, the report noted that owing to the relatively low investment in social protection i.e., only 24.4% of Indian population, the amounts transferred under non-contributory benefits are usually too low to provide adequate protection.



8. With **contributory schemes typically limited to those working in the formal sector** and non-contributory schemes still mostly targeted on the poorest, India's social security benefits are **lower than the 5% of GDP per capita (USD 2,277)**.

Various Indian Government initiatives regarding the Social Security are?

1. **Pradhan Mantri Shram Yogi Maan-Dhan Yojana (PM-SYM)**.
2. **National Pension Scheme for Traders and The Self-employed Persons (NPS)**.
3. **Pradhan Mantri Jeevan Jyoti Yojana (PMJJBY)**.
4. **Pradhan Mantri Suraksha Bima Yojana (PMSBY)**.
5. **Atal Pension Yojana**.
6. **National Safai-Karamcharis Finance and Development Corporation (NSKFDC)**.
7. **Self-Employment Scheme for Rehabilitation of Manual Scavengers**.

4.3 THE GENDER SNAPSHOT 2022

Why in News?

Recently, the report titled “Progress on the Sustainable Development Goals (SDG): The Gender Snapshot 2022” was launched by ‘United Nations (UN) Women and the UN Department of Economic and Social Affairs (UN DESA)’.

Key Findings of the Report are:

1. The report highlighted that **Sustainable Development Goal 5 (SDG 5)- ‘achieving gender equality’, will not be met by 2030** at the current pace of progress.
2. By the end of 2022, around 380 million women and girls will live in extreme poverty (on less than USD 1.90 a day) compared to 368 million men and boys.
3. As per the report, it will take almost 300 years to **achieve full gender equality** at the current rate of progress.
4. It will also take at least 40 years to **achieve equal representation of women in national parliaments**.
5. **Progress must be 17 times faster than last decade’s progress, to eradicate child marriage by 2030**.
6. In 2021, about 38% of female-headed households in war-affected areas experienced moderate or severe **food insecurity**, compared to 20% of male-headed households.
7. Globally, women lost an estimated USD 800 billion in income in 2020 due to the pandemic.
8. **More women and girls are now displaced than ever before, some 44 million women and girls by the end of 2021**.
9. Over 1.2 billion women and girls of reproductive age (15-49) live in **countries and areas with some restrictions on access to safe abortion**.



SUSTAINABLE DEVELOPMENT GOALS



What are the present challenges?

1. Global challenges, such as the **COVID-19 pandemic** and its aftermath, **violent conflict, climate change** and the **backlash against women's sexual and reproductive health** and rights further **increased gender disparities**.
2. The **invasion of Russia into Ukraine** and the war has **further worsened food insecurity and hunger**, especially among women and children.
3. In most parts of the World, **legal systems don't ensure uniform protection of women rights in all spheres** such as denying women's rights in marriage and family, unequal pay and benefits at work and unequal rights to own and control land.

Way Forward:

1. **Gender equality** is the foundation for achieving all **SDGs** and it should be at the heart of 'Building back better world'.
2. **Cooperation, Partnerships and Investments** in the gender equality agenda, including through increased global and national funding, are **essential to place the issue of gender equality back on track**.

4.4 POSHAN 2.0

Why in News?

In September 2022, **Ministry of Women and Child Development** has issued guidelines regarding the implementation of **Saksham Anganwadi and Poshan 2.0 Programme**.

What is Anganwadi?

1. It's a type of **rural child care centre** in India.
2. They were started by the Indian government in **1975** as part of the **Integrated Child Development Services program**. This program was started to **solve the issue of child hunger and malnutrition in India**.



What is Saksham Anganwadi and Poshan 2.0?

1. In the year 2021-22, the Govt of India (GoI) merged the **Integrated Child Development Services (ICDS) programme** and **POSHAN abhiyaan** to form **Saksham Anganwadi and POSHAN 2.0**.
2. This scheme consists of the following **sub-schemes**: 1) ICDS 2) POSHAN Abhiyaan 3) Scheme for Adolescent Girls (SAG) 4) National Creche Scheme (entertainment places for children's having working parents).
3. It's a **centrally sponsored programme** (funds will be contributed by both central and state govts) which will be implemented by state governments.

Vision of the Programme:

1. It will try to handle the issue of **malnutrition (who lacks nutrition) among the children's up to the age of 6 years, adolescent girls (14-18 years) and pregnant and lactating women**.
2. It's an important scheme for **India's development as women and children comprise over 2/3 of India's population**.
3. The achievement of the **Sustainable Development Goals (SDGs)** will depend on this programme in a big way as these issues are a crucial part of SDGs. **SDG 2 is on Zero Hunger and SDG 4 is on Quality Education**.
4. The mission will focus on the **importance of nutrition and early childhood care and education** for the well-being, growth and development of children into healthy and productive adults.

The objectives of Poshan 2.0 are as follows:

1. To increase the **human capital development** of the country. Human capital are the skills, knowledge and experience in an individual or a population.
2. To handle challenge of Malnutrition.
3. Promote **nutrition awareness and good eating habits** for good health and wellbeing.
4. AYUSH programmes can be integrated under Poshan 2.0 for overall wellness and nourishment.

What are the recent guidelines issued under the scheme?

1. The scheme is **open to all the beneficiaries of the previous schemes** and the only pre-condition is that the **beneficiary has to be registered at the nearest anganwadi centre** with Aadhaar identification.
2. The beneficiaries for the scheme will be **adolescent girls in the age group of 14-18 years** who will be identified by the states.
3. **AYUSH (Ayurveda, Yoga, Unani, Siddha, Homeopathy) Ministry** will promote the campaign of '**Yoga at Home, Yoga with Family**'.



4. The Ministry of AYUSH will provide technical support for the scheme implementation.
5. Efforts should be made for the 100% measurement of the child's health data.
6. It promotes the use of jaggery and the food items that gives high energy.

Way Forward:

1. About 70% of the deaths of children under the age of 5 in India happens just because of malnutrition in child or his mother, so this programme is right decision.
2. India should handle the issue of malnutrition as a whole, instead of handling 1 disease at a time.
3. Benefits of this programme will depend on its proper implementation.



4.5 ISSUE OF FARMER SUICIDE

Why in News?

Nearly, 600 farmers in Maharashtra's Marathwada region have committed suicide between January 1, 2022 and mid of August 2022.

About the Issue:

1. Agriculture is the primary sector in India. India is mostly a agrarian economy with close to 70% of its population depending on agriculture for livelihood directly or indirectly.
2. Every year, more than 12000 farmers commit suicide in India.
3. In India, almost 10% of all the suicides are related to farmers.
4. Even after the fast growth of the secondary (manufacturing) and tertiary (services) sectors in India, a vast majority of the people depend on agriculture for their livelihood.
5. 7 states in the country accounts for almost 87% of the farmer suicides. These states are: 1) Maharashtra 2) Telangana 3) Karnataka 4) Chhattisgarh 5) Madhya Pradesh 6) Tamil Nadu 7) Andhra Pradesh.
6. Out of these 7 states, Maharashtra has the highest cases of farmer suicide.
7. In 2012, Maharashtra alone accounted for 25% of the farmer suicides in the country.
8. Suicides are not restricted to small farmers, even the marginal farmers are committing suicide.



- 9. Even the state of Punjab, which benefited maximum from the Green Revolution, has a share in cases of farmer suicide.** From 1995 to 2015, 4687 farmers were reported to commit suicide from Punjab with 1 district Mansa reporting 1334 suicides.

What are the causes of Farmers Suicide in India ?

- 1. Rise in input costs:** In the recent years, there has been an overall increase in agricultural input cost.

a) Cost of seeds and chemicals like fertilisers and pesticides have increased.

b) Cost of agricultural equipment like tractors, pumps, etc

c) Hiring animals and labours are also getting increasingly expensive, adding to the burden. Schemes like MGNREGA and the increase in the minimum basic income has become counter-productive for agriculture.

2. Loan Burden:

a) As per the National Crime Records Bureau (NCRB) data, **out of the researched 3000 farmer suicide cases, almost 2470 farmers were having loan overdue with the banks.**

b) Interestingly, as against the popular perception, only **10% of the loans were from money-lenders.** This implies that muscle-power and harassment by the money-lenders could not be a major driving force behind the farmer suicides.

3. Lack of direct market integration : Even after many innovative government schemes like e-National Agricultural Market (it provides the facility to the farmers to sell their produce anywhere in the country), removing or minimising middleman in this sector is proving to be more difficult than easy.

4. Lack of Awareness: While there are schemes and policies aimed at helping farmers but the lack of awareness due to illiteracy is proving to be an obstacle for the farmers, especially marginal and small ones. They are unaware of the schemes as well as don't know how to get the benefits offered to them by the government.

5. Water crisis: After looking at the data related to farmer suicides, it is easy to understand that there is more concentration of suicide cases in the water-deficient regions like Maharashtra (especially Marathwada region) and Karnataka. Failing monsoon further increase the problem.

6. Climate change: Climate change is badly affecting farmers and agriculture. Uncertain monsoon, flash floods, etc. have led to crop losses.

So, what can be the Way forward?

1. Reducing the dependence of agriculture on nature is the 1st thing government should try to do. Effective water management techniques should be used.

2. The government should focus on preventing the crop failure.



3. Making **institutional finance (through banks or other organisations) available to every farmer**, particularly to the poor farmers.
4. **Effective and timely counselling** should be given to the farmers on methods of cultivation.
5. **Technological advancements in agriculture** should be made available to poor farmers as well.
6. **Collective farming should be encouraged** by the government through spreading awareness.
7. **Small farmers should be advised on the alternate sources of income** and proper training should be given to them.
8. **There is no single sure-shot method of reducing the burden on our farmers. A collective action is required from everyone to handle the issues related to agriculture sector.**



5.

ECONOMY

5.1

HUMAN DEVELOPMENT REPORT 2021-22

Why in News?

As per the 'Human Development Report 2021-22', India's rank on the Human Development Index (HDI) has slipped from 130 in 2020 to 132 in 2022 and it is in line with a global fall in HDI scores because of the Covid-19 pandemic.

About Human Development Report (HDR):

1. Human Development Report (HDR) for the 1st time was released in 1990.
2. It is published by the United Nations Development Programme (UNDP).
3. The goal is to contribute towards the expansion of opportunities, choice and freedom.
4. The theme for the Human Development Report 2021-22 is 'Uncertain Times, Unsettled Lives: Shaping our Future in a World of Transformation'.

About the Human Development Index (HDI):

1. HDI is a composite index that measures average achievement in human development by taking into account 4 indicators:
 - a) Life expectancy at birth
 - b) Expected years of schooling
 - c) Mean years of schooling
 - d) Gross national income (GNI)

Key Highlights of the Report Are:

1. Drop in Life Expectancy:

- a) A large contributor to the Human Development Index's recent decline is a **global drop in life expectancy**, down from 72.8 years in 2019 to 71.4 years in 2021.
- b) The last 2 years have had a **devastating impact on billions of people worldwide** because of crisis like Covid-19 and the war in Ukraine.

2. Top Performers:

- a) **European states were among the best overall performers**, with as many as 8 in the top 10 of the list.



- b) These are Switzerland (0.962), Norway (0.961), Iceland (0.959), Denmark (0.948), Sweden (0.947), Ireland (0.945), Germany (0.942) and Netherlands (0.941).

3.Asian Region:

- a) At Rank 73 and with an index value of 0.782, Sri Lanka emerged as the best performer in the Indian sub-continent. It was followed by China (0.768), Bhutan (0.666), Bangladesh (0.661), Nepal (0.602) and Pakistan (0.544).
- b) India's HDI value stood at 0.633 in 2021, which is lower than the world average of 0.732. In 2020, too, India recorded a decline in its HDI value (0.642) in comparison to the pre-Covid level of 2019 (0.645).
- c) In 2021, India's life expectancy at birth was recorded at 67.2 years.
- d) India's Expected years of schooling is at 11.9 years while mean years of schooling is at 6.7 years.
- e) India's gross national income per capita stood at USD 6,590.
- f) India has been ranked 122 on the Gender Inequality Index.

5.2

1ST DISBURSEMENT UNDER PLI SCHEME

Why in News?

Recently, the 1st ever disbursement has been approved by the empowered Committee under Production Linked Incentive (PLI) scheme for mobile manufacturing under 'Large-Scale Electronics Manufacturing sector.

About the PLI Scheme:

- The PLI scheme was launched to increase domestic manufacturing capabilities, accompanied by reduction in imports and employment generation.
- The government has announced Rs 1.97 lakh crore under the PLI schemes for various sectors and an additional allocation of Rs 19,500 crore was made towards PLI for solar PV modules in **Budget 2022-23**.
- It was launched in **March 2020** and the scheme initially targeted 3 industries:
 - Mobile and allied Component Manufacturing
 - Electrical Component Manufacturing
 - Medical Devices
- Incentives Under the Scheme:**
 - The incentives, calculated on the basis of incremental sales, ranges from as low as 1% for the electronics and technology products to as high as 20% for the manufacturing of critical key drugs and certain drug intermediaries.
 - In some sectors such as advanced cell batteries, textile products and the drone industry, the incentive to be given will be calculated on the basis of sales, performance and local value addition done over the period of 5 years.



5. Sectors for which the PLI Scheme has been Announced are:

- a) 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.

6. Objectives of the scheme are:

- a) The Government introduced this scheme to reduce India's dependence on China and other foreign countries.
- b) It supports the labour-intensive sectors and aims to increase the employment ratio in India.
- c) This scheme works to reduce the import bills and boost domestic production. However, PLI scheme invites foreign companies to set up their units in India and encourage domestic enterprises to expand their production units.

5.3

SCHEME SPECIAL ASSISTANCE TO STATES FOR CAPITAL INVESTMENT

Why in News?

Recently, the Government of India has launched a scheme named 'Special Assistance to States for Capital Investment' for 2022-23.

