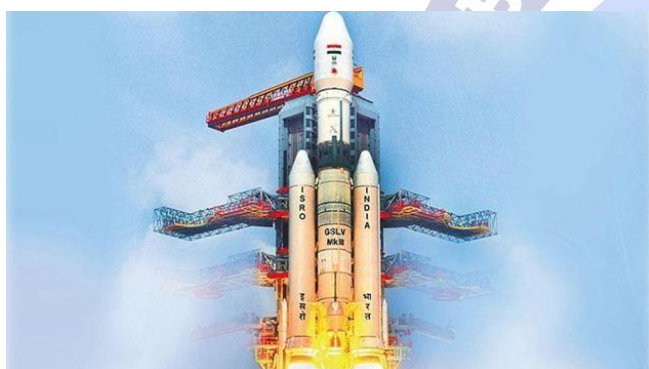


**PRELIMS EDGE 2025****29-07-2025****GSLV ROCKET**

**Context:** Ahead of the launch of the NASA-ISRO NISAR satellite, the ISRO recently announced that the satellite had been mounted on a geosynchronous satellite launch vehicle (GSLV), and all systems of the rocket had been checked.

**About GSLV**

- It is a space launch vehicle designed, developed, and operated by the **Indian Space Research Organization (ISRO)** to launch satellites and other space objects into Geosynchronous Transfer Orbits (GTOs).
- GSLV has the capability to put a heavier payload in orbit than the Polar Satellite Launch Vehicle (PSLV).
- GSLV is 49.13 m tall and the tallest among all other vehicles of ISRO.
- **It is a three-stage vehicle with a lift-off mass of 420 tonnes.**

- The first stage comprises S139 **solid booster** with 138-tonne propellant and four liquid strap-on motors, with 40-tonne propellant.
- The second stage is a **liquid engine** carrying 40-tonne of liquid propellant.
- The third stage is the indigenously built **Cryogenic Upper Stage (CUS)** carrying 15-tonne of cryogenic propellants.

- The GSLV improves on the performance of the PSLV (Polar Satellite Launch Vehicle) by the addition of liquid strap-on boosters and a cryogenic upper stage.
- The solid first and liquid second stages are carried over from the PSLV, while the cryogenic upper stage is being supplied by Russia until India has developed an indigenous version.

**Variants**

- **GSLV Mk I:**
  - The first-generation GSLV with a payload capacity of carrying 2-2.5 ton satellites to GTO.
  - It used the Russian-supplied cryogenic upper stage, as it had early difficulty with mastering indigenous cryogenic technology.
  - It conducted around 5 flights from 2001-2010, including suborbital tests, with the last launch in 2010.
- **GSLV Mk II:**

- It is an enhanced variant with an indigenously developed cryogenic upper-stage engine and stage.
  - It is capable of carrying payloads to GTO around the 2.5-ton class.
  - The first successful launch occurred in 2014.
  - **GSLV Mk III:**
    - The GSLV Mk III, also known as LVM-3, is the most advanced and powerful variant in the GSLV series, currently in service with a payload capacity of up to 4 tons to GTO.
- Success History**
- The GSLV has launched various satellites, including communication satellites like INSAT and GSAT, as well as spacecraft from the NavIC and IDRSS series, into GTO.
  - Notable missions include the launch of the South Asia Satellite in 2017, a satellite for military applications in 2018, and the Chandrayaan-2 moon mission in 2019.

Source: NISAR satellite mounted on GSLV for launch on July 30 (The Hindu)

## SPECIES IN NEWS

### Golden Jackal



- It is also known as the **common jackal**, is a medium-sized wolf-like canid.

