

Small Satellite Launch Vehicle (SSLV-D2)

❖ Context

- Recently, the **Small Satellite Launch Vehicle (SSLV-D2)** was launched successfully from the first launch pad at the **Satish Dhawan Space Centre SHAR**, Sriharikota, Andhra Pradesh.

❖ Key Highlights

- It will place the **ISRO earth observation satellite EOS-07** and **two co-passenger satellites** in a 450-km circular orbit around the Earth.
- The co-passenger satellites **Janus-1** and **AzaadiSat2** are developed by start-ups.
- The vehicle's first development flight that took place last August, failed to place the satellites in precise orbit.
- About the Launch Vehicle:**
 - The launch vehicle **uses three solid stages** followed by a **liquid-fuel-based Velocity Trimming Module (VTM)** to place satellites in orbit.
 - This new vehicle is declared operational by the space agency after it completes two successful development flights.
 - The last vehicle to be declared operational was the **GSLV Mk III, now called LVM 3**, when it carried Chandrayaan-2 in 2019.
- Aim of the Launch :** The new vehicle was **developed to capture the emerging small and micro satellite commercial market**, with launches offered on demand.
- The **rocket can be assembled by a small team in only a few days**, compared to the six months and around 600 people it takes for ISRO's workhorse PSLV.

❖ Janus-1

- Janus-1 is a **technology demonstrator satellite**.
- It is built by United States-based **Antaris** and its Indian partners **XDLinks** and **Ananth Technologies**.
- A **satellite bus** is the main structure of a satellite on which the payloads rest.
 - Payloads can be used for multiple applications such as earth observation, signal monitoring, or ship tracking.
 - The company aims to make satellite buses of different sizes, for satellites **weighing around 100 kg**.
- Janus-1 weighs only 10.2 kg.
- It is a **six-unit cube satellite** with five payloads on board — two from Singapore, and one each from Kenya, Australia, and Indonesia.
- The entire **satellite was built in 10 months**, less than half the time it usually takes to manufacture satellites of this size.

❖ AzaadiSat2

- The payloads have been **built by 750 girl students across India**.
- The payloads includes** - LoRa amateur radio, a sensor to measure radiation levels in space, and sensors to measure the health of the satellite.
- A similar satellite by **SpaceKidzIndia** was launched aboard SSLV-D1 in August last year.
- SpaceKidzIndia** aims to promote space awareness among children.

Stem Cells

❖ Context

- Recently, Kanpur's GSVM medical college becomes 1st institute to **cure blindness through stem cell transplants**.

❖ Key Highlights

- The department has cured four patients who lost their eyesight due to damaged retina because of congenital and serious diseases.

❖ About Stem Cells

- Stem cells are **undifferentiated cells** that are capable of developing into other types of cells with specific functions.
- A normal cell in the body can undergo division to form only cells of its own type.
- These cells are **present in both animals and plants**.
- Differentiation** : The process by which the stem cell is converted into a mature cell with a specific function is called differentiation.

❖ Types of Stem Cells

• **Embryonic Stem Cells**

- These stem cells come from embryos that are three to five days old.
- At this stage, an **embryo is called a blastocyst** and has about 150 cells.
- These are pluripotent stem cells, meaning they can divide into more stem cells or can become any type of cell in the body.
- This versatility allows embryonic stem cells to be used to regenerate or repair diseased tissue and organs.
- Adult Stem Cells** : These stem cells are found in small numbers in most adult tissues, such as bone marrow or fat.
 - Compared with embryonic stem cells, adult stem cells have a more limited ability to give rise to various cells of the body.
- Induced Pluripotent Stem Cells** : These are stem cells that are derived from somatic cells.
- It is a pluripotent stem cell generated by introducing 'reprogramming factors' called **Yamanaka factors** into mature cells.

