Lightning : A Natural Disaster

❖ Context

➢ Several Indian states have requested the Centre to **declare lightning as a natural disaster.**

❖ Key Highlights:

- Lightning strikes are **responsible for a significant number of deaths** in the country, far surpassing the number of deaths caused by other natural disasters.
- By declaring lightning as a natural disaster, the Indian government would be able to **provide financial assistance to states affected** by lightning strikes.
- **Odisha, Madhya Pradesh, Chhattisgarh, West Bengal, and Jharkhand** are the states that have witnessed the most lightning strikes in recent years.
- Currently, only **certain types of disasters are covered under the State Disaster Response Fund (SDRF),** which is a fund set up to provide financial assistance to states in the event of a disaster.
- The types of disasters that are covered include **cyclones, droughts, earthquakes, fires, floods, tsunamis, hailstorms, landslides, avalanches, cloudbursts, pest attacks, frost, and cold waves.**
- The SDRF is funded by both the state and central governments, with the central government providing 75% of the funds.

❖ Lightning Mechanism:

- Lightning is a rapid and **massive electrical discharge** that takes place between storm clouds and the ground, or within the clouds themselves.
- For lightning to occur, **positive and negative charges must separate within a cloud.**
- This happens, when the water droplets in the bottom part of the cloud are moved upwards, where the much colder atmosphere freezes them into **small ice crystals.**
- As these small ice crystals continue to go up, they **gain more mass and eventually become so heavy** that they start to fall down to Earth.
- This causes a system in which ice crystals going down collides with the water vapours coming up, leading to the accumulation of **positive charges on the top of the cloud and negative changes gathering at the base.**
- The **atmosphere** between them in the cloud acts as an **insulator**.
- When the positive and negative charges grow large enough, their strength overpowers the insulating properties of the properties.
- As a result, the two kinds of **charges meet with each other and produce lightning.**
- Although most of the lightning takes place within the clouds, sometimes it is directed towards Earth also.

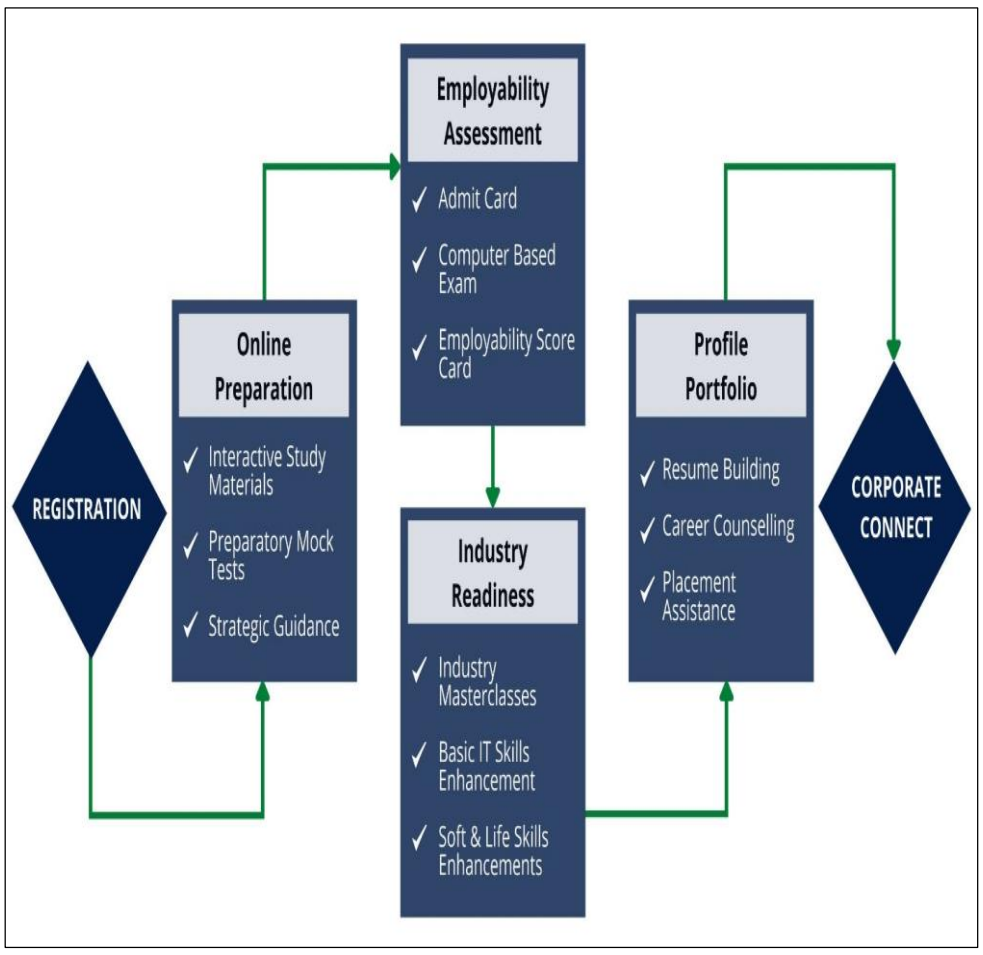
Employability Test for Engineering Students