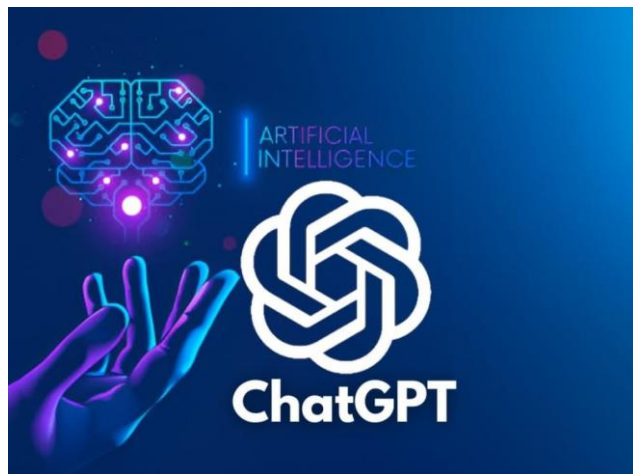
- It is **strictly nocturnal in areas inhabited by humans**, but may be partly diurnal elsewhere.
- They dig caverns for shelter, or use crevices in rocks, or caverns that were dug by other animals.
- They live in mated pairs and are **strictly monogamous**.
- **Diet:** They are omnivores. These opportunistic foragers have a rather diverse diet.
- **Habitat:** These animals are abundant in valleys and along rivers and their tributaries, canals, lakes, and seashores, but are rare in foothills and low mountains.
- **Distribution:** North and East Africa, Southeastern Europe and South Asia to Burma.
- They are quite widespread across India. Right from the Himalayan foothills, down to the Western Ghats, the Golden Jackal has a wide distribution.

### Conservation Status

- IUCN: Least Concern
- CITES: Appendix III
- Wildlife Protection Act, 1972: Schedule I

## TERMS IN NEWS

### Generative AI



- Generative AI, or generative artificial intelligence, is a form of artificial intelligence (AI) in **which algorithms automatically produce content in the form of text, images, audio, and video.**
- Unlike traditional AI systems that are **designed to recognize patterns and make predictions, generative AI creates new content.**
- Generative AI is powered by foundation models (large AI models) that can multi-task and perform out-of-the-box tasks, including summarization, Q&A, classification, and more.
- These systems have been trained on **massive amounts of data.**
- It works by using a **Machine Learning (ML) model to learn the patterns and relationships in a dataset of human-created content.** It then uses the learned patterns to generate new content.
- Typically, it starts with a simple text input, called a prompt, in which the user describes the output they want. Then,

various algorithms generate new content according to what the prompt is asking for.

### Popular Generative AI Tools:

- **ChatGPT:** ChatGPT is an AI-powered chatbot developed by OpenAI, with a unique ability to not only generate written content but also converse with users fluently.
- **Bard:** Bard is a generative AI chatbot created by Google, based on LaMDA language model technology. It can answer questions asked by users or create new content from text or image prompts.

### About Machine Learning

- It is defined as a **discipline of artificial intelligence (AI) that provides machines with the ability to automatically learn from data and past experiences to identify patterns and make predictions with minimal human intervention.**
- Machine learning methods enable computers to operate autonomously without explicit programming.
- ML applications are fed with new data and they can independently learn, grow, develop, and adapt.
- ML algorithms use computation methods to learn directly from data instead of relying on any predetermined equation that may serve as a model.

### Gavri Festival



- It is a 40-day festival of dance-drama which is performed by the Bhil community of Rajasthan.
- It is a fusion of act and dance, dedicated to the fight between goddess and demon.
- This most popular southern Rajasthani ritual reflects the divine perception of the Bheel tribe.
- It has been known to be in existence since the 3rd or 4th century, it was prevalent in the times of SiddhRaj Jai Singh, a ruler in Gujarat.
- A vigorous fight between Goddess Amba and Demon Bhiamwal shows the conquest of good over the bad.
- The original story of 'Gavri' is the story of Lord Shiva and the demon Bhasmasur.
- The artists perform plays in those villages where their married sisters and daughters reside. The purpose behind this custom is to ensure the wellness of their loved ones after marriage and instil in them a sense of pride and security.
- This dance drama skillfully combines mime and dialogue, known by the names Gavri or Rai Nach.