About the scheme Special Assistance to States for Capital Investment:

1. Under this Scheme, financial assistance will be provided to the state governments in the form of '50-year interest free loan' for capital investment projects.
2. For the year 2022-23, a total financial assistance of Rs 1 lakh crore will be given to the states.
3. The loans under the scheme will be over and above the normal borrowing ceiling allowed to the states for FY 2022-23 and should be spent in the same year.
4. **Eligible Parts of the Scheme:**
 - a) New or ongoing projects or for settling pending bills in ongoing capital projects.
 - b) States may submit projects of higher value than the funds allocated, indicating their preference or priority.
5. **Projects with the capital outlay of less than 5 crore (2 crore for North East) and repair and maintenance projects irrespective of capital outlay are not eligible.**

Additional Information:



What is Capital Expenditure?

1. Capital expenditure is the **money spent by the government on the development of machinery, equipment, building, health facilities, education, etc.**
2. It also **includes the expenditure incurred on acquiring fixed assets like land and investment by the government that gives profit or dividend in future.**
3. Along with the creation of assets, repayment of loan is also capital expenditure, as it reduces liability.
4. Capital spending is associated with investment or development spending, where expenditure has benefits extending years into the future.

5.4 PRADHAN MANTRI KAUSHAL VIKAS YOJNA

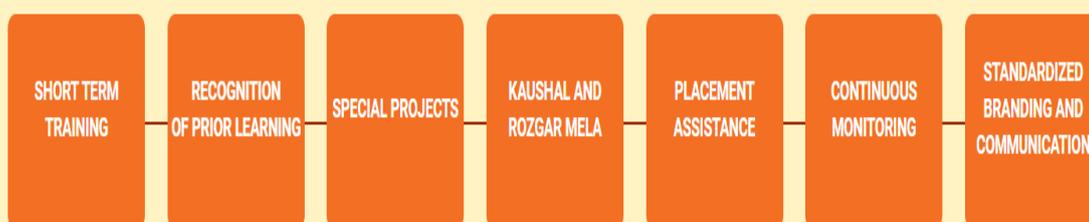
Why in News?

Recently, the Ministry of Education informed Lok Sabha that, during 2021-22, more than 3 Lakh women were trained under 'Pradhan Mantri Kaushal Vikas Yojana' (PMKVY) scheme.

What is PMKVY?

1. **Skill India Mission** was launched by the Government of India in 2015 under which the flagship scheme **Pradhan Mantri Kaushal Vikas Yojana (PMKVY)** was launched.
2. It aims to train **over 40 crore people in India in different skills by 2022**. Focus was on **vocational training and certification of Indian youth** for a better livelihood and respect in the society.
3. PMKVY is implemented by the **National Skills Development Corporation (NSDC)** under the **guidance of the Ministry of Skill Development and Entrepreneurship (MSDE)**.

KEY COMPONENTS OF THE SCHEME



5.5 INDIA BECAME THE WORLD'S 5TH LARGEST ECONOMY

Why in News?



Recently, India became the world's 5 largest economy by overtaking the United Kingdom (UK). Now, the United States, China, Japan and Germany are the only nations with economies larger than India's.

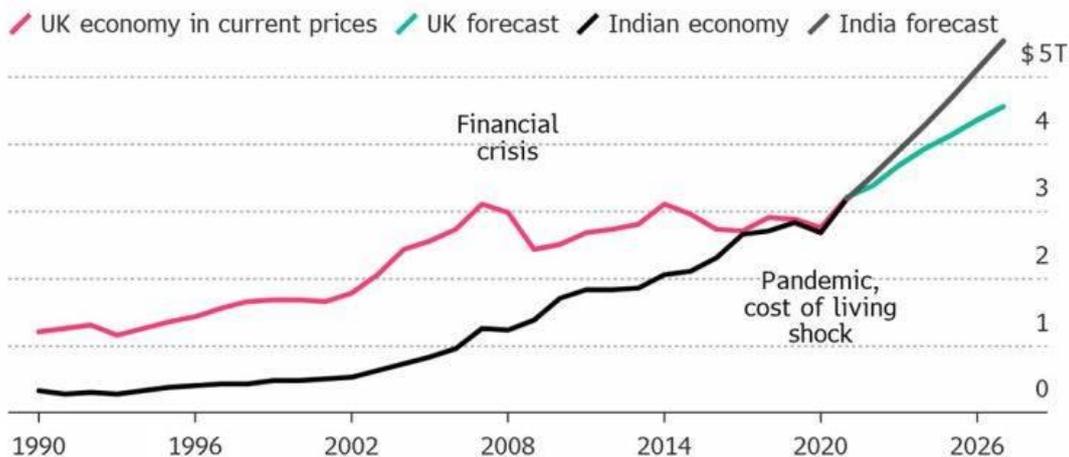
1. The real **Gross Domestic product (GDP)** growth of 6-6.5% in a world full of uncertainties is the new normal for India and India is set to be the 3rd largest economy by 2029.

What Is Gross Domestic Product (GDP)?

1. GDP is the total monetary or market value of all the finished goods and services produced within a country's border in a specific time period.
2. As a broad measure of overall domestic production, it functions as a comprehensive scorecard of a given country's economic health.

Overtaken

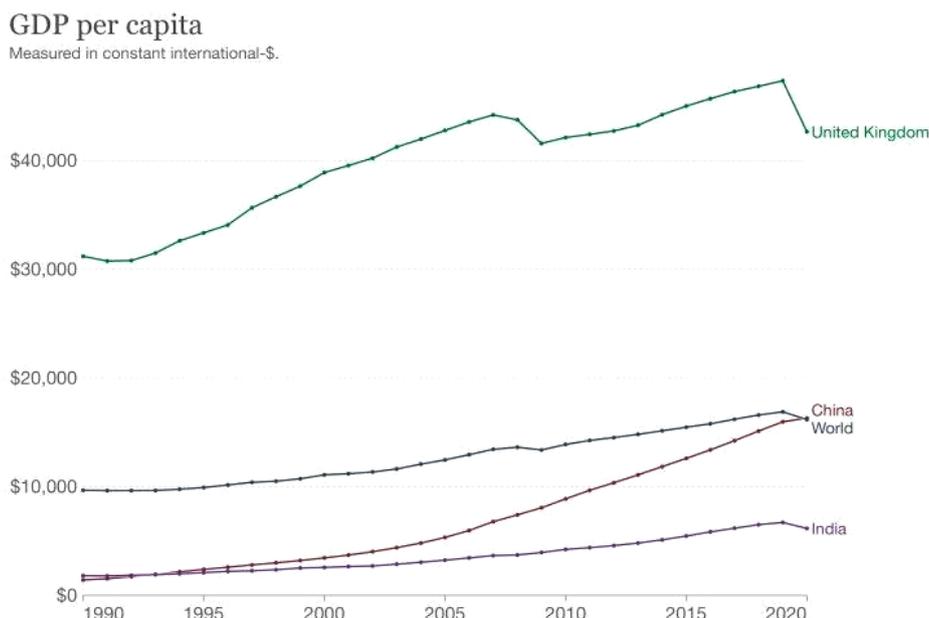
The Indian economy is forecast to be a fifth larger than the UK by 2027



Note: Seasonally adjusted, forecasts from 2022

Key Highlights of this achievement are:

1. Moving past 1 of the biggest economies in the world, especially one that have ruled over the Indian sub-continent for almost 2 centuries, is a major milestone.
2. The size of the Indian economy in 'nominal' cash terms in the quarter through March, 2022 was USD 854.7 billion while for UK was USD 816 billion.
3. As of 2022, India has a population of 1.41 billion while the UK's population is 68.5 million.



4. GDP per capita provides a more realistic comparison of income levels because it divides a country's GDP by the population of that country.
5. The per capita income in India remains very low, India is ranked 122 out of 190 countries in terms of per capita income in 2021.
6. The low per capita income often point to high levels of poverty.
7. At the start of the 19th century, the UK's share in extreme poverty was considerably higher than India's. However, the relative positions have reversed even though India has made huge progress in curbing poverty.
8. The end goal of higher GDP and faster economic growth is to have better human development parameters. So, According to HDI (2019), the UK score is 0.932 and India's score is 0.645 which is comparatively far behind the UK.
9. The dramatic shift has been driven by India's rapid economic growth over the past 25 years as well as downslides in the value of the pound over the last 12 months.

5.6

INDIA AND STARTUP

Why in News?

Recently, the government of India has stated that India ranks 3rd globally in Start-Up ecosystem and also, in terms of the number of Unicorns.

What are Startups & Unicorns?

1. Startup:



- a) The term 'startup' refers to a company in the initial stage of operations. Startups are mostly founded by one or more entrepreneurs who want to develop a product or service for which they believe that there is a demand for it in the market.
- b) These companies generally start with high costs and limited revenue, which is why they look for capital from a variety of sources.

2. Unicorn:

- a) A unicorn is any privately owned firm with a market capitalization of more than USD 1 billion.
- b) It includes new entities which are dedicated to offering creative solutions and new business models, among other things.
- c) There are several categories like fintech, Edtechs, B2B (Business-to-Business) companies, etc.

✎ Status of Startups in India:

1. India has become the 3rd largest start-up ecosystem in the world after the US and China.
2. India is home to as many as 75,000 Startups.
3. 49% of start-ups are from tier-2 and tier-3 cities.
4. There are currently 105 unicorns in India, out of which 44 were born in 2021 and 19 in 2022.
5. Startups are also emerging in the fields like IT, agriculture, aviation, education, energy, health and space sectors.
6. India has been ranked in its global ranking of Global Innovation Index (GII) from 81st in the year 2015 to 46th in 2021 among 130 economies of the world.
7. India ranks 2nd among 34 lower middle-income economies and 1st among 10 Central and Southern Asian economies in terms of GII.

✎ Some Government Initiatives for Startups are:

1. National Initiative for Developing and Harnessing Innovations (NIDHI)
2. Startup India Action Plan (SIAP)
3. Ranking of States on Support to Startup Ecosystems (RSSSE)
4. Startup India Seed Fund Scheme (SISFS)
5. National Startup Awards
6. SCO Startup Forum
7. Prarambh: The 'Prarambh' Summit aims to provide a platform to startups and young minds from around the world to come up with new ideas, innovation and invention.

✎ Way Forward

1. The development of proper start-up ecosystem needs significant funding and therefore the role of venture capital and investors is very important.
2. Apart from policy-level decisions that promote entrepreneurship, the onus is also on India's corporate sector to promote entrepreneurialism, and create



synergies to build impactful technology solutions and sustainable and resource-efficient growth.

3. With the recent events creating capital distrust in China, the world's attention is sharpening on the lucrative tech opportunities in India and the value that could be created. For this, India requires decisive policy measures in addition to the **Digital India Initiative**.

5.7

NATIONAL ASSESSMENT AND ACCREDITATION COUNCIL

What is the Status of Accredited Institutions in India?

1. Currently there are 1,043 universities and 42,343 colleges listed at All-India Survey on Higher Education.
2. Around 406 universities and 8,686 colleges are NAAC-accredited.
3. Maharashtra has highest number of qualified colleges followed by Karnataka.
4. Tamil Nadu has the highest no. of certified universities at 43.

GRADE-WISE				TOP FIVE STATES (Accredited)			
Grade	Universities	Colleges	Total	UNIVERSITIES		COLLEGES	
A	224	1,778	2,002	Tamil Nadu	43	Maharashtra	1,834
B	165	5,831	5,996	Uttar Pradesh	37	Karnataka	881
C	17	1,077	1,094	Maharashtra	35	Tamil Nadu	829
Total	406	8,686	9,092	Karnataka	33	Uttar Pradesh	604
				Rajasthan	31	Gujarat	492

Which Educational Institutes Can Apply for Accreditation?

1. Only 6 years old higher education institutions, can apply.
2. The certification is valid for 5 years.
3. Other Aspiring institutes should be recognised by the UGC and have regular students enrolled in their full-time teaching and research programmes.

What is the Present Status of India's Higher education Sector?

1. India is world's 3rd largest in terms of students, next to China and the United States.
2. India's Higher Education sector has seen great increase in the number of Universities/University level Institutions & Colleges since independence.
3. In the prestigious World University Rankings 2023, only 3 Indian Universities have been included in the top 200 institutes:
 - IIT-Bombay
 - IIT-Delhi
 - IISc (Bangalore)



What are the Challenges in India's Higher Education Sector?

1. **There is low Gross Enrolment Ratio (GER) of 25.2%** in higher education, which is very less as compared to other developing countries.
2. There is no fairness in GER among different sections of society such as GER for **males (26.3%), females (25.4%), SC (21.8%) and ST (15.9%)**.
3. India is facing many **regional variations too in its GER in higher education**. While **some states have high GER some are far behind the national figures**.
4. Most of the best universities and colleges are **centred in metropolitan and urban cities**, thereby leading to the **regional disparity** in access to higher education.
5. **Quality** of Higher Education in India is also **not adequate** as it relies on rote learning, which **results into lack of employability and skill development**.
6. Poor infrastructure is also one of the major challenges to higher education in India.
7. Even the **Private sector is also not up to the mark as per the global standard**.
8. **Faculty shortages** is also a major issue for quality education for many years. Shortage of faculty **leads to Ad-hoc expansion even in the good institutions**.
9. The **Pupil-to-teacher ratio is stable in the country (30:1)**, but still it needs to be **improved to make it comparable to the USA (12.5:1), China (19.5:1) and Brazil (19:1)**.

What are the Recent Initiatives taken by the Government in Higher Education?

1. **Education Quality Upgradation and Inclusion Programme (EQUIP)**: This is a 5-year vision plan to improve the quality and accessibility of higher education over the next 5 years (2019-2024).
2. **UGC's Learning Outcome-based Curriculum Framework (LOCF)**: LOCF guidelines, aims to make student active learner and teacher a good facilitator.
3. **Graded Autonomy to Universities & Colleges**: 3-year graded autonomy regulatory system has been initiated.
4. **Global Initiative for Academics Network (GIAN)**: The programme seeks to invite distinguished academicians, entrepreneurs, scientists, experts from premier institutions from across the world, to teach in the higher educational institutions in India.
5. **All India Survey on Higher Education (AISHE)**: The objectives of the survey are to identify & capture all the institutions of higher learning in the country.
6. **National Education Policy 2020** has come in place with great reforms.