Face to Face Centres



11 February 2023

Delhi-Mumbai Expressway

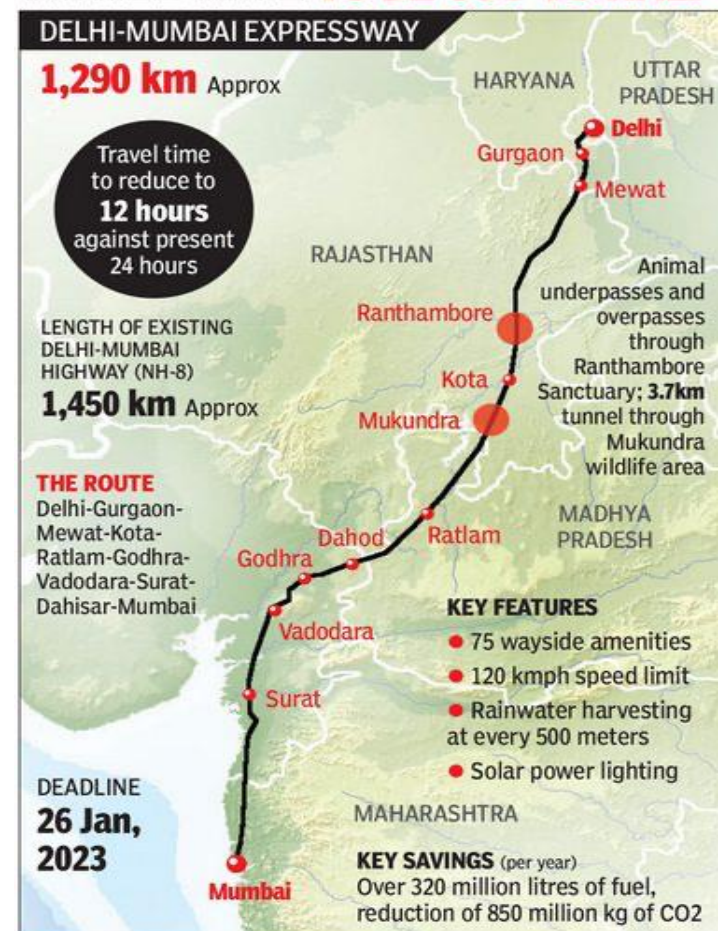
❖ Context

- Photos of the soon-to-be inaugurated Delhi-Mumbai Expressway have gone viral, receiving widespread appreciation online.

❖ Key Highlights

- The project **started in 2018** and is set to be completed by the end of 2023.
- It will passing through **Delhi, Haryana (160KM), Rajasthan (374km), Madhya Pradesh (250km) and Gujarat.**
- It will reduce travel time between the cities from over a day to just 12 hours.
- **Cost-** INR 98,000 crore.
- **Some Unique Features :** The expressway will boast of a state-of-art traffic management system.
 - There will also be a dedicated three metre wide corridor for laying utility lines including fibre optic cables, pipelines as well as solar power generation.
 - The expressway will also have **provisions for rain water harvesting** at intervals of 500 m, with over 2000+ water recharge points.
 - The expressway is the **first in Asia and only the second in the world to feature animal overpasses and underpasses** to facilitate unrestricted movement of wildlife.
- **Advantage:**
 - The reduction in distance and travel time is set to result in annual fuel **savings of more than 320 million litres and reduce CO2 emissions by 850 million kg.**
 - Over two million trees and shrubs are also planned to be planted along the highway.

TRAVEL TIME TO BE CUT TO HALF



News in Between the Lines

e-Waste



❖ Context

- Thousands of **children** who burn toxic metals including mercury, lead and arsenic in the street of Seelampur on the outskirts of New Delhi which is home to India's largest electronic waste (e-waste) dismantling market, are **exposed to health risks.**

❖ About e-Waste

- It refers to all **items of electrical and electronic equipment (EEE)** and its parts that have been **discarded by their owner** as waste without the intent of re-use.
- Only **22.7%** of the e-waste **out of the total 10,14,961.21 tonnes** generated in 2019-20 in India was collected, dismantled, and recycled or disposed off.
- **95% of e-waste in India** is recycled by the informal sector
- This **e-waste is composed of 21 types of electrical and electronic equipment (EEE)** notified Under the **E-Waste (Management) Rules, 2016.**
- **India is the world's third largest generator** of e-waste after China and the US.
- **Adverse Impact of E-Waste on Health :** Toxins' harmful health impact on humans includes **damage to the brain, heart, liver, kidneys, and skeletal system.**
 - They can also have a **significant effect on neurological and reproductive systems**, resulting in sickness and birth abnormalities.
 - They suffer from serious skin diseases and chronic lung infections due to continuous exposure to chemical-laden toxins found in the metals.

Article 356

❖ Context

- Recently, Prime Minister of India recalled in Rajya Sabha that **Article 356 of the Indian Constitution was misused** by the previous governments.

❖ About Article 356

- **Article 356 empowers the President to withdraw to the Union the executive and legislative powers of any state** "if he is satisfied that a situation has arisen in which the government of the state cannot be carried on in accordance with the provisions of the Constitution".

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President's Rule State Emergency Article 356

- **Consequences :**
 - Upon the imposition of this rule, there would be **no Council of Ministers**. The Vidhan Sabha is either dissolved or prorogued.
 - The state will fall under the **direct control of the Union government**, and the **Governor will continue to head the proceedings**, representing the President of India – who is the Head of the State.
 - The imposition of the President's rule **requires the sanction of both the houses of Parliament**.
 - If approved, it can **go on for a period of six months**.
 - However, the imposition **cannot be extended for more than three years** and needs to be brought before the two houses every six months for approval.
- **Revocation :** A proclamation of President's Rule may be revoked by the President at any time by a subsequent proclamation.
 - Such a proclamation **does not require parliamentary approval**.
- **Side Note :** The President's Rule can be proclaimed under Article 356 on two grounds—one mentioned in Article 356 itself and another in Article 365.
 - **Article 365-** Whenever a state refuses to follow or implement a directive from the centre, it is legal for the president to declare that a situation has developed in which the state's administration can no longer be carried out in accordance with the terms of the constitution.

Parliamentary Privileges

❖ Context

- Recently, Leader of Opposition in Rajya Sabha cited **Article 105 of the Constitution** that deals with the privileges and powers of parliamentarians.

