1. **Great Indian Bustard :** Recently, in a significant step towards balancing conservation efforts with clean energy expansion, a Supreme Court-appointed expert committee has proposed the establishment of designated "**power corridors**" in Rajasthan and Gujarat.
   - These corridors aim to mitigate the risk of fatal collisions between overhead power lines and the critically endangered **Great Indian Bustard.**



- **About Great Indian Bustard:** Large bird with a horizontal body and long bare legs, giving it an ostrich-like appearance. Among the heaviest flying birds in the world.
  - Easily identifiable by a black crown on the forehead, contrasting with a pale neck and head.
  - Males have larger crowns than females, and both sexes differ in feather coloration.
  - **Habitat and Distribution**: Endemic to the Indian subcontinent.
    - ✓ Primarily inhabit dry and semi-arid grasslands with scattered bushes and scrub patches.
    - ✓ Historically widespread, but now locally extinct in 90% of its original range.
    - ✓ Currently found in parts of Rajasthan, Gujarat, Maharashtra, Karnataka, and Andhra Pradesh.
  - **Features :** Primarily terrestrial, spending most of their time on the ground.
    - ✓ Capable of flying but only for short distances, typically to move between areas.
    - ✓ Diurnal in nature, active during early mornings and evenings.
    - ✓ Omnivorous in nature and feed on insects, grass seeds, berries, rodents, and reptiles.
    - ✓ In agricultural areas, they consume exposed groundnuts, millets, and legume pods.
  - Declared the **state bird of Rajasthan**.
  - **Protection: IUCN Red List**: Critically Endangered ; **CITES**: Appendix I ; **WPA, 1972**: Schedule I

2. **Global Specs 2030 :** Recently, the **World Health Organization (WHO**) launched a new initiative titled **'Global Specs 2030'**, aiming to ensure universal access to affordable eyecare by the year 2030. This global effort seeks to address the widespread challenge of vision impairment and promote eye health for all.
   - **About Global SPECS 2030:** Raising awareness around **refractive errors**, especially **myopia (short-sightedness)** among children and adolescents aged **5–15 years**.

- **Focus Areas (SPECS): Services** – Enhancing access to refractive (vision correction) services.
  - **Personnel** – Strengthening the capacity and availability of trained eyecare professionals.
  - **Education** – Increasing public awareness and education on eye health.
  - **Cost** – Reducing the cost of eyeglasses and related eyecare services.
  - **Surveillance** – Improving data collection, monitoring, and research on eye health.
- **Strategic Approaches : Normative Work**: Builds upon WHO's existing technical guidance on eye care. Includes development of additional resources to support national eyecare systems.
  - **Global SPECS Network**: A collaborative platform for organizations to coordinate advocacy, share best practices, and strengthen professional networks.
  - **Private Sector Dialogues**: Engages stakeholders from the optical, pharmaceutical, technology, insurance, and private service sectors to support the initiative.
  - **Country and Regional Engagement**: Supports tailored activities and partnerships at national and regional levels to bridge the gap between global commitments and local implementation.

3. **First Hydrogen-Powered Train Coach** : Recently, India successfully tested its **first hydrogen-powered train coach** at the Integral Coach Factory (ICF) in Chennai, marking a significant milestone in the country's push towards green and sustainable transportation.
   - **Key Highlights :** In 2023, the Indian Railways announced plans to run **35 hydrogen trains** under the "Hydrogen for Heritage" initiative.
     - Estimated cost: ₹80 crore per train and ₹70 crore for ground infrastructure per route.
     - These trains will operate on heritage and hill routes.
     - In 2024, Minister of Petroleum and Natural Gas of India showcased a **hydrogen-fuelled bus** developed by Indian Oil to the **Prime Minister of Bhutan**, highlighting India's advancements in green hydrogen mobility.
     - India is developing a **1,200 horsepower hydrogen train**, aiming to join global leaders in hydrogen-powered railway technology.
   - **Benefits of Hydrogen as an Alternative Fuel :**
     - **High Energy Density**: Green hydrogen has greater energy density than batteries and is easy to store and transport, making it suitable for long-distance use.

- **Zero Emissions**: Hydrogen trains emit only water vapor, with each replacing a diesel train potentially cutting emissions equal to 400 cars annually.
- **Infrastructure-Friendly**: Hydrogen locomotives can run on existing tracks, requiring minimal additional infrastructure.