5.8

HUMAN DEVELOPMENT REPORT 2022

Why in News?

In September 2022, the Human Development Report 2021-22 was released.



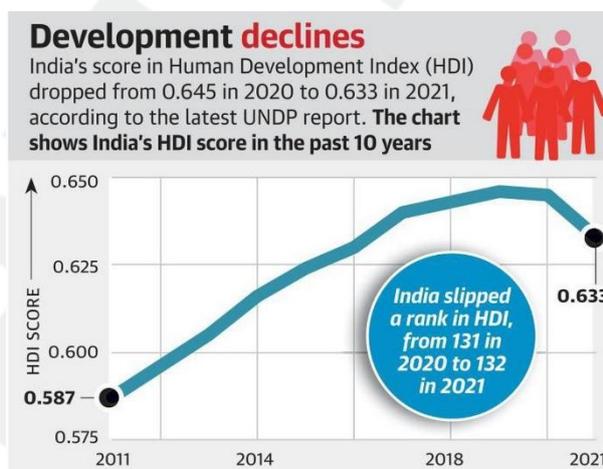
Human Development Index:

Human Development Index is a report that measures average achievement in human development taking into account 4 indicators:

1. Life expectancy at birth (Sustainable Development Goal 3)
2. Expected years of schooling (SDG 4.3)
3. Mean years of schooling (SDG 4.4)
4. Gross national income (GNI) per capita (SDG 8.5)

Human Development Index (HDI)

1. The Human Development Index (HDI) is a tool to measure a country's overall achievement.
2. HDI mainly focus on its social and economic dimensions.
3. The rank indicates the state of a nation's health, education and average income.
4. It was created by Pakistani economist Mahbub ul Haq in 1990 and this was further used by UNDP in creating a report on the nation's socio-economic achievement.



Parameters where India showed improvement:

1. The report highlighted some areas where India showed improvement.
2. Impact of inequality on human development has decreased from last year.
3. India is reducing the development gap between men and women fastest in world.
4. The intergovernmental organisation lauded India's investment in health and education, helping it come closer to the global human development average since 1990.
5. Improved access to clean water, sanitation and affordable clean energy.
6. According to the UN, there is increased social protection for the vulnerable population groups.

5.9

WINDFALL TAX

Why in News?



In July 2022, Central govt. has cut Windfall tax on crude oil producers and removed petrol exports levy.

What is a Windfall tax?

1. It's a **tax imposed** by the government **on a company**.
2. It is **levied** (charged) on an **unexpectedly high profit** of a company.
3. It is only levied in **public interest**.
4. The area where such taxes have **routinely been discussed is oil markets**, where price fluctuation leads to **volatile profits for the industry**.

Why the government has reduced the windfall tax recently on crude oil producers?

1. It was reduced to **control rising domestic oil price**.
2. Another reason is to **meet domestic need for petrol**.

5.10) FINANCIAL STABILITY AND DEVELOPMENT COUNCIL

Why in News?

In September 2022, the **Union Minister of Finance and Corporate Affairs** chaired the **26th Meeting** of the **Financial Stability and Development Council (FSDC)**.

What are the Key Highlights?

1. The council stressed on the **early warning indicators for the economy and the preparedness to deal with them**.
2. It will **improve efficiency of the existing financial and credit information systems**.
3. It was **noted that there is a need to monitor the financial sector risks, the financial conditions and market developments** on a continuous basis by the Government and the regulators **so that appropriate and timely action can be taken** so as to mitigate any vulnerability and strengthen financial stability.
4. The **council took note of the preparation in respect of financial sector issues** to be taken up during **India's G20 Presidency in 2023**.

What is FSDC?

1. It is a **non-statutory apex council**.
2. It **works** under the Ministry of Finance constituted by the **Executive Order in 2010**.
3. The **Raghuram Rajan committee (2008) on financial sector reforms 1st proposed the creation of FSDC**.



4. It is **chaired by the finance minister**.
5. **Its members include the heads of all Financial Sector Regulators (RBI, SEBI, PFRDA & IRDA).**
6. **FSDC sub-committee is headed by the Governor of RBI.**
7. **The Council can invite experts to its meeting if required.**
8. **To strengthen and institutionalize the mechanism for maintaining financial stability.**
9. **It helps in enhancing inter-regulatory coordination and promoting financial sector development.**

5.11) FALLING RUBBER PRICE IN INDIA

Why in News?

In September 2022, there have been protests by farmers due to the low price of natural rubber (NR) in the Indian market.

What has Caused the Sharp Fall in Prices?

1. Due to **weak Chinese demand** the price of rubber has declined.
2. **European energy crisis**, along with high **inflation** is also one of the reasons for the reducing prices.
3. There is a **huge supply of block rubber from Ivory Coast and compounded rubber from the Far East in the domestic tyre industry.**
4. The **Auto-Tyre manufacturing sector** accounted for **73.1% of the total quantity of natural rubber consumption**, hence **huge import** has declined the price of domestic rubber.

How does the Falling Price affect the Farmer?

1. The **impact of the price fall is felt more in the rural areas**, where the farmers who are dependent on rubber cultivation only, might switch to other crops.
2. It can even lead to the **destruction of rubber holdings.**
3. As most of the production occurs in small and medium enterprises, the **falling price could force them to stop production temporarily.**
4. As **local economy (Kerala) depends on rubber production**, therefore the falling price could lead to major panic in villages of Kerala.

What do we Know about Natural Rubber?

1. Rubber is **made from the latex** of a tree called **Hevea Brasiliensis**.
2. Rubber is mainly used as an **industrial raw material** and accorded **special status globally for defence, national security and industrial development.**
3. It is an **equatorial crop**, but under special conditions, it is also grown in **tropical and sub-tropical areas.**
4. It requires a **temperature above 25°C** with a moist and humid climate.
5. Rubber cultivation needs **rainfall of more than 200 cm.**



6. Cultivation of rubber **require rich and well-drained alluvial soil.**
7. **Cheap and proper supply of skilled labour** is needed for this plantation crop.
8. **Countries like Thailand, Indonesia, Malaysia, Vietnam, China and India** are its major producers.
9. **China, India, USA, Japan, Thailand, Indonesia and Malaysia** are its major consumers.

What is the Status of Rubber Production in India?

1. The **British established the 1st rubber plantation in India in 1902** on the banks of the river Periyar in Kerala.
2. India is currently the **5th largest producer of Natural Rubber** in the world.
3. It also **remains the 2nd biggest consumer of the material globally.**
4. About **40% of India's rubber demand is met through imports.**
5. **Top Rubber Producing States:** Kerala > Tamil Nadu > Karnataka.
6. Government has allowed **100% Foreign Direct Investment (FDI)** in plantations of rubber.
7. **National Rubber Policy was brought by department of commerce in March 2019.**
8. There are policies **to support the Natural Rubber (NR) production sector and the entire rubber industry value chain.**

5.12) AGRITECH SUMMIT

Why in News?

The Union Minister for Agriculture and Farmers Welfare addressed the Outlook Agritech Summit and Swaraj Awards 2022.

What is the AgriTech Summit?

1. Aggritech Summit is a **platform to share knowledge and recognise the best practices in the field of agriculture in India.**
2. The **annual awards recognise the best performances and innovations in the field of agriculture.**
3. The awards were given to various **Krishi Vikas Kendra's, farmers' Producers Organisations** as well as individual scientists.

What are the Highlights of the Address?

1. Many important schemes are being implemented so that the **challenges of farming can be reduced and the income of the farmers can be increased.**
2. There are **86% of small farmers in the country, who have small property and cannot invest much.**
3. The **government is working to take these farmers forward, because if the balance of these farmers remains low, then neither agriculture nor the country will progress.**



4. The **government has started the work of creating new FPOs** to help the farmers and it increase the area under cultivation.
5. The **government is also working in the field of pulses and oilseeds**. Both were areas of scarcity.

➤ What is the importance of Technology in Agriculture?

1. The agriculture sector **poses its own unique challenges such as dependency upon good monsoons, small and fragmented farm holdings, lack of mechanisation and scarcity of capital**.
2. Technology in agriculture **can be used in different aspects of agriculture such as the application of herbicide, pesticide, fertilizer, and improved seed**.
3. **Farmers are able to grow crops in barren land but this is only possible through agricultural biotechnology.**
 - For example, **genetic engineering has made it possible to introduce certain strains into other genes of crops or animals**.
4. Such engineering boosts the **resistance of the crops to pests**.
5. **Farmers are in a position to improve every process for efficiency and improved production**.
6. **The government is working on a Digital Agri Mission so that the farmers can reach the government and the government can reach all the farmers.**
[Under the Digital Agri Mission, all the farmers, government schemes, central/state governments and banks are also brought on single platform, and the benefits of the schemes will be easily available.]
7. Government is **linking farmers with mechanization**.
8. The government is **promoting drone technology**.

➤ What are the Initiatives Related to Agriculture?

- **Palm Oil Mission**
- **Pradhan Mantri Fasal Bima Yojana**
- **Pradhan Mantri Kisan Samman Nidhi Yojana**
- **AgriStack**
- **Unified Farmer Service Platform**
- **National e-Governance Plan in Agriculture**
- **Sub-Mission on Agricultural Mechanization**

➤ Way Forward:

There is a **need to deal with the challenges** of the agriculture sector, how technology should be introduced in it, how to increase the availability of private investment, and how to create employment opportunities.

5.13) **BAN ON EXPORT OF BROKEN RICE**

➤ Why in the News?



In September 2022, the Ministry of Finance put a ban on export of Parboiled rice and Broken rice to boost domestic supplies amid a fall in area under the paddy crop in the current Kharif season.

About Parboiled and Broken Rice?

1. The rice which has almost 20-21% husk and 10-11% bran is Parboiled rice.
 - Husk- The inedible covering of the grain.
 - Bran- The brown outer layer of the edible kernel.
2. White raw rice is what remains after removal of the husk and bran.
3. Parboiling is a process where the paddy is soaked in water, steamed and dried while retaining its outer husk.
 - After this rice becomes harder with less breakage on crushing.
 - The parboiled rice exported from India contains 5-15% broken grains.
4. In raw rice, the broken rice is normally up to 25%.
5. The rice having 100% broken rice has been prohibited from exporting.

Restrictions that have been put on rice exports:

1. There are 4 categories of rice exports.
2. The exports of 2 categories i.e., of basmati rice and parboiled non-basmati rice are freely allowed.
3. Only 2 other categories are prohibited from exporting and those are raw (white) and broken non-basmati rice.
4. This prohibition will impact ½ of India's rice exports in terms of quantity.

Reason behind this ban:

1. There is possibility of declining of the rice production in India due to weak monsoon rainfall in Uttar Pradesh, Bihar, Jharkhand and Gangetic West Bengal.
2. There is political pressure to continue the free-foodgrains scheme (Pradhan Mantri Garib Kalyan Anna Yojana) beyond September.
3. India has a 40% share of the world's total rice exports.

5.14.) INDIAN RUPEE UNDER PRESSURE

Why in News?

Since January 2022, Indian Rupee has depreciated by around 10% and in the process to avoid volatility in the rupee RBI lost 100 billion dollars from its reserves.

What is Rupee Depreciation?

It means Rupee is losing value against Dollar.

Why India Rupee is Depreciating lately?

In last one year rupee has fallen mainly because of 2 factors:

1. Rise of Interest rate by US federal Reserve
2. Increasing Current Account Deficit (CAD)



➤ Impact of Rise of Interest rate by US federal Reserve (central bank of USA) on India Rupee:

1. This has increased the capital (dollar or foreign currency) outflow from India as investors were getting good returns after increased interest rates.
2. This Capital outflow from India created shortage of dollar in India so now more rupee is required to buy a dollar.

➤ Impact of increasing CAD on Indian Rupee:

1. CAD in simple words means country is importing more goods and services in value than the exports.
2. The current CAD is due to high prices of crude oil due to Ukraine Crises.

[High CAD means high demand of dollar to pay for imports that means dollar will become costly and more rupee is required to buy a dollar.]

➤ How does Rupee Depreciation Impact Indian Economy?

1. India is a net importer hence any fall in Indian currency will increase the variables like Current Account Deficit (CAD) and Balance of Payments (BOP).
2. As the INR falls, we have to give more rupees to get the required imports that Increases our Import Bill for raw materials, equipment or other supplies.
3. Rupee depreciation also impact the credit rating of Indian agencies in international market.
4. Depreciated currency may increase the inflation in the economy because of supply shocks in key import commodities such as coal, crude oil, edible oil, etc.
5. Indian Import Cover will decrease due to increased import prices.
 - For Example: The import cover of India is now at 10 months of import, down from 15 months of import cover in September 2021.

[Import Cover measures the number of months of imports that can be covered with foreign exchange reserves available with the central bank of the country. 8 to 10 months of import cover is essential for the stability of a currency.]
6. A continuous fall of INR discourages foreign investors from making fresh investments, causing further loss of value in dollar terms.

➤ What can be done?

1. India should try to control the continuous changes in the exchange rate through inflation control as it will improve confidence of investors in the Indian market which may increase rupee value.
2. India should try to limit its imported Inflation by the collective action of fiscal and monetary policy.
3. India should use its Forex Reserves carefully so that no slowdown in exports and imports can put additional pressure on it.
4. Big private Companies should be encouraged to become part of major global indices so that competitiveness can be increased.



5. To increase forex inflows, boosting forex reserves, **India should accelerate its entry into Global Bonds.**
6. **India should let the rupee decline for some time and try to achieve the true value against dollar. It will support exports and help in reducing CAD.**

Financial Globalisation has exposed the rupee to global events and if India wants to become a global leader in true sense it should work on its macroeconomic management.

5.15) ISSUE OF MOONLIGHTING

What is Moonlighting?