❖ Context

➢ L&T EduTech launches employability test for engineering students.

❖ Key Highlights:

- The national engineering competency test can help corporates understand candidates' skills and save time and evaluation costs.
- L&T EduTech, the hybrid learning platform from Larsen & Toubro, has unveiled a 'National Engineering Competency Test' (NECT).
- L&T EduTech aims to make NECT, a common assessment for the entry-level hiring programme of corporates by providing them an understanding of candidates' skills and abilities that will save time and evaluation costs.
- The test will also bridge the gap that exists today between the competence of young engineering and diploma students and industry expectations by diagnosing their skill gaps early in time to take corrective measures.
- A structured assessment test, NECT will determine a candidate's strengths by assessing their cognitive abilities, subject knowledge, English communication skills, and coding capabilities, apart from behavioural aspects.
- NECT will be administered through registered educational institutions to their third-year engineering degree students.
- Based on the NECT score, students can work towards acquiring new skills and enhance their employability by the time they graduate.
- The online test has inbuilt advanced security features, and remote proctoring that guarantees a reliable assessment. The score card is valid for one year.



News in Between the Lines

NASA's Spacesuit

❖ **Context**

- For the upcoming Artemis missions, NASA's first attempt at landing astronauts on the moon since 1972, the spacesuit used will see a significant upgrade.

❖ **Key Highlights:**

- The suit comes from **Axiom Spaces.**
- It incorporates design elements used in previous suits by NASA.
- It will be worn during the **Artemis III mission**, the program's first moon landing, which is scheduled for 2025.
- It is called the AxEMU (Axiom Extravehicular Mobility Unit).
- **Functions of Space Suit :**
  - Without a spacesuit, humans will not survive for long in the harsh conditions of outer space or the lunar surface.
  - **Control Temperature :**
    - In absence of an atmosphere, areas which receive direct sunlight become extremely hot whereas areas in the dark are frigid.
    - The first job of a space suit is to insulate the astronaut inside from the extreme temperatures.
  - **Maintain Air Pressure :**
    - Spacesuits also provide astronauts with a constant supply of air and optimum air pressure around their body.
  - Protection from **Radiation** and **Micrometeorites**.
  - On the lunar surface, suits also protect astronauts from **lunar dust.**
  - By helping astronauts survive even in the harshest conditions of space, spacesuits allow them to perform tasks in space, carry out experiments and fulfill the objectives of their mission.

International Criminal Court

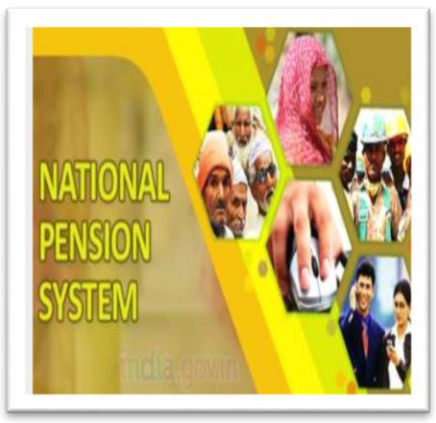
❖ **Context**

- Recently, The International Criminal Court issued an arrest warrant for war crimes for President Vladimir Putin and a second Russian official.