- Moreover, energetic background music and colorful costumes makes the place full of verve.
- Throughout the performance, various scenes are enacted, referred to as Khel.
- Kutkadiya, a character skillfully narrates the story before each scene, allowing the audience to immerse themselves fully in the play's narrative.
- All the characters are played by men and not women.

### Brihadisvara Temple



- It is also known as **Peruvudaiyar Kovil** is located in **Thanjavur, Tamil Nadu**.
- It is dedicated to Lord Shiva represented as a **huge 'Lingam'**.
- The temple was built around 1010 AD by the Chola king **Rajaraja Chola I**.
- It is revered as one of the three '**Great Living Chola Temples**,' alongside the **Gangaikondacholeeswaram Temple** and **Airavatesvara Temple**, and is a proud **UNESCO World Heritage Site**.
- It has been regarded as a 'landmark in the evolution of building art in south India' and its vimana as a 'touchstone of Indian architecture as a whole'.

### Key Features

- It is a **Dravidian architecture** styled temple.
- The temple's pyramidal vimana stands more than 200 feet (60 meters) high and represents Mount Meru, the mythical mountain at the center of the universe in Hindu cosmology.
- The sikhara, a cupolic dome, is octagonal and rests on a single block of granite, a square of 7.8 m weighing 80 tons.
- One of the temple's most captivating features is the **grand statue of Nandi, the sacred bull of Lord Shiva.**
- **Its inscriptions and frescoes narrate the tale of the rise and decline of the city's fortunes**

#### Paithani Saree



- It is known as the 'mahavastra of the state of **Maharashtra**'.
- It is known for its **rich, vibrant colors woven in pure silk and gold zari.**

- The birthplace of Paithani, is the **medieval town of Paithan, located on the banks of the River Godavari.**

#### Features

- The traditional Paithani saree is **manufactured by hand in pure silk and dyed in traditional colours.**
- Its kath (border) and padar (pallu or end-piece), have distinctive motifs that make the textile stand out.
- The traditional motifs used in Paithanis include parrots, lotuses and peacocks. The six- or nine-yard sari has been favored by Maharashtrian brides for centuries.
- **It was awarded with the Geographical Indication (GI) tag in 2010.**
- Paithanis are easily recognizable and considered among the most exquisite and expensive sarees in India.
- These sarees are made using the finest silk available in the country and are regarded as a symbol of Maharashtrian heritage and skilled craftsmanship

#### PRACTICE QUESTIONS

Q1: Consider the following statements regarding the GSLV Rockets of ISRO.

1. It is a space launch vehicle designed, developed, and operated to launch satellites and other space objects into Geosynchronous Transfer Orbits (GTOs).
2. It is a three-stage vehicle fueled by Solid, Liquid and Cryogenic stages respectively.

How many of the above statements are incorrect?

- A. Only Statement 1
- B. Only Statement 2
- C. Both the Statements
- D. None of the Above

Q2: Consider the following statements regarding Golden Jackal

1. It is strictly nocturnal in areas inhabited by humans, but may be partly diurnal elsewhere.
2. They live in mated pairs and are strictly monogamous.
3. They are endemic to the western Himalayas with a fast-declining population

How many of the above statements are correct?

- A. Only One
- B. Only Two
- C. All of the Above
- D. None of the Above

Q3: Consider the following Artificial Intelligence Tools

1. ChatGPT
2. Gemini
3. Bard
4. Claude

How many of the above are examples of Generative AI tools

- A. Only One
- B. Only Two
- C. All of the Above
- D. None of the Above

Q4: The Gavri festival recently seen in the news is related to which of the following communities?

- A. Bhils
- B. Mudas

- C. Gonds
- D. Santhals

Q5: The GI Tagged Paithani Sarees originates from which of the following states?

- A. West Bengal
- B. Bihar
- C. Maharashtra
- D. Orissa

#### Answers

1. D
2. B
3. C
4. A
5. C