1. **Moonlighting means employees working for remuneration with entities or organisations other than their primary employer.**
2. The phrase "Moonlighting" became well-known when Americans began looking for 2nd jobs in addition to their regular 9 to 5 jobs to supplement their income.

Recent steps taken by some companies regarding this Issue are:

1. **Swiggy announced a 'moonlighting policy' for his employees that allows the employees "to pursue their passion for economic interests alongside their full-time employment."**
2. **While, Wipro terminated his 300 employees after the discovery that they were working for rival firms on the side, leading to conflict of interest.**
3. **Recently, Infosys has warned his staff against moonlighting, saying it can lead to termination.**

What is driving the Culture of Moonlighting among the Employees?

1. **Work from Home Culture:** Work from home is the new normal these days and it saved a lot of time of employees like travelling time etc and it also gave a boost to moonlighting.
2. **Impact of Covid-19:** In the year 2020, with the coming of Covid-19 pandemic that leads to lockdown and this also led to employees searching and/or working for multiple jobs to maintain job security and to have a steady flow of income.
3. **To Have More to Spend:** Employees also opt for the 2nd job for additional income if they have low pay at their primary jobs and need additional source of income to meet their needs or the primary income may not be sufficient to take care of the demands of their life.
4. **To Gain Additional Work Experience:** Employees may also consider a 2nd job to gain additional skills or indulge in work profiles they are more passionate about.
5. **To Combat Boredom:** Employees also opt for moonlighting to utilize the free time at hand when they do not have enough work to keep them occupied at their primary jobs or to keep themselves busy throughout the day.



So, What the law says regarding this Issue?

1. Moonlighting is not defined in any of the statutes (laws) in India.
2. However, there are some enactments that deal with the issue of double employment.
3. 'Section 60' of the Factories Act deals with the restrictions on double employment stating that "No adult worker shall be required or allowed to work in any factory on any day if he is already working with any other factory". However, this enactment is applicable only to employees working in factories.

About Supreme Court judgement on this Issue:

Supreme Court (SC) in the case Glaxo Laboratories (I) Limited vs Labour Court, Meerut has clarified that moonlighting is subject to the law of land. It also mentions that the sphere of employment cannot be extended by the employer beyond working hours and outside his place of employment.

Conclusion:

Article 19(1) of the Indian Constitution gave the fundamental right to every citizen of India to choose the 'Profession of his Choice' and 'Article 21' gives the 'Right to Life' to everyone residing in India but there should be a balance of interest of the both the employee as well as employer. If an employee want to engage in 2nd job then he should inform this to his primary employer. Another thing is both the parties should follow the 'Agreement' as it was agreed and signed initially.

Introduction:-

In a floating rate system, the exchange value of a nation's currency in relation to other currencies is referred to as currency depreciation. Based on trade imports and exports for a specific nation, it is calculated. Demand for imported goods drives up imports, which boosts foreign currency investment and weakens home currencies. The state of the economy determines the value of a certain currency. It also affects other economic choices and/or the worth of its output and products . It has an immediate impact on the securities markets in that nation.

Body:-

The rupee's decline is anticipated to have an effect on the economy overall, as well as different sectors like imports, particularly the cost of fuel, and drive up inflation. The Indian rupee hit a record low of 79.72 versus the US dollar, and since January of this year, it has fallen by almost 6%.

During the week ending July 8, foreign exchange reserves decreased by \$8.06 billion to \$580.02 billion as a result of the dollar's strengthening and capital outflows from India brought on by an increase in inflation and rate hikes by the US.

Impact of Indian Rupee Appreciation:



For the Reserve Bank of India, **rupee appreciation has both advantages and disadvantages.**

Positive:

In theory, a **weaker rupee should increase India's exports**, but given the current state of global uncertainty and the country's weak demand, this may not be the case.

Negative:

It raises the **possibility of imported inflation and may make it challenging for the central bank** to sustain historically low interest rates for a longer period of time.

Over **two-thirds of India's domestic oil needs are satisfied by imports**. Among the major importers of edible oils is India.

A **weaker currency will drive up the price of imported edible oil** and drive up food inflation.

What are the causes of the Indian Rupee's current depreciation?

Selling off of Equity

The **increase in interest rates by the U.S. Federal Reserve** (central bank), the conflict in Europe, and worries about China's economic development as a result of the Covid-19 rise all contributed to a sell-off in global financial markets that caused the rupee to weaken.

Dollar outflow:

High crude prices and the slump in equities markets are both contributing to the dollar's negative outflow.

How Does the Rupee's Depreciation Affect the Economy as a Whole?

The **rupee will lose value and foreign exchange reserves** as the current account deficit inevitably grows.

The economy is undoubtedly moving **closer to cost-push inflation** as a result of increased landed costs for crude oil and other essential imports.

When overall prices rise (inflation) as a result of rising costs for wages and raw materials, this phenomenon is referred to as cost-push inflation, also referred to as wage-push inflation.

It's possible that businesses won't be able to fully pass on increased prices to consumers, which would have an impact on government dividend payments and raise concerns about planned fiscal deficits.

Possible steps to control Rupee Depreciation:-

To stop the rupee's decline, **the Reserve Bank of India (RBI) and the Centre** may implement a number of one-time measures.

Import restrictions on non-essential items, lowered thresholds for **cumulative abroad investments by resident Indians**, and requirements for exporters to send USD payments more quickly are a few examples.

In order to make sure **exporters are not withholding their revenues**, the **Central bank could** instruct them to **bring in dollars more rapidly**, cutting the current nine-month period in half.



5.16 MSP BENEFITS AND ITS CONCERNS

Why in News?

Recently, NITI Aayog has conducted a study titled “Efficacy of Minimum Support Prices on farmers” .

1. In the study, it has been found that MSP declared by the government has **encouraged 78% of the farmers** covered under the study for adopting improved methods of **farming such as high yielding varieties of seeds, organic manure, chemical fertilizer, pesticides and improved methods of harvesting etc.**

About NITI Aayog (National Institution for Transforming India)

Background:

1. From **1950s, Planning commission** was the main planning body of the Govt. of India and it used to **make 5 year plans for the country.**
2. But Planning commission was more a **centralised body** (all the planning and decisions are taken at top level) and with **states have a very little or no role in formulation of plans.**
3. So, with time it was felt that this **centralised way of planning is not giving much results as India is a very large as well as diverse Country**, so states should have more role in making of Plans and Policies.
4. Finally, on **1st of January 2015**, a new body with the name **NITI Aayog was formed by Govt. of India by replacing the Planning Commission.**
5. This body comes into existence with a focus on **‘Bottom –Up’ approach** (plans will be formed by consulting the states and area experts too).
6. Another vision of NITI Aayog is **‘Maximum Governance, Minimum Government’** and **promoting the idea of ‘Cooperative Federalism’** (where centre as well as all states works in cooperation with each other).

Composition of NITI Aayog:

1. **Chairperson:** Prime Minister (PM)
2. **Vice-Chairperson:** Is appointed by the PM.
3. **Governing Council:** Chief Ministers (CMs) of all the states and Lt. Governors of the union territories.
4. **Regional Council:** To address specific regional issues, it comprises CMs and Lt. Governors of that region and it is chaired by PM or anyone nominated by him.
5. **Adhoc Membership:** 2 member from leading research institutions on rotational basis.



- 6. Ex-Officio membership:** Maximum 4 members from the union council of ministers to be nominated by PM.
- 7. Chief Executive Officer:** Appointed by PM for a fixed period and should not be below the rank of secretary to the Government of India.
- 8. Special Invitees:** Experts, Specialists nominated by PM from time to time.

Objectives of the NITI Aayog are:

- 1.** To promote the idea of cooperative federalism through regular support to the states and recognizing that **“Strong States make a Strong Nation”**.
- 2.** To work on **areas that are specifically given to it** and try to **include the issue of national security in economic strategy and policy**.
- 3.** To give special attention to the sections of our society that may be at **risk of not benefitting much from our economic progress**.
- 4.** To provide **advice and encourage partnerships between key national and international like-minded Think Tanks**, as well as educational and policy research institutions.
- 5.** To create a **knowledge, innovation and business support system through cooperative approach**.
- 6.** To offer a platform for **resolution of Inter-departmental conflicts** and issues in the govts of different states.
- 7.** To work for the **overall development of the country and not just in economic terms**.

What is Minimum Support Price (MSP) ?

- 1.** It's the **rate at which the government purchases crops from the farmers**.
- 2.** It is generally announced around **1.5 times more than the cost of production done by the farmers**. This rule was declared in the budget of 2018.
- 3.** The **Commission for Agricultural Costs & Prices (CACP)** recommends MSP for almost **22 crops** but for sugarcane it is recommended by **Fair and Remunerative price (FRP)**.
- 4.** **CACP is an attached office of the Ministry of Agriculture and Farmers Welfare**.
- 5.** 22 crops having MSP are:
 - a) 7 cereals:** Paddy, Wheat, Jowar, Bajra, Barley, Maize and Ragi.
 - b) 5 Pulses:** Gram, Arhar, Moong, Urad and Lentil.
 - c) 7 Oilseeds:** Groundnut, Rapeseed/Mustard, Toria, Soyabean, Sunflower, Sesamum, and Sunflower seed oil.
 - d) Cash Crops:** Raw Cotton, Copra, Raw Jute.

History of MSP system in India:

- 1.** It was started in India in **1965 due to food shortage**.
- 2.** The idea was to **incentivize farmers to increase production** by adopting **High Yield Variety (HYV) seeds and technology** for cereals like wheat and rice.
- 3.** Another objective of the policy was to **ensure reasonable food prices** for the public by providing food grains through **the Public Distribution System (PDS)** .



4. On the recommendations of **LK JHA Committee**, the **Agricultural Price Commission** was set up in the year **1965** (which was **later renamed** as the **Commission for Agriculture Costs and Prices (CACP)** .The role of the Agriculture Price Commission was to advise the government on agriculture price policies.

What are the factors that are taken into account by CACP before recommending the MSP of any crop?

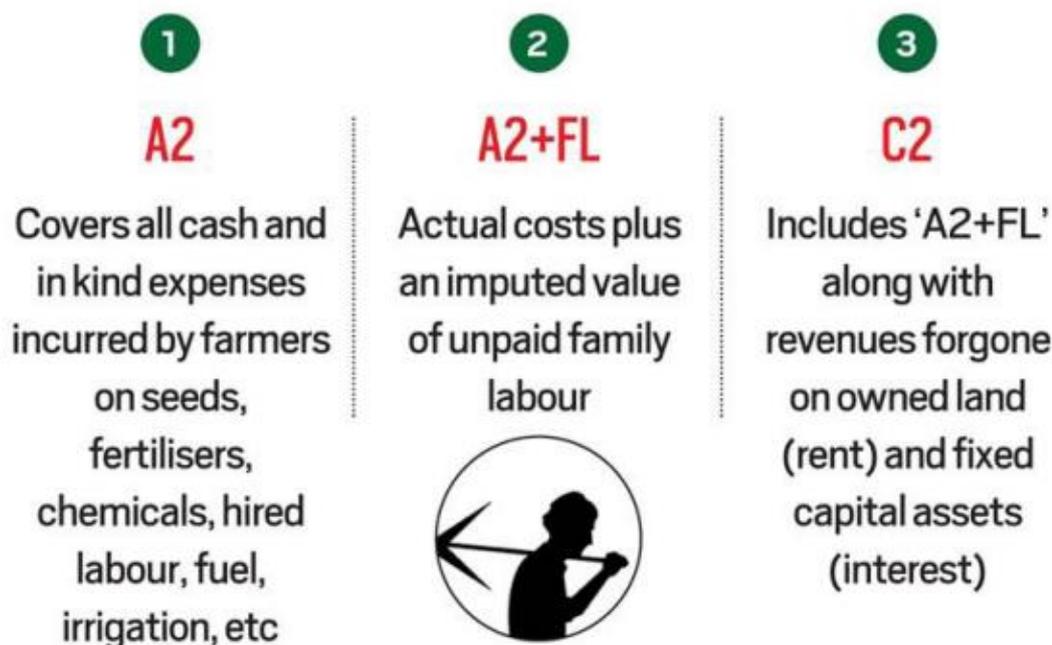
1. **Cost of production.**
2. The **supply and demand** situation in the market.
3. **Market price** trends (domestic as well as global).
4. Its **effects on consumers, environment** etc



HOW ARE MSPs DETERMINED?

The Centre fixes MSPs for every kharif and rabi cropping season based on recommendations of the Commission for Agricultural Costs and Prices (CACP)

● When a farmer grows a crop, he incurs costs, some of it explicit and some implicit or unpaid. The CACP considers the following costs:





What are the Issues in the current MSP policy ?

- 1. Cost of production:** The support prices that are being provided are not increasing at par with the cost of production. A rating agency, CRISIL pointed out that the increase in MSP has fallen between 2014-17.
- 2. Limited Procurement:** As against the official announcement of MSP for 23 crops, only 2 crops (rice and wheat) gets more attention as these are distributed under NFSA (National Food Security Act).
- 3. Limited farmers are getting benefits of MSP:** Shanta Kumar Committee in its report in 2015, stated that only 6% of the farmers are getting benefits under MSP.
- 4. No relation with Prevailing price of the market:** The current MSP system has no relation with the prices of the domestic market. Its sole objective is to fulfil the requirements under NFSA.
- 5. Role of Middlemen:** MSP system is also dependent on middlemen, commission agents which makes it more headache for farmers.
- 6. Issues in WTO:** India's MSP scheme has been challenged by many countries in the WTO. For example, Australia has complained of the MSP on wheat, US and EU complained of sugarcane and pulses MSP.
- 7. Interference in market:** It disturbs the free market. It favours some particular crops over the others.



6.

ENVIRONMENT

6.1

RED-EARED SLIDER TURTLES

Why in News?

Recently, many experts have expressed the concern that the presence of invasive and non-native 'South Red-Eared Slider Turtles' can lead to the extinction of native species of Turtles.

1. India is home to **29 freshwater turtles and tortoise species** of the **356 turtle species recognised worldwide** and **around 80% of them are threatened**.