❖ About Parliamentary Privileges

- Members of parliament are granted privileges or advantages under Articles 105 so that they can carry out their responsibilities and functions without impediment.
- **Article 194** deals with the powers, privileges and immunities of the State Legislatures, their Members and their committees.
- Members of Parliament are **exempted from any legal action** for any statement made or act done in the course of their duties.
 - For example, a defamation suit cannot be filed for a statement made in the House.
- This immunity **extends to certain non-members** as well, such as the **Attorney General for India** or a **Minister who may not be a member but speaks in the House**.
- In cases where a Member oversteps or exceeds the contours of admissible free speech, the Speaker or the House itself will deal with it, as opposed to the court.
- Parliament has **not made any special law** to exhaustively codify all the privileges.

❖ Context

- The Ministry of Electronics and Information Technology (MeitY) recently issued orders to block 138 online betting platforms and 94 money lending apps on an "urgent" and "emergency" basis under **Section 69(A) of the Information Technology Act, 2000**.

❖ Section 69 (A) of the IT Act, 2000

- Section 69A of the IT Act was **introduced by an amendment to the Act in 2008**.
 - It allows the Center to **issue blocking orders to social media intermediaries in the interest of :**
 - Sovereignty and integrity of India.
 - Defense of India
 - Security of the state
 - Friendly relations with foreign states or
 - Public order or for preventing incitement to the commission of any cognisable offense relating to above.
 - As per rules for **blocking orders are sent to a review committee**, which then issues these directions.

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11 February 2023

Dawoodi Bohras



- Blocking orders issued under the aforesaid section are usually **confidential in nature**.
- Since 2009, the **MeitY** has possessed blocking powers similar to those of the Ministry of Information & Broadcasting.
- MeitY **derives these powers from the IT Rules, 2009**, which explain the process to issue such orders.

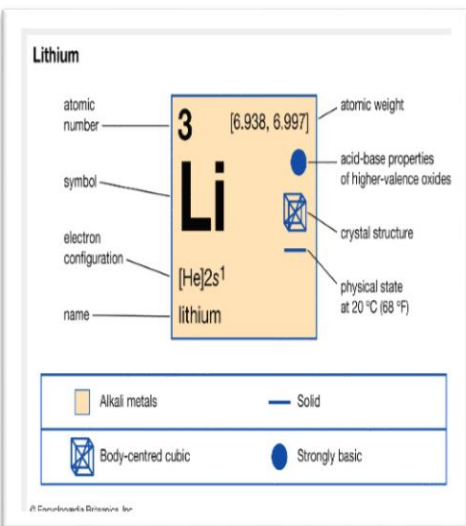
❖ Context

- The long-pending challenge to the practice of excommunication in the **Shia sect** has been referred to the 9-judge Bench hearing the Sabarimala review petition on **essential religious practice**.

❖ Key Highlights

- The petition (Central Board of Dawoodi Bohra Community & Anr. v. State of Maharashtra & Anr) has been pending since 1986.
- **Dawoodi Bohras :**
 - The Dawoodi Bohras are Shia Muslims whose leader is known as the Al-Dai-Al-Mutlaq.
 - According to members of the community, there are **around 1 million Dawoodi Bohras** spread around the world.
 - For over 400 years, the leader of the community has been based in India, including the current and the 53rd leader, His Holiness Dr Syedna Mufaddal Saifuddin.
 - The leader of the community is recognised by the members as having the **right to excommunicate its members**.
 - In practical terms, excommunication means not being allowed to access a mosque belonging to the community or a burial dedicated to the community.
 - Among the members of the community who have faced excommunication in the past are those who contested the headship of the leaders.

Lithium



❖ Context

- Recently, India's Mines Ministry announced that **5.9 million tonnes of lithium reserves** have been found for the first time in the country in Jammu and Kashmir.

❖ About Lithium

- It is a **chemical element** which is a soft, **silvery-white metal**. Under standard conditions, it is the **lightest metal** and the lightest solid element.
- It has the lowest density of all metals.
- It is **highly reactive and flammable**, and must be stored in mineral oil.
- The most important use of lithium is in **rechargeable batteries for mobile phones, laptops, digital cameras and electric vehicles**.
- **Australia, Chile, China and Argentina** are the world's top four lithium-producing countries.
- As of now, **India currently imports all its lithium needs**.
 - The Department of Atomic Energy, Government of India has discovered 1600kg Lithium in Mandla district of Karnataka.

G20 EMPOWER



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❖ Context

- The inception meeting of G20 Empowerment and progression of Women's Economic Representation (EMPOWER) group of the Ministry of Women and Child Development is to begin from February 11, 2023 in Agra.

❖ Key Highlights

- **Theme:** Empowering Women to Lead across Sectors: Role of Digital Skilling and Future Skills.
- G20 EMPOWER 2023 aims to transform challenges into opportunities accelerating the shift towards women-led entrepreneurship and greater inclusion of women in the workforce.
- **G20 EMPOWER :** The G20 Alliance for EMPOWER is a group of G20 corporate leaders and governments working together to advance women's leadership and empowerment in the private sector.

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