❖ **Key Highlights:**

- It is an **intergovernmental organization and international tribunal.**
- Its founding treaty, the **Rome Statute**, entered into force on **July 1, 2002.**
- **Headquarter-** Hague, Netherland
- It has **2 working languages: English and French**
- **Role :** It is the **first and only permanent international court** with jurisdiction to prosecute individuals for the international crimes of genocide, crimes against humanity, war crimes and the crime of aggression.
- **Limitations :**
  - It **lacks universal territorial jurisdiction** and may **only investigate and prosecute crimes committed within member states,** crimes committed by nationals of member states, or crimes in situations referred to the Court by the United Nations Security Council.
- **Members :**
  - A total of 123 countries are parties to Rome Statute :
    - 33 are from African Nations
    - 19 are the Asia-Pacific States
    - 18 are from Eastern Europe
    - 28 are from Latin American and the Caribbean States
    - 25 from Western Europe and other states.
  - The notable exceptions being the US, China, Russia, and India.
- **Judges :** 18; Elected for 9-year term.
- **Funding :**
  - The Court's expenses are **funded primarily by States Parties.**
  - It also **receives voluntary contributions** from governments, international organizations, individuals, corporations and other entities.

Pension Fund Regulatory and Development Authority (PFRDA)



❖ Context

- Recently, the Central government appointed Deepak Mohanty, a former whole-time member of the Pension Fund Regulatory & Development Authority (PFRDA), as the new Chairperson of the PFRDA.

❖ Key Highlights:

- Pension Fund Regulatory and Development Authority (PFRDA) is the **regulatory body for overall supervision and regulation of pensions in India.**
- It operates under the jurisdiction of **Ministry of Finance** in the Government of India.
- It was **established in 2003** based on the recommendations of the Indian government OASIS (Old age social and income security), report and was part of the establishment of the Indian National Pension Scheme.
- **Headquarters :** New Delhi, India
- **Functions :**
  - It is a Central autonomous body and is a quasi-government organisation.
  - It has executive, legislative and judicial powers similar to other financial sector regulators in India such as RBI, SEBI, IRDA, IBBI.
  - PFRDA administers and regulates the National Pension System (NPS) and also administers Atal Pension Yojana.

Private Member Bill

❖ Context

- The Chairperson of the Parliamentary Standing Committee proposes to move Private Member's Bill to amend Competition law.

❖ About Private Member Bill:

- A 'Private Member' is simply any MP who is not a minister.
- Thus, a member of the ruling dispensation who is not a minister or that of the opposition can be said to be a 'Private Member'.
- When a minister introduces a Bill, it has the backing of the government of the day and is understood to be in line with its legislative goals.
- Such a Bill is known as a 'Government Bill'. But when an MP other than a minister introduces a Bill, it is called a 'Private Member's' Bill.
- Private member bills can address a wide range of issues, from social policy to criminal law to economic regulations.
- In order to become law, a private member bill must go through the same legislative process as any other piece of legislation.

Japanese Encephalitis (JE)

❖ Context

- The study conducted in Gorakhpur district, India, included 266 children who received the Chinese SA-14-14-2 vaccine, **a live attenuated vaccine** for Japanese encephalitis.
- The researchers measured the levels of neutralizing antibodies IgG at different time points after vaccination.

❖ Japanese Encephalitis (JE)

- **About :**
  - Japanese Encephalitis (JE) is a disease caused by the **Japanese encephalitis virus (JEV).**
  - It is a **type of flavivirus,** which belongs to the same family as viruses that **cause dengue, yellow fever, and West Nile virus.**
  - It is prevalent in many parts of Asia, including India, China, and Southeast Asia.
  - Japanese Encephalitis is also a **major cause of Acute Encephalitis Syndrome (AES) in India.**
  - AES is a group of conditions that can cause inflammation of the brain and can result in severe neurological complications.
  - JE is a significant contributor to the incidence of AES in India particularly in children.
- **Transmission :** It is primarily transmitted to humans through bites from infected mosquitoes of the Culex species.
  - These mosquitoes are commonly found in areas with rice fields and large water bodies rich in aquatic vegetation.

- **Symptoms :** Fever, headache, and vomiting-
- **Treatment :** There is currently no antiviral treatment available for patients with JE, but supportive care can help relieve symptoms and stabilise the patient.