About Red-Eared Slider Turtle:

1. The red-eared slider is **primarily aquatic** and **emerge from the water for basking on rocks**.
2. When basking, red-eared slider **commonly pile on top of each other** and when hears the sound or sight of a potential predator, **they slide off their basking spot back into the water**, so hence got the name, "**slider**."
3. **Scientific Name: Trachemys scripta elegans**
4. **Habitat:** They can tolerate a wide range of habitats and are sometimes found in estuaries and coastal wetlands with brackish water. They can also tolerate a range of water quality and accept high levels of organic pollutants such as effluents and inorganic pollutants.
5. **Geography:** The red-eared slider is native to **South-Eastern USA and Mexico**.
6. **Protection Status: IUCN Red List= Least Concern**
7. **Distinctive Features:**
 - a) They have a **broad red or orange stripe** behind each eye with **narrow yellow stripes** marking the rest of the **black body, neck, legs and tail**.
 - b) They have distinctive **long claws on their front and hind legs** where claws are **longer and more prominent in males** than females.
 - c) They hide their head straight back into their shell when threatened. Native turtles **tuck their neck to one side underneath the shell**.



Why the Turtle's presence in India is a matter of Concern?

1. Favourable Pet:

- a) In India, keeping indigenous turtles as 'pets' is prohibited under the Wildlife Protection Act, 1972 but the foreign breeds are not restricted and are kept as pets in many families across India.
- b) They are small and easy-to-maintain species and therefore a hit in the pet market.
- c) The species breeds faster as compared to other local turtle varieties. As their size increases, they no longer fit in small tanks or ponds and then the owner release them in the wild or nearby waterbodies and once released, they become a threat to the local fauna.

2. Presence in India: In India, these turtles are mainly found in urban wetlands such as Sukhna lake in Chandigarh, temple ponds of Guwahati, lakes of Bengaluru, Sanjay Gandhi national park in Mumbai, Yamuna River in Delhi, etc.

3. Effect on Local or Native Species:

- a) As they mature fast, grow larger and produce more offspring, and are very aggressive so they can out-compete native turtles for food, nesting and basking sites.
- b) They mostly eat plants and animals and can eat a wide range of aquatic species, including fish and rare frogs.
- c) They can also transfer diseases and parasites to native reptile species.
- d) The species is considered as 1 of the world's 100 worst invasive non-native species.

What can be done to Control the Invasion?

1. There should be more rules to prevent the species from entering the Indian environment and negatively impacting it.



2. **Manual intervention is required** to procure and rehabilitate these turtles from urban wetlands. A **campaign** to declare or give up turtles should be held to take these turtles in custody.
3. These turtles should be **restrained, captivated and sent to local zoos.**

6.2

JALDOOT APP

Why in News?

Recently, the Ministry of Rural Development has launched the “JALDOOT App and JALDOOT App e-brochure” to capture the Ground water level in a better way.

About JALDOOT App:

1. It has been jointly developed by the **Ministry of Rural Development and Ministry of Panchayati Raj.**
2. This app will be used across the country to capture the water level of **selected 2-3 wells in a village.**
3. The app will work in **both online and offline mode.** So, water level can be captured even **without internet connectivity and captured data will be stored in mobile** and when mobile comes in the connectivity area, data will synchronize with the central server.
4. The regular data collected by the app will be integrated with the database of **National Water Informatics Centre (NWIC)**, which can be utilized for analysis and display of various useful reports for the benefit of various stakeholders.
5. This app will facilitate **observing water tables across the country** and the resulting **data can be utilized for Gram Panchayat Development Plan and MGNREGA Plans.**

Status of Groundwater Depletion in India:

1. According to the **Central Ground Water Board (CGWB)**, with **230 billion metre cubes of groundwater** drawn out each year for irrigating agricultural lands in **India**, many parts of the country is experiencing rapid depletion of groundwater.
2. The total estimated groundwater depletion in India is **in the range of 122–199-billion-meter cubes.**
3. **89% of groundwater extracted is used in the irrigation sector**, making it the highest category user in the country.
4. This is followed by **groundwater for domestic use which is 9% of the extracted groundwater. Industrial use of groundwater is 2%.**
5. **50% of urban water requirements and 85% of rural domestic water requirements are also fulfilled by ground water.**

Additional Information:

Some related initiatives taken by Government are:





1. Atal Bhujal Yojana (Atal Jal)
2. Jal Shakti Abhiyan (JSA)
3. Aquifer Mapping and Management Programme
4. Atal Mission for Rejuvenation and Urban Transformation (AMRUT)
5. Pradhan Mantri Krishi Sinchayee Yojana – Watershed Development Component

6.3

NEW TARGET TO REDUCE AIR POLLUTION

Why in News?

Recently, the Central government has announced a new target of a 40% reduction in particulate matter concentration in cities covered under the 'National Clean Air Programme (NCAP)' by 2026, updating the earlier goal of 20 to 30% reduction by 2024.

About National Clean Air Programme:

1. It was launched by the Ministry of Environment, Forest and Climate Change (MoEFCC) in January 2019.
2. It is the first-ever effort in the country to frame a national framework for air quality management with a time-bound reduction target.
3. It seeks to cut the concentration of coarse (particulate matter of diameter 10 micrometer or less, or PM10) and fine particles (particulate matter of diameter 2.5 micrometer or less, or PM2.5) by at least 20% in the next 5 years, with 2017 as the base year for comparison.
4. It covers a total of 132 non-attainment cities which were identified by the Central Pollution Control Board (CPCB). Non-attainment cities are those that have fallen short of the National Ambient Air Quality Standards (NAAQS) for over 5 years.

Additional Information:

Some initiatives taken by India for controlling Air Pollution are:

1. System of Air Quality and Weather Forecasting and Research (SAFAR) Portal
2. Air Quality Index: AQI has been developed for 8 pollutants and these are: PM2.5, PM10, Ammonia, Lead, nitrogen oxides, sulphur dioxide, ozone, and carbon monoxide.
3. Graded Response Action Plan (for Delhi)
4. For Reducing Vehicular Pollution:
 - a) BS-VI Vehicle's
 - b) Push for Electric Vehicles (EVs)
 - c) Odd-Even Policy as an emergency measure (for Delhi)
5. New Commission for Air Quality Management

6.4 CLOUD SEEDING

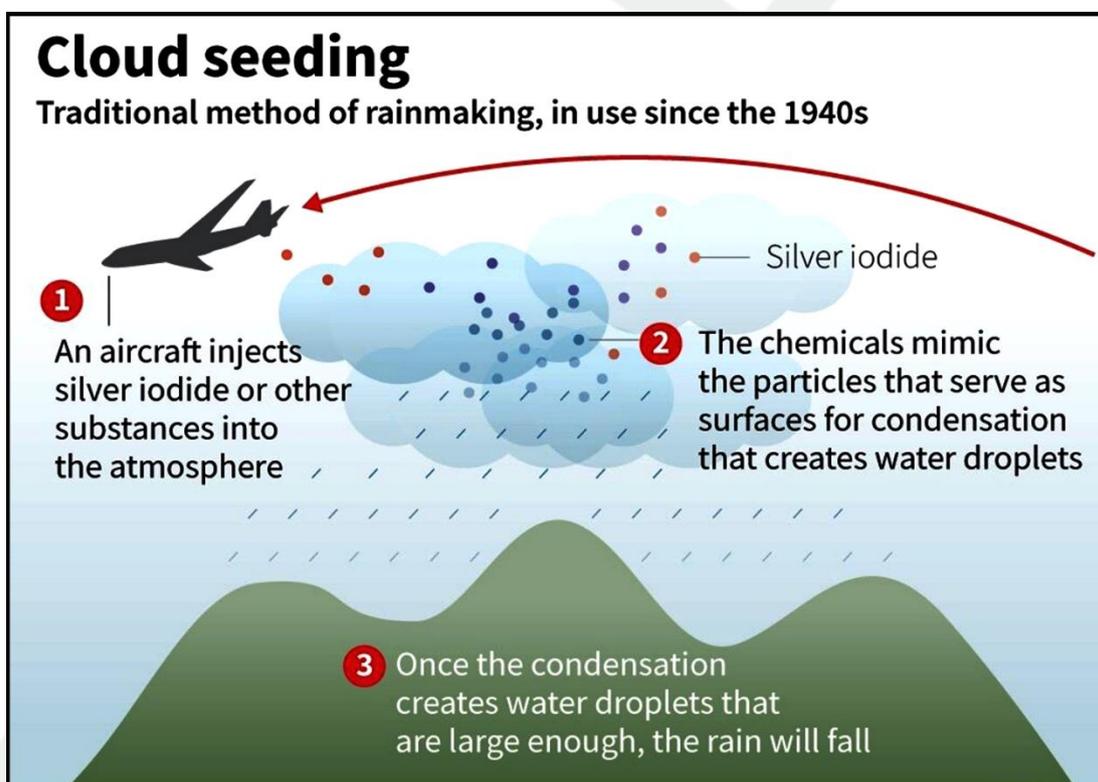


Why in News?

Recently, the United Arab Emirates (UAE) which is located in 1 of the hottest and driest regions on earth, has been leading the effort to seed clouds and increase precipitation(rainfall).

What is Cloud Seeding?

1. Cloud seeding is the process of spreading either dry ice or more commonly, 'silver iodide aerosols', into the upper parts of clouds to try to stimulate the precipitation process and form rain.
2. Cloud seeding uses planes to spray chemicals into the clouds to condense smaller particles into larger rain droplets.
3. Cloud seeding increases rainfall rate by approximately 10% to 30% per year and cloud seeding operations cost much less than the desalination process.



Some benefits of Cloud Seeding are:

1. It creates rain and that will provide relief to the **drought** affected areas. For E.g.: 'Project Varshadhari' of Karnataka which was launched in 2017.
2. Cloud seeding experiments have shown to **increase the production of hydroelectricity** during the last 40 years in Tasmania, Australia.
3. Cloud seeding can help to **maintain minimum summer flows** of the rivers and reduce the **impact of treated wastewater** discharges from municipalities and industries.



4. Cloud seeding can potentially be used to settle down toxic air pollutants through the rain.
5. Cloud seeding can transform typical dry areas into tourist places.

6.5 ARTH GANGA PROJECT

Recently, Jal Shakti Ministry released a statement that it is working with full capacity to achieve the goals of Arth Ganga Project.

1. Arth Ganga Project aims to promote the economic activities along the bank of river Ganga.
2. Arth Ganga Project was 1st introduced by PM Modi during the 1st National Ganga Council meeting which was held in Kanpur in 2019, where he urged for a shift from **Namami Gange** to the model of Arth Ganga.

➤ About the River Ganga:

1. Bhagirathi river, which originates from the Gangotri glacier at Gomukh meets Alaknanda river at Devprayag and gets the name 'Ganga'.
2. The Ganga is the longest river (2525 Km) of India which is followed by Godavari (1465 km).
3. Ganga flows through the Indian states of Uttarakhand, Uttar Pradesh, Bihar, Jharkhand and West Bengal before draining into Bay of Bengal.
4. The mouth (last stage of the river before falling into sea) of river Ganga form the world's largest delta which is known as Sunderbans and was declared a World Heritage Site by UNESCO in 1997. A river delta is a landform shaped like a triangle which is created by deposition of sediments that is carried by a river.

➤ About Namami Gange Programme (NGP)

1. It was launched in 2014 with 2 objectives: 1) Making the river Ganga pollution free 2) Conservation and best use of river Ganga without affecting its flow.
2. The implementing authority of this programme is Ministry of Jal Shakti with the help World Bank.
3. National Ganga Council, which is headed by the PM is the highest decision-making body under this programme.
4. It is completely a centrally-funded programme.
5. Some main Pillars of NGP are:
 - a) Sewerage Treatment Infrastructure
 - b) River-Surface Cleaning
 - c) Afforestation (planting trees on the bank of the river)
 - d) Industrial discharge monitoring
 - e) River-Front Development
 - f) Taking care of Bio-Diversity



- g) Public Awareness
- h) Ganga Gram (developing villages located on the bank of river ganga)

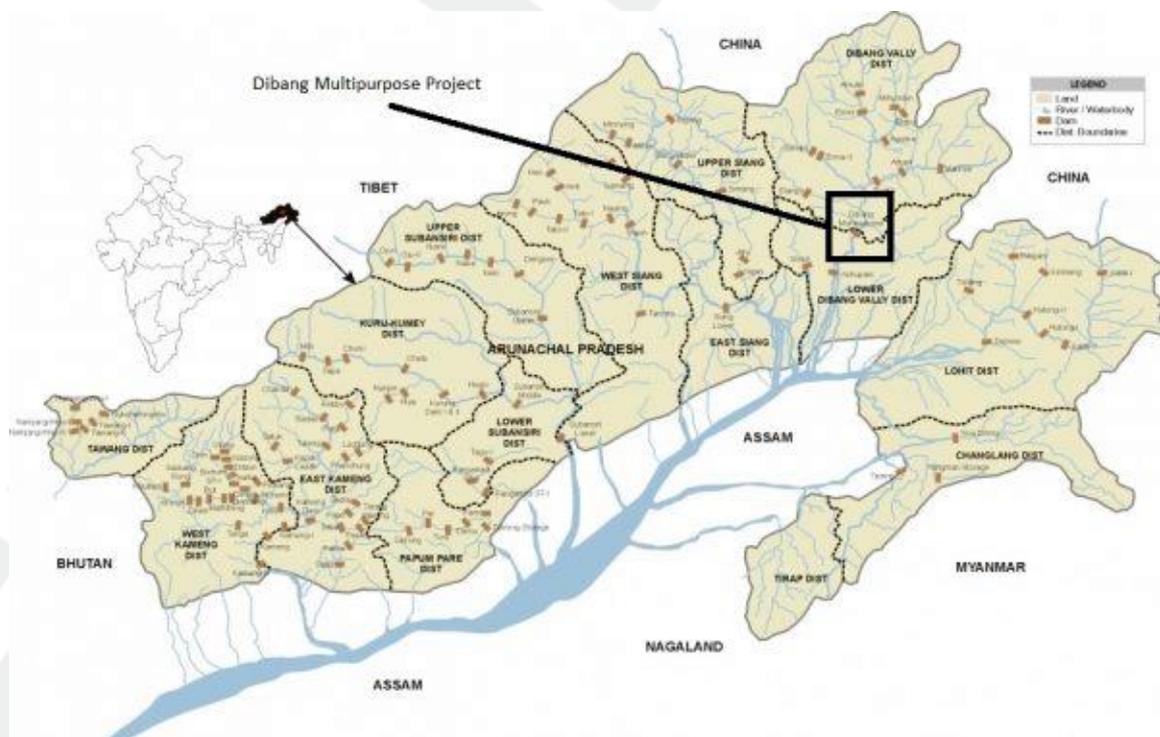
6.6 DIBANG HYDEL PROJECT

Why in News?