4. **Exercise Bold Kurukshetra 2025** : Recently, the 14th edition of the bilateral joint military exercise **Exercise Bold Kurukshetra 2025** between the Indian Army and the Singapore Armed Forces commenced in **Jodhpur**, marking a significant milestone in the deepening defence cooperation between the two countries.
   - **About Exercise Bold Kurukshetra 2025** : First held in 2005, this exercise highlights the deep-rooted and enduring defence partnership between the two nations, while also strengthening cooperation between their armies.
     - **Participating Units : India**: Mechanised Infantry Regiment
       - ✓ **Singapore**: 42 Singapore Armoured Regiment (4 Singapore Armoured Brigade)
     - **Objectives: Enhance Interoperability**: Enable seamless joint operations during multinational or UN-mandated deployments.
       - ✓ **Advance Urban and Mechanised Warfare Training**: Focus on urban combat tactics and high-intensity battlefield readiness.
       - ✓ **Exercise Format**: Structured as a **Table Top Exercise and Computer-Based Wargame**, simulating real-time battlefield scenarios.
       - ✓ **Joint Tactical Drills**: Includes synchronised manoeuvres, urban warfare, and counter-terror operations.
       - ✓ **Technology Integration**: Use of advanced communications and modern weaponry for simulation-based training.
       - ✓ **Knowledge Exchange**: Sharing of military doctrines, best practices, and operational experiences.
5. **Study on Toxic And Carcinogenic Elements :** Recently, a study by Jawaharlal Nehru University (JNU) and the University of New South Wales (UNSW), Sydney found **highly toxic and carcinogenic elements** in roadside soil and dust across **Delhi**, posing serious health risks.

- The research, published in Hygiene and Environmental Health Advances and Journal of Hazardous Materials Advances, analyzed samples from **33 locations**, processed in **Australia**.

- **Key Findings : High levels of Antimony (Sb):** A carcinogenic element found in significant quantities in roadside soil and dust.
  - **Presence of 44 elements** identified, including **16 Rare Earth Elements (REEs)**.
  - **15 toxic elements** identified from the top 275 hazardous substances list.
  - **Cerium (Ce)** was the **most abundant REE** in roadside dust.
  - **Children especially vulnerable** due to: Higher daily exposure to REEs.
    - ✓ Risks of **IQ decline**, **memory loss**, and **neurodevelopmental issues**.
    - ✓ Ingestion of soil/dust particles (common among children).
    - ✓ Children in Delhi **ingest over 1 mg of toxic and non-toxic metals daily** from roadside dust and soil.
  - **Exposure routes:** Ingestion, inhalation, and skin absorption (dermal).
  - **Other health issues** linked: **Diabetes mellitus** and **gestational diabetes**
    - ✓ Long-term accumulation of metals causing chronic diseases.

6. **Glacial Lake Outburst Flood (GLOF) :** Recently, India has launched a national programme to monitor and mitigate **Glacial Lake Outburst Flood (GLOF) risks** by focusing on 195 high-risk lakes in the Himalayan region amid rising climate-induced disasters.

- **Key Highlights :** NDMA has shifted from post-disaster response to **proactive risk reduction** through its Committee on Disaster Risk Reduction (CoDRR).
  - Programme likely to scale up after the **16th Finance Commission (FY2027–FY2031)** recommendations.
  - **Objectives of the Programme : Hazard assessment** of each at-risk glacial lake.
    - ✓ Installation of **Automated Weather and Water Stations (AWWS)** for real-time monitoring.
    - ✓ **Deployment of Early Warning Systems (EWS)** downstream.
    - ✓ Mitigation infrastructure, including water drawdown systems & retention structures.
    - ✓ **Community engagement** for awareness and involvement in risk mitigation.

- **About GLOF:** Disaster events caused by the **sudden release of water** from glacial lakes.
  - This abrupt discharge often leads to **catastrophic flooding** in downstream areas.
  - **Glacial Lakes:** Formed when **melting glaciers** leave behind depressions filled with **meltwater**.
    - ✓ These lakes may occur: **In front of** glaciers (proglacial), **On top of** glaciers (supraglacial), Or **beneath** glaciers (subglacial).
    - ✓ They are typically dammed by **unstable ice**, loose **sediment**, or **moraine** (rock and debris).
- **How Do Glacial Lakes Become Hazardous:** As glaciers **recede** due to climate change, these lakes **expand in size**.
  - Larger lakes under unstable conditions pose **higher risks** of bursting.
  - If the **natural dam fails**, a massive volume of water can rush downhill, causing **destructive floods**.

7. Deep-Brain Stimulation (DBS) : Recently, over 1.6 lakh patients across the globe have undergone **Deep-Brain Stimulation (DBS),** reflecting its increasing relevance as an effective treatment for a range of neurological disorders.

- **About DBS :** A medical procedure where electrodes are implanted deep within specific areas of the brain. Used to treat certain neurological and psychiatric disorders.
  - **Working :** Electrodes are connected via wires to a pulse generator (similar to a heart pacemaker) implanted under the skin in the upper chest.
    - ✓ The device sends mild, controlled electrical impulses to targeted brain regions.
    - ✓ These impulses help regulate abnormal brain activity or correct chemical imbalances.
  - **Applications of DBS**: Commonly used to manage symptoms in Parkinson's disease, essential tremor, and dystonia when medications are no longer effective.
    - ✓ Approved for obsessive-compulsive disorder (OCD).
    - ✓ Being researched for treatment-resistant depression and epilepsy.
    - ✓ Helps interrupt faulty electrical signals between neurons, reducing symptoms like tremors and muscle rigidity.