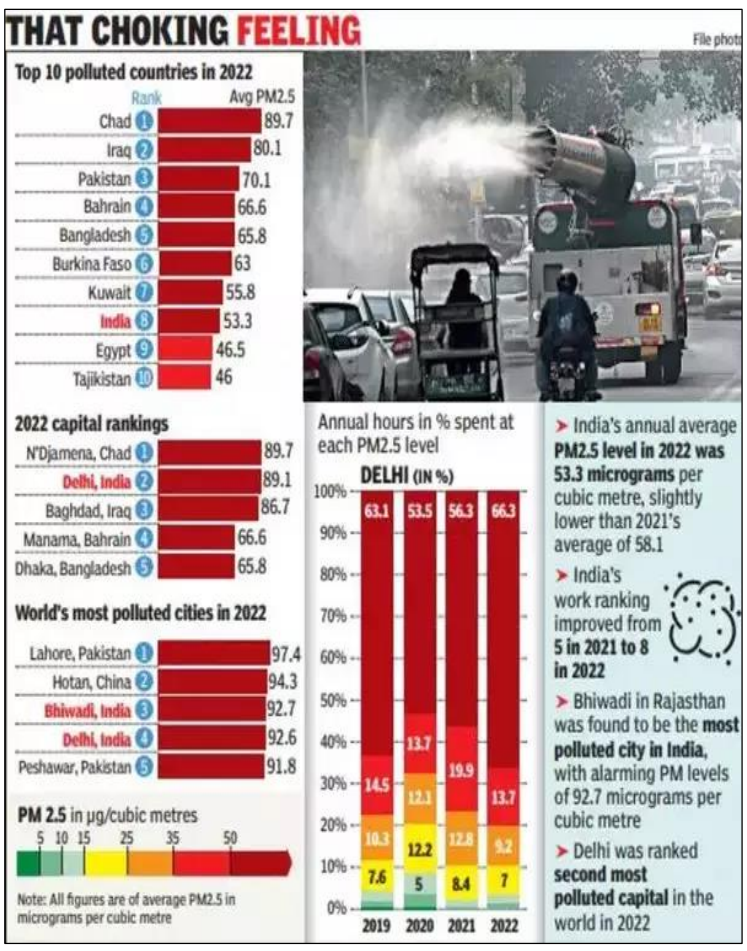
Most Polluted Cities

❖ Context

- Twelve of the 15 most polluted cities in Central and South Asia in 2022 were in India with Bhiwadi being the most polluted city in the country, according to a new report.

❖ Key Highlights:

- The report also stated that roughly 60% of cities in India included in this report experienced annual PM2.5 levels at least seven times higher than the WHO guideline.
- The transportation sector's contribution to PM2.5 varies from 20 to 35 per cent across Indian cities.
- India's annual average PM2.5 level in 2022 was 53.3 µg/m3, slightly lower than the 2021 average of 58.1.
- The report noted that stubble (crop residue) burning is also an important challenge in the region but is an episodic phenomenon confined to a few areas, including Delhi.
- Bhiwadi, on Delhi's outskirts, had pollution levels at 92.7, and Delhi followed close behind at 92.6.
- The report said air quality monitoring has increased over the past years in India, but the country still lacks the ability to track the progress of reduction strategies through an effective and reliable emissions inventory.
- Note: Lahore is the most polluted city, and Chad worst among countries.



Cross-Border Energy Pipeline

❖ Context

- Recently, PM Modi with Bangladeshi counterpart Sheikh Hasina inaugurated first cross-border energy pipeline between two countries.

❖ Key Highlights:

- This is the first cross-border energy pipeline between India and Bangladesh, built at an estimated cost of 377 crore rupees.
- Out of this, the Bangladesh portion of the pipeline, built at a cost of approximately 285 crore rupees, has been borne by the Government of India under grant assistance.
- The Pipeline has the capacity to transport 1 Million Metric Ton Per Annum (MMTPA) of High-Speed Diesel (HSD).
- It will supply HSD initially to seven districts in northern Bangladesh.
- The operation of India- Bangladesh Friendship Pipeline will put in place a sustainable, reliable, cost-effective and environment-friendly mode of transporting HSD from India to Bangladesh.

❖ High-Speed Diesel:

- High-speed diesel (HSD) is a type of diesel fuel that is specifically designed for use in high-performance diesel engines, such as those found in heavy-duty trucks, buses, and construction equipment.
- Compared to regular diesel fuel, high-speed diesel typically has a higher cetane number, which is a measure of its combustion quality.
- This means that HSD can be burned more efficiently in high-performance diesel engines, resulting in better fuel economy and lower emissions.
- In addition to its higher cetane number, high-speed diesel may also contain additional additives to improve its performance, such as detergents to keep fuel injectors clean and lubricants to reduce wear and tear on engine parts.

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