Recently, the National Green Tribunal (NGT) has dismissed the case it took up suo-motu on the grant of forest clearance for the 3000-MW Dibang hydel project without meeting the precondition of declaring a National Park.

About Dibang Hydro Power Project:

1. It is a flood control cum hydroelectric power project planned to be developed on the Dibang River, a tributary of Brahmaputra River, in Arunachal Pradesh.
2. The Dam site is located about 1.5 km upstream of the confluence of Ashu Pani and Dibang rivers.
3. The project will moderate flooding in the areas downstream of the Dibang dam during the entire monsoon period.
4. It will be developed with an estimated investment of USD 4 billion.
5. The Dibang hydropower project is expected to generate up to 11,222 million units (MU) of electricity a year.



6.7 NEW TIGER RESERVE IN UP



Why in News?

Recently, Uttar Pradesh (UP) approved the notification of the state's 4th Tiger reserve in the Ranipur Wildlife Sanctuary (RWS) in Chitrakoot district.

1. This will be the 54th Tiger Reserve in India.
2. 'Guru Ghasidas National Park' of Chhattisgarh is the 53rd Tiger Reserve in India.
3. A Ranipur Tiger Conservation Foundation will also be established for the protection and conservation of tigers in the region.



Key Highlights about the Ranipur Wildlife Sanctuary (RWS)?

1. RWS was founded in 1977 with no resident tiger. However, it is an important corridor for the movement of tigers as per the 'National Tiger Conservation Authority' (NTCA).
2. The Ranipur Tiger Reserve will be the 4th Tiger Reserve of UP.
3. It will also be the 1st Tiger Reserve in the Bundelkhand region of UP.
4. **Flora:** There is dry deciduous forest of Bamboo, Palash, Khair, Mahua, Dhau, Saal, Tendu, etc.
5. **Fauna:** Blackduck, Chinkara, Sambar, Cheetal, Bear, Leopard, Wolf, Wild dog, Blue bull, etc.
6. Other 3 Tiger Reserves in UP are:
 - a) Dudhwa National Park



- b) Pilibhit Tiger Reserve
- c) Amangarh Tiger Reserve

6.8 CHEETAHS REINTRODUCTION PLAN

Why In News?

India has received 8 cheetahs from Africa by the end of 2022 as its Cheetahs reintroduction plan.

About Cheetahs Reintroduction Plan:

1. 2 experts, one from Namibia and the other from South Africa will arrive to train India wildlife experts and officers on handling, rehabilitation, medical treatment and conservation of the animals.
2. This is the 1st time in the world that a large carnivore will be relocated from one continent to another.

Reintroduction:

1. It means releasing of the species in an area where it is capable of surviving.
2. Reintroductions of large carnivores have increasingly been recognised as a strategy to conserve endangered species and restore ecosystem functions.

Causes of Extinction:

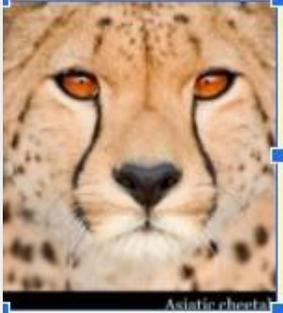
1. Human-wildlife conflict
2. loss of habitat and loss of prey
3. Illegal trafficking.
4. Emphasis on agriculture eventually led to less forest land
5. climate change

About Extinction:

1. The Cheetahs disappeared from the country when Maharaja Ramanuj Pratap Singh Deo of Koriya hunted last 3 recorded Asiatic cheetahs in India in 1947.
2. Cheethas were officially declared extinct by the government in 1952.

Asiatic Cheetah	African Cheetah
IUCN status: The Asiatic cheetah is classified as a "critically endangered" species by the IUCN Red List.	IUCN status: They are vulnerable under the IUCN Red List.



<p>Status in India: The Asiatic Cheetah was declared extinct in India in 1952.</p>	<p>Not found in India</p>
<p>Distribution– They are only 40-50 and found only in Iran.</p>	<p>Distribution: Around 6,500-7,000 African cheetahs present in the wild.</p>
<p>Characteristics– Smaller and paler than the African cheetah</p>	<p>Characteristics: They are bigger in size as compared to Asiatic Cheetah.</p>
 <p style="text-align: center; font-size: small;">Asiatic cheetah</p>	<p style="text-align: center; font-size: small;">African cheetah.</p>  <p style="text-align: center; font-size: small;">African cheetah</p>

Significance of Reintroducing Cheetahs:

1. From a long time, ecologists were encouraging the **reintroduction of the species** in the country.
2. It is considered as a strategy helpful to conserve **threatened species and restore ecosystem functions.**
3. The cheetah is the only **large carnivore** that has been **extinct from wild life.**
4. It will help India to regain its **lost natural heritage** for **ethical as well as ecological reasons.**
5. The conservation of the cheetah will **revive grasslands and their biomes.**
6. It will help in reviving habitats **much like Project Tiger** has done for forests and all the species that have seen their **numbers go up.**

6.9

WORLD OZONE DAY

Why in News?

India celebrates 28th world Ozone day.

About Ozone Layer

1. It is a form of oxygen having chemical formula O₃.
2. **Most of the ozone found at a height between 10 to 40 km in atmosphere. This region (between 10 to 40 km high from earth's surface) is called the stratosphere and it**
3. **Stratosphere contains about 90% of all the ozone in the atmosphere.**



Types of Ozone:

1. Good Ozone:

- It occurs naturally in the Earth's upper atmosphere (Stratosphere) and works as a **protective layer** that protect us from the harmful ultraviolet rays (UV) of sun.
- This “good” ozone is facing **constant harm by man-made chemicals** which are known as **Ozone-Depleting Substances (ODS)**.
- ODS consists of **chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), halons, methyl bromide, carbon tetrachloride, and methyl chloroform etc.**

2. Bad Ozone:

- It is found in the Earth's lower atmosphere (troposphere).
- Bad Ozone is also known as **Ground level Ozone**.
- It is **formed when pollutants emitted** by cars, power plants, industrial boilers, refineries, chemical plants, and other sources **react chemically in the presence of sunlight**.
- It is a **harmful air pollutant**.

Initiatives related to protection of Ozone Layer:

1. In 1985, The **Vienna Convention on Protection of Ozone Layer** came for **research and better monitoring of human activities that affects the ozone layer**.
2. In 1987, the **Montreal Protocol** was adopted to **protect the ozone layer by eliminating the use of chemicals which cause harm to Ozone layer**.
3. In 2016, **Kigali Agreement** was adopted to **prepare a path to achieve an 80% reduction in HFCs (HFCs are not ozone depleting gases but have high global warming potential) consumption by 2047**.



GREEN STEEL

Why in News?

A clean steel sector is essential for country's transition to 'Green Steel'.

What is Green Steel?

1. Green Steel is the **manufacturing of steel without using fossil fuels**.
2. The alternative cleaner fuels can be **low-carbon energy sources such as hydrogen, coal gasification, or electricity etc.**
3. **Low-carbon hydrogen (blue hydrogen and green hydrogen) can help reduce the steel industry's carbon footprint.**



4. **National Hydrogen Energy Mission (NHM)** encourage the production of hydrogen fuel for a cleaner alternative fuel option.

What is the Status of Steel Production in India?

1. India is **currently the world's 2nd largest producer of crude steel.**
2. India is the **2nd largest consumer of finished steel in 2021 after China.**
3. More than **80% of the country's steel reserves are in the states of Odisha, Jharkhand, West Bengal, Chhattisgarh and the northern regions of Andhra Pradesh.**
4. **Important steel-producing centers in India are:**
 - Bhilai (Chhattisgarh)
 - Durgapur (West Bengal)
 - Burnpur (West Bengal)
 - Jamshedpur (Jharkhand)
 - Rourkela (Odisha),
 - Bokaro (Jharkhand).

Significance of Green Steel:

1. Green steel production is **cost effective** (cheaper).
2. **Quality of green steel is also better** than the conventional steels.
3. The steel industry is the **largest energy intensive sector**, making it the **biggest emitters of carbon dioxide (CO₂)** hence, using green steel will **lower greenhouse gas emissions.**

What should India do?

1. India should adopt the **cost-effective technologies from different countries to decarbonize the steel sector.**
 - [*Decarbonisation* is the **reduction of carbon dioxide emissions** through the use of low carbon power sources and **achieving a lower output of greenhouse gasses.**]
2. Many **old plants need to be renovated according to green standards.**
3. India should work on having **suitable policy to manage the infrastructure for the Steel Scrap Recycling (SSR).**
4. **The government should strengthen the market for green steel** by boosting the demand of green steel.
5. Government should **encourage the private sectors to generate green standards for the market growth of green steel.**
6. **Old machineries which are pollution causing should be removed from plants and be updated with newer and cleaner technology.**

In view of commitments made at the **Conference of the Parties (COP26)**, the Indian steel industry **needs to reduce its emissions significantly by 2030 and hit net-zero carbon emissions by 2070.**



6.11 URBAN FLOODS

Why in News?

In September 2022, floods in Bengaluru have impacted its socio-economic conditions badly.

- Across India 65% of urban settlements do not have a master plan, and even the existing plans do not address the problems efficiently due to various limitations.
- According to NITI Aayog report, state governments are empowered to make these plans and city governments remain stakeholders.

Socioeconomic Impacts of these frequent floods:

1. Mumbai reportedly have lost 14000 crores between 2005 and 2015.
2. Chennai was estimated a loss of 15000 crores in 2015 alone.
3. Other than financial and economic losses, floods largely impact the vulnerable and poor the most, as they live in most backward areas.
4. Floods also results in loss of livelihoods for daily wagers and street vendors.

Limitations of Urban Master plans for flood management:

1. Laws related to urban flood management lacks the statutory backing which impacts their implementation.
2. The existing laws about the flood management need revision according to changing weather patterns.
3. There is also lack of coordination between different agencies and departments working for Flood management.
4. The laws and plans to manage floods are mostly expert driven and lacks public participation which in turn reduces the credibility of plan.
5. There is lack of civic consultation about the existing problems, which leads to gap in the effective flood management.
6. The plans related to flood management mainly focus on removal of encroachment, without considering the rehabilitation of poor.

Way Forward:

1. Governments should actively work on revising old master plans and must give them statutory backing to ensure their proper implementation.
2. There should be proper consultations time to time so that proactive and required action can be taken.

With increasing urbanization, India should have proper flood management and which can be ensured with having a comprehensive climate action plan and establishing synergies (cooperation) between working agencies.



6.12 INDIA AND SDG 13

Why in News?

On 5th September 2022, Union Minister for State (Environment, Forest & Climate) in a written reply in Rajya Sabha said that India is constantly achieving its Sustainable Development Goals (SDGs).

What is Sustainable Development?

Its the **development that is being done in the present without compromising the needs of the future generations.**

So, What are Sustainable Development Goals (SDGs)?

1. Also known as ‘**Global Goals**’.
2. They were adopted by the **UN in 2015** to make an **appeal to the world to work sincerely towards the major issues the world is facing today** like **Poverty, Climate Change, Health to all etc** and **to ensure that by 2030** all the people in the world enjoy **peace and prosperity**.
3. SGDs are divided between **17 Goals** which are further sub-divided into **169 Targets**.
4. These goals are **interlinked with each other** and betterment in any 1 area will affect the outcomes in others too.
5. **17 SDGs are as follows:**



India in recent years has made huge efforts in achieving the **Goal 13th** of the **SDGs**. This goal talks **regarding the ‘urgent action to handle climate change and its impacts’**.

How has India progressed in achieving the climate action goals?

1. Even having no binding obligations under the **United Nations Framework Convention on Climate Change (UNFCCC)**, in 2009 India announced its **goal to reduce the emissions by 20-25% of its GDP by 2020** in comparison to 2005 levels and **India has achieved this even before 2020**.
2. India achieved a **24% reduction in emissions intensity** of its GDP between 2005 and 2016.
3. For the **Paris Agreement of 2016**, India submitted its **Nationally Determined Contributions (NDCs)** to UNFCCC in 2015 fixing few targets for the period 2021-2030 and these are:
 - a) **Reducing the emissions intensity of its GDP by 33 to 35% by 2030 from the 2005 level.**



- b) To develop **almost 40% electric power installed capacity from non-fossil fuel based energy resources by 2030.**
- c) To create an **additional carbon sink** (removing carbon from the environment) of 2.5 to 3 billion tonnes of CO₂ through additional forest and tree cover by 2030.
- d) The other targets are related to **balanced lifestyles; climate-friendly growth paths; climate change adaptation; climate finance and technology.**
- e) India has also pledged to achieve **'Net 0' emissions by 2070 .**

What is National Action Plan on Climate Change (NAPCC)?

- Other than the above-mentioned targets, the Government of India is also implementing the **'National Action Plan on Climate Change'** which provides a policy framework for all climate related actions.
- It has **8 core Missions** in specific areas like: **1) Solar energy 2) Energy efficiency 3) Sustainable habitat 4) Water 5) Sustaining Himalayan ecosystems 6) Green India 7) Sustainable agriculture 8) Strategic knowledge for climate change.**
- **33 States and Union Territories** have prepared **State Action Plan on Climate Change (SAPCC)** keeping in mind the objectives of NAPCC.
- The climate change related plans in the states and union territories of India are being supported through **National Adaptation Fund for Climate Change (NAFCC)**. This fund was specially formed to deal the issue of climate change.

Way Forward

- 1. Achieving the SDGs in a country as diverse as India will definitely be a difficult task but not unachievable.**
- 2. We need to clearly set the priorities and plans which are locally relevant and people -centric also.**
- 3. People's participation need to be promoted and encouraged at every level.**



7.

SECURITY

7.1)

VOSTOK EXERCISE 2022

Why in News?

Recently, India joined a multilateral strategic and command Exercise Vostok - 2022 in Russia along with China among other countries.



About Exercise Vostok:

1. It involve troops from several former Soviet Union nations and the countries like China, India, Laos, Mongolia, Nicaragua and Syria.
2. The **Indian Army** was represented by the contingent of troops from **Gorkha Rifles**.
3. It is aimed at **interaction and coordination amongst other participating military contingents** and observers.
4. The Vostok 2022 exercise was held at 7 firing ranges in Russia's Far East and the **Sea of Japan** and involve more than 50,000 troops and over 5,000 weapons units, including 140 aircraft and 60 warships.



India's Exercises with China & Russia are:

1. China:

Exercise Hand-in-Hand: The aim of the exercise is to practice joint planning and conduct of **counter terrorist operations in semi urban terrain.**

2. Russia:

Exercise Indra: The INDRA series of exercise **began in 2003 and was conducted as a bilateral naval exercise alternately between the two countries.** However, the first joint Tri-Services Exercise was conducted in 2017.

3. Exercise ZAPAD 2021: It is a multinational exercise in which 17 countries including India, China, Russia and Pakistan are part of it.

7.2

GOVERNMENT BANNED PFI

Why in News?

Recently, the Government of India banned the 'Popular Front of India' (PFI) and its affiliate organisations for 5 years under the Unlawful Activities (Prevention) Act 1967 for having terror links.

About the Popular Front of India (PFI):

1. It was created in 2007 through the merger of 3 Islamic organisations.
2. The formation of the PFI was formally announced at a rally in Bengaluru during the "Empower India Conference" on 16th February, 2007.

Why did the Centre banned PFI?

1. The Ministry of Home Affairs declared the PFI an "unlawful association" along with its associates which includes: **Rehab India Foundation (RIF), Campus Front of India (CFI), All India Imams Council (AIIC), National Confederation of**



Human Rights Organisation (NCHRO), National Women's Front, Junior Front, Empower India Foundation and Rehab Foundation, Kerala".

2. Reason for the Ban:

- a) According to the government, some of the PFI's founding members are **leaders of the Students Islamic Movement of India (SIMI)** and the PFI also has **linkages with Jamaat-ul-Mujahideen Bangladesh (JMB)**, both of which are **terrorist organisations**.
- b) There had been a number of instances of **international linkages of PFI with Global Terrorist Groups like Islamic State of Iraq and Syria (ISIS)**.

Additional Information:

About the Unlawful Activities (Prevention) Act, 1967

1. **Originally this act was enacted in 1967** and was amended in 2004 and 2008.
2. In August 2019, **Parliament** cleared the **Unlawful Activities (Prevention) Amendment Bill, 2019** to designate **individuals as terrorists** on certain grounds provided in the Act.
3. **Section 7 of the UAPA** gives the government the power to **"prohibit use of funds"** by an **"unlawful association"**.
4. It says that **after an organisation is banned and the Centre is satisfied after an enquiry** that **"any person has custody of any money, securities or credits** which are being used or are intended to be used for the **purpose of the unlawful association**, the **Central Government may, by order in writing, prohibit such person** from paying, delivering, transferring or otherwise dealing in any manner whatsoever with such moneys, securities or credits or with any other moneys, securities or credits which may come into his custody after the making of the order".
5. It also gives power to the **law enforcement agencies to search premises of such organisations** and to **examine their books of account**.



6. Section 8 of the UAPA give powers to the Centre to “notify any place which in its opinion is used for the purpose of such unlawful association”. The “place” here includes a house or a building, or a part etc.
7. Section 10 of the UAPA criminalises membership of a banned organisation. It says that “being a member of a banned organisation will be punishable with an imprisonment of 2 years and may extend to life imprisonment or even death in certain circumstances”.

7.3

CYBER SECURITY EXERCISE “SYNERGY”

Why in News?

Recently, Computer Emergency Response Team - India (CERT-In) successfully designed & conducted the Cyber Security Exercise “Synergy” for 13 Countries as part of the International Counter Ransomware Initiative.

What is Ransomware?

1. It’s a malware designed to deny a user or organization access to files on their computer.
2. By hacking these files and demanding a ransom payment for the decryption key, cyber attackers place organizations in a position where paying the ransom is the easiest and cheapest way to regain access to their files.

What is CERT-IN?

1. Computer Emergency Response Team - India is an organisation of the Ministry of Electronics and Information Technology with the objective of securing Indian cyberspace.
2. It is a nodal agency which deals with cybersecurity threats like hacking and phishing.
3. It collects, analyses and disseminates information on cyber incidents, and also issues alert on cybersecurity incidents.



What is Synergy?

1. Synergy is a **Cyber Security Exercise** which was successfully designed & conducted by **CERT-In** in collaboration with the **Cyber Security Agency of Singapore (CSA)**.
2. The exercise scenario was derived from **real life cyber incidents**, in which a **domestic level (limited impact) ransomware incident** escalates to a **global cyber security crisis**.
3. Each State participated as a **National Crisis Management Team** having **composition from different government agencies** including National CERTs/CSIRTs, Law Enforcement Agencies (LEA), Communication & IT/ICT Ministry and Security agencies.

Objective of the exercise:

To **Assess, Share and Improve strategies** and practices among Member-States to build network resiliency against **ransomware & cyber extortion attacks**.

7.4) CRIME MULTI AGENCY CENTRE

Why in News?

A few states and 1 Union Territory have not uploaded a single alert on **Cri-MAC (Crime Multi Agency Centre)** platform.

1. States like West Bengal, Andhra Pradesh, Bihar, Chhattisgarh, Mizoram, Manipur, Nagaland and Sikkim and Union Territory of Dadra, Nagar Haveli and Daman and Diu have not uploaded a single alert.
2. Delhi, Assam and Haryana uploaded the maximum number of alerts on the portal.

What is Cri-MAC?

1. It was launched in 2020 by the **Ministry of Home Affairs (MHA)**, which is run by **National Crime Records Bureau (NCRB)**.



2. It was launched to share **information on crime and criminals** with various law enforcement agencies and ensure a seamless flow of information among them.
3. It aims to **help in early detection and prevention of crime incidents across the country**.
4. Cri-MAC provides **information about significant crimes**, including human trafficking across the country on real-time basis and enables inter-State coordination.
5. It can help in locating and identifying the **trafficked victims** as also in prevention, detection and investigation of crime.

7.5

ROHINI SOUNDING ROCKET

Why in News?

In September 2022, Indian Space Research Organisation (ISRO) has successfully demonstrated a new technology with Inflatable Aerodynamic Decelerator (IAD).

About Inflatable Aerodynamic Decelerator (IAD):

1. It was **designed, developed and successfully test-flown** by ISRO's Vikram Sarabhai Space Centre (VSSC).
2. Rohini sounding rockets are **regularly used for flight demo of new technologies**.
3. These rockets work for **flights which are developed by ISRO as well as by scientists from India and abroad**.
4. The IAD serves to **slowdown an object dipping down through the atmosphere**.
5. It can be a **game-changer with various applications for future missions including to Mars and Venus**.

Significance of IAD:

1. This new technology will **aid to the cost-effective recovery of rocket stages and safely land payloads on other planets**.
2. It can also be **used in ISRO's future missions to Venus and Mars**.



7.6

BRAHMOS MISSILE**Why in News?**

Since its first launch Brahmos has been tested and upgraded several times at land, air and sea platforms.

- The 1st successful test in 2001 was conducted from a specially designed land-based launcher.

About Brahmos:

1. BrahMos is a 2-stage missile.
2. It works with a solid propellant booster engine.
3. Its 1st stage brings the missile to supersonic speed.
4. The liquid ramjet or the 2nd stage then takes the missile closer to 3 times the speed of sound.
5. The missile has a very low radar signature.
6. This is a 'fire and forget' type missile which can achieve a cruising altitude of 15 km and a terminal altitude as low as 10 m to hit the target.
7. Cruise missiles such as BrahMos, called "standoff range weapons".
8. These are fired from far enough to allow the attacker to avoid defensive counter-fire.
9. The BrahMos has 3 times the speed, 2.5 times flight range and higher range compared to subsonic cruise missiles.
10. An extended version of the BrahMos air-launched missile was tested from a Sukhoi-30 MKI recently.
11. Recently, an advanced sea-to-sea variant of BrahMos was tested from the newly commissioned INS Visakhapatnam.

7.7

NAVAL EXERCISE KAKADU**Why in News?**



In September 2022, **INS Satpura** and **P8I Maritime Patrol Aircraft** have arrived in **Darwin in Australia** to participate in a multinational naval exercise, **Kakadu**, being hosted by the **Royal Australian Navy**.



What do we Know about Exercise Kakadu?

1. Exercise Kakadu is a joint, **biennial** exercise.
2. It is **hosted by the Royal Australian Navy** and supported by the **Royal Australian Air Force**.
3. Kakadu is the Navy's **premier maritime exercise**, developing interoperability **between nations in the maritime and air domains**.
4. It **started in 1993**.
5. It's a 2-week long exercise, **both in harbour and sea**.
6. It involves ships and maritime aircraft from **14 navies**.

Theme of the Exercise:

Partnership, Leadership, Friendship.



Significance of Exercise:

1. Exercise Kakadu is **important for building relationships between participating countries.**
2. The exercise provides an opportunity for regional partners to **undertake multinational maritime activities.**

What are other military exercises with Australia?

1. Multilateral exercise:

- Malabar
- Exercise Pitch Black 22

2. Bilateral exercise:

- Ausindex.

7.8

LIGHT COMBAT HELICOPTER

Why in News?

In October 2022, The **Indian Air Force (IAF)** received its 1st batch of indigenously-developed **Light Combat Helicopter (LCH)**.

- The helicopter will be called '**Prachanda**', which means aggressive.

Features of the LCH:

1. It is powered by **two Shakti engines.**
2. It has a **weight of 5.8 ton.**
[Any helicopter which has weight less than 10 ton considered as light helicopter.]
3. It is the **only attack helicopter** in the world which **can land and take-off at an altitude of 5,000 m** with an extensive load of weapons and fuel.
4. It is equipped with **air-to-air and air-to-ground missiles, 70 mm rockets and a 20 mm gun.**
5. It will replace **Mi-17 helicopter.**



6. LCH also has **counter measure dispensing system that protect it from enemy radar.**
7. LCH is **equipped with advanced technology** features as:
 - All-weather combat capability
 - Armour protection
 - Night attack capability
 - Crash-worthy landing gear
 - Anti-tank
8. It can **perform a range of roles**, including:
 - Combat search and rescue
 - Destruction of enemy air defence
 - Counter-insurgency operations

Significance of LCH:

1. The introduction of LCH in the Indian Air Force is **expected to give further boost to Atmanirbhar Bharat Abhiyaan.**
2. **Till now Indian Army did not have any medium lift helicopter** and was dependent on Indian Air Force for this **hence, it will make Indian Army more equipped.**
3. **Development of helicopter technology** in the country itself will be a **strategic asset for India in long run.**

7.9 PRITHVI-II MISSILE

Why in News?

On 18th September 2022, India successfully conducted the night trial of **surface-to-surface Nuclear-capable short-range ballistic missile Prithvi-II**. Short range missiles are those having a range of **upto 1000 Kms.**

1) **Nuclear Capable Missiles** are those that can carry Nuclear weapons.



2) **Ballistic Missiles** are those that **keeps on moving even after its entire fuel got burned**. It works the same way that a bullet does after it's been fired out of a gun.



350 km

Strike range

500-1,000 kg

Warhead capacity

9 metre

Height

2003

Induction year

What are the Prithvi Missiles?

- 1) The **Prithvi missile system** includes various **Surface-to-Surface Short-Range Ballistic Missiles (SRBM)**.
- 2) Its development began in **1983** and it was **India's 1st Indigenous (Indian made) ballistic missile system**.
- 3) It was 1st test-fired in **1988**, from **Sriharikota** (Andhra Pradesh) and it was having a range from **150 to 300 km**.
- 4) The **Naval (Navy based) variant of Prithvi I and Prithvi III class missiles** have the code-name **Dhanush**.
- 5) The propulsion technology is based on the **Soviet SA-2 surface-to-air missile**. A propulsion technology is a system that **produces thrust to push an object forward**.



- 6) **Soviet SA-2 Surface-to-Air Missile:** Developed in 1955 and it was the 1st effective Soviet Union surface-to-air missile. It can carry a nuclear weapon too.
- 7) The **Prithvi I** missiles have been in service with the Indian Army since 1994.
- 8) **Prithvi II** missiles have been in service since 1996.
- 9) **Prithvi III** have been in service since 2004.

About Prithivi-II Missile?

- 1)It's **Surface-to-Surface Short-Range Ballistic Missile (SRBM)**, which has a range of around **250 km-350 km** and can carry payload (weapons) **upto 1 tone**.
- 2)It's a **single-stage liquid- fueled missile** (only works on Liquid fuel).
- 3)It is **capable of striking targets** with a very **high degree of accuracy**.
- 4)This missile uses an **advanced inertial guidance system (that guides it's Path)** to hit its target.
- 5)It was initially **developed for the Indian Air Force** and was **later included into the Indian Army as well Navy**.
- 6) The missile was included into India's Strategic Forces Command for the first time in **2003**. Strategic Forces command handles India's Nuclear Weapons.
- 7)It was **Developed by Defence Research and Development Organisation (DRDO)** of India under its **Integrated Guided Missile Development Programme (IGMDP)**.

About Integrated Guided Missile Development Programme (IGMDP)

- 1)It was an **Indian Ministry of Defence** programme to **research and develop a comprehensive range of missiles**.
- 2)The project started in **1982–1983** under the leadership of **Dr APJ Abdul Kalam** and this programme only made **Dr APJ Abdul Kalam "The missile man of India"**.
- 3)This programme was completed in **2008**.

Five Missile system Developed under the IGMDP are:

- 1)**PRITHVI** (Short range surface-to-surface ballistic missile)
- 2)**AGNI** (Medium range surface-to-surface missile)
- 3)**TRISHUL** (Short range low-level surface-to-air missile)



4) **AKASH** (Surface-to-air missile having a range of up to 25 Km and multi-target handling system)

5) **NAG** (Third generation missile and works on “fire & forget” principle Anti-tank missile)



8.

CULTURE

8.1

MOHENJO DARO- UNESCO'S WORLD HERITAGE SITE

Why in News?

Recently, Pakistan's Department of Archaeology warned that heavy rainfall in the Sindh province threatened the World Heritage Status of Mohenjo Daro.

So, What is threatening the Heritage Site of Mohenjo Daro?

1. Between August 16 and 26, 2022, the archaeological ruins of Mohenjo Daro received a record 779.5 mm of rain, which has resulted in "considerable damage to the site and partial falling of several walls, including the protection wall of the stupa dome".
2. Muneer Area, Stupa, Great Bath and other important sites of Mohenjo Daro have been badly affected by the natural disaster.
3. It is feared that the ruins of Mohenjo Daro might be removed from the World Heritage list, therefore the authorities of Sindh have called for urgent attention towards conservation and restoration work at the site.

📌 About Mohenjo Daro:

1. The site of Mohenjo Daro, literally meaning 'Mound of the Dead' is 1 of the important sites of Indus Valley Civilization (IVC).
2. The sites of the Indus Valley Civilisation have been found in a large area extending from Sutkagen Dor in Balochistan near the Pakistan-Iran border to Alamgirpur in Meerut district of Uttar Pradesh , and from Manda in Jammu to Daimabad in Maharashtra.
3. Other important sites of the Harappan civilization in India are at Lothal and Dholavira in Gujarat, and Kalibangan in Rajasthan.
4. Along with Harappa, Mohenjo Daro is the best-known site of the bronze age (3300 BC to 1200 BC) urban civilization.



5. It flourished in the Indus Valley between roughly 3,300 BC and 1,300 BC, with its 'mature' phase spanning the period 2,600 BC to 1,900 BC.
6. Civilization went into decline in the middle of the 2nd Millennium BC for reasons that are believed to include catastrophic 'climate change'.
7. The site is famous for its elaborate town planning with streets made of bricks, developed water supply, drainage etc.

8.2) KARTAVYA PATH

Why in News?

Recently, the PM inaugurated the 'Kartavya Path' and unveiled the statue of 'Netaji Subhas Chandra Bose' at the India Gate.

✎ About Kartavya Path

1. Kartavya Path symbolizes a shift from the erstwhile 'Rajpath' (being an icon of power) to 'Kartavya Path' (being an example of public ownership, duty and empowerment).
2. The statue of Netaji Subhas Chandra Bose made of granite, is a tribute to the immense contribution of Netaji to our freedom struggle, and will be a symbol of the country's indebtedness to him.
3. These steps are in line with Prime Minister's 'Panch Pran' pledge during 75th Independence Day 2022, for New India in Amrit Kaal: 'remove all traces of colonial mindset'.

✎ About the brief History of Rajpath:

1. It was known as 'Kingsway' during the British rule and this 3 km stretch was built by Edwin Lutyens and Herbert Baker (the architects of New Delhi) more than a hundred years ago.
2. The capital of the Britishers moved to New Delhi from Calcutta in 1911, and construction continued for several years thereafter.
3. Lutyens conceptualised the modern imperial city centred around a "ceremonial axis", which was named Kingsway in honour of the then Emperor of India, 'George V', who visited Delhi during the Durbar of 1911, where he formally proclaimed the decision to move the capital.



4. Following Independence in 1947, the road was given its Hindi name, **Rajpath**, on which the **Republic Day parade** took place over the decades that followed.

8.3

ASI FINDS BUDDHIST CAVES IN BANDHAVGARH FORESTS

Why in News?

Recently, the Archaeological Survey of India (ASI) discovered Buddhist caves and stupas at 'Bandhavgarh Tiger Reserve' in Madhya Pradesh.

About the Findings of ASI:

1. Buddhist Caves:

- a) 26 Buddhist Caves were discovered dating back to the 2- 5th century AD and these were related to the **Mahayana sect** of Buddhism.
- b) The caves and some of their remains had 'Chaitya' (rounded) doors and stone beds typical of Mahayana Buddhism sites.

2. Inscriptions in Brahmi text:

- a) 24 inscriptions in Brahmi text were, all dating back to the 2nd-5th century AD were also found.
- b) The inscriptions mention sites such as Mathura, Kaushambi, Pavata, Vejabharada and Sapatanaairikaa.
- c) The kings they mention include Bhimsena, Pothasiri and Bhattadeva.

3. Remains of Temples:

- a) The remains of 26 temples dating to the Kalachuri period between 9th-11th century AD. The Kalachuri dynasty ruled over parts of Gujarat, Maharashtra and Madhya Pradesh.

4. Remains of the Gupta Period: Some remains of the Gupta period, such as door jambs and the carvings in caves have also been found.



What is the Archaeological Survey of India?

- ASI, under the Ministry of Culture, is the **premier organization** for the archaeological research and protection of the cultural heritage of the nation.
- It administers more **than 3650 ancient monuments**, archaeological sites and remains of national importance.
- Its activities include carrying out surveys of antiquarian remains, exploration and excavation of archaeological sites, conservation and maintenance of protected monuments etc.
- **It was founded in 1861 by Alexander Cunningham**- the first Director-General of ASI. Alexander Cunningham is also known as the “Father of Indian Archaeology”.

8.4

AMBEDKAR CIRCUIT

Why in News?

In September 2022, a **special tourist train** was announced to cover **Ambedkar Circuit**.

About Ambedkar Circuit:

1. The **Ambedkar Circuit** was proposed in 2016.



2. It is a **region covers important places related to life of Ambedkar.**
3. It **covers the area of:**
 - **Madhya Pradesh's Mhow, Ambedkar's birthplace.**
 - **Nagpur, where he was converted to Buddhism.**
 - **Delhi** where he lived during his last years.
 - **Dadar in Maharashtra**, where his body was cremated.
4. A special train will be run on the Ambedkar Circuit, like the **Ramayana and Buddhist Circuits.**

8.5 ALLURI SITARAMA RAJU

Why in news?

Recently, PM launched year-long 125th birth anniversary celebration of legendary freedom fighter Alluri Sitarama Raju in Bhimavaram, Andhra Pradesh by unveiling his bronze statue.

About Alluri Sitarama Raju

1. Alluri Sitarama Raju was born in 1897 in Mogallu, which is located in west Godavari district of Madras Presidency.
2. He is also known as 'Manyam Veerudu' (hero of the forest).
3. Sitarama Raju's reach was not only limited to the Rampa region, he established contacts across India.
4. He was the member of the 'Calcutta Secret Society' where he learnt to make bombs and he attended a meeting in Chittagong where other revolutionaries came together.
5. He arranged for arms and ammunitions from across India for his fight in the Rampa region.
6. Sitarama Raju was instrumental in spreading Non-cooperation movement in the hill region (Rampa and Gudem).
7. He was a brilliant tactician who studied geographical contours. He used his knowledge of the land to engage in guerrilla warfare with the British.

About Rampa Rebellion (August 1922 – May 1924)



1. The Rampa Revolt, also referred to as the 'Manyam Uprising', was a tribal rebellion.
2. Factors that led to the revolt are:
 - A. The Muttadars who were the actual rulers of the region had their socio-economic status challenged as they were forcefully brought under the colonial structure.
 - B. The sudden declaration of Podu cultivation (shifting cultivation) as illegal under the new colonial regime.
 - C. The colonial government has taken the rights of the local people to collect the 'Minor Forest Produce'.
 - D. The tribals were forcefully made to engage in Vetti, that is, free or unpaid labour. Alluri Sitarama Raju told them that they were the sole owners of the forest produce and prepared them to fight against the oppressive Madras Forest Act, 1882.

8.6 ANANG TAL LAKE

Why in News?

On 17th June 2022, Ministry of Culture has ordered the restoration of Historic Anang Tal Lake.

About the Lake:

- 1) The lake is situated in Mehrauli of Delhi and is claimed to be created by **Tomar King, Anangpal II** in around 1,060 AD.
- 2) He is known to have established the city of Delhi in the 11th century.

Who was Anangpal II?

- 1) Anangpal II, popularly known as **Anangpal Tomar**, belonged to the Tomar dynasty.
- 2) He was the founder of **Dhillika Puri**, which later became Delhi.
- 3) Evidence about the early history of Delhi is written on the iron pillar of **Masjid Quwaat-ul- Islam** which is located close to Qutub Minar.
- 4) Even many inscriptions (written evidence) and coins suggests that **Anangpal Tomar was the ruler of present-day Delhi and Haryana** in between the 8th-12th centuries.
- 5) He built the city from the ruins (broken condition) and under his supervision, **Anang Tal Baoli and Lal Kot** were constructed.



- 6) **Maharaja Anangpal was the Nana (maternal grandfather) of Prithviraj Chauhan.**

- 7) **Anangpal Tomar II was succeeded (taken the position) by his grandson Prithviraj Chauhan.**
- 8) **Delhi Sultanate** was established in the year **1192** after Prithviraj Chauhan's defeat in the **2nd Battle of Tarain** (located in present-day Haryana) by the **Ghurid forces under Mohammad Ghori.**

Key Points About the Tomar Dynasty are:

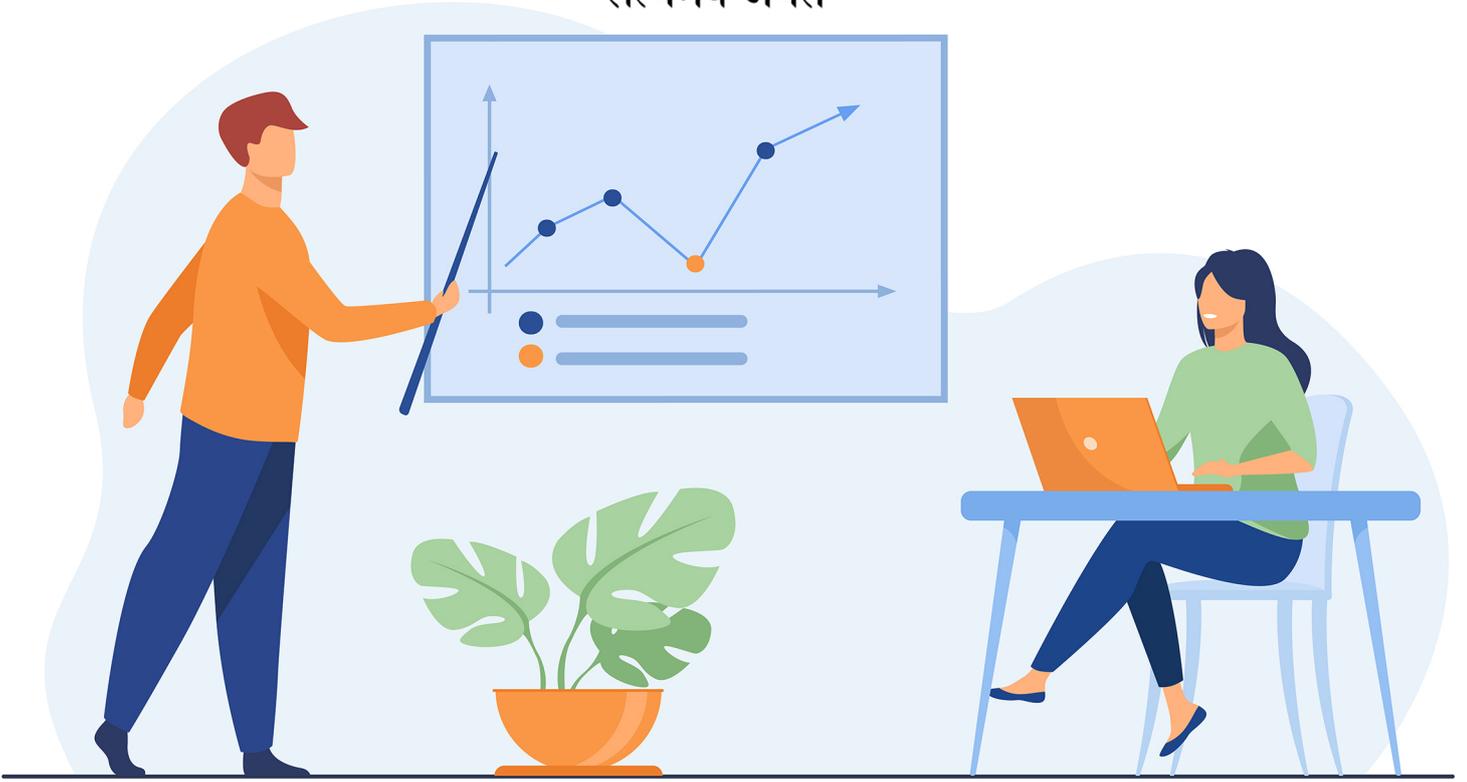
- 1) Tomara dynasty was **one of the minor early medieval ruling dynasty** of northern India.
- 2) Puranic evidence (writings of the Puranas) gives its **early location in the Himalayan region**. According to Rajput tradition, **the dynasty was one of the 36 Rajput tribes.**
- 3) The history of the family starts from the **period between the rule of Anangpal, who founded the city of Delhi in the 11th century CE**, and the merger of Delhi within **the Chauhan (Chahamana) kingdom in 1164.**



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