

SCIENCE & TECHNOLOGY**ISRO'S VENUS MISSION**

Recently, the new Chairman of Indian Space Research Organization (ISRO) has announced plans to launch the Venus mission by December 2024.

About

- **Aim:** To study what lies below the surface of the solar system's hottest planet, and also unravel the mysteries under the Sulfuric Acid clouds enveloping it.

Objective of the Mission**Possibility of Water:**

- In the solar system's early days when the Sun was cooler, scientists think the planet may have had liquid water on the surface for 2 billion years — far longer than Mars, which had liquid water for a relatively shorter 300 million years.

Elements of Life:

- In 2020 scientists announced they had found phosphine, a chemical strongly associated with life, in Venus's clouds — though the existence of the signal is currently being reviewed.

Earth like planet:

- By studying Venus, scientists learn how Earth-like planets evolve and what conditions exist on Earth-sized exoplanets.
- Venus also helps scientists model Earth's climate, and serves as a cautionary tale on how dramatically a planet's climate can change.

Significance

- Studying Venus helps get a better understanding of the evolution of the planet, especially the study of exoplanets.
- It will help in modelling Earth's climate and serves as a cautionary tale on how dramatically a planet's climate can change.
- Studying the thick Venus atmosphere will also pave the way for future air balloon type missions which can float in the upper atmosphere where the conditions are more benign than that on the ground.

Challenges

- Venus is scorching hot because a majority of its atmosphere is composed of carbon dioxide. The surface is said to be hot enough to melt lead, and dappled with innumerable volcanoes.
- Venus is also infamous for its extreme surface air pressure— about 90 times higher than the pressure at sea level on Earth.
- Unlike Mars, Venus has a thick atmosphere. Visual imaging payloads will not help in understanding the sub-surface topologies.
- In order to have a deeper understanding, the instruments need to go deep through the atmosphere.

Earlier Studies and Missions:**NASA:**

- Venus was the first planet to be explored by a spacecraft – NASA's Mariner 2 on Dec. 14, 1962.
- NASA's Pioneer Venus mission (1978), the Soviet Union's Venera 15 and 16 missions (1983-1984), and NASA's Magellan radar mapping mission (1990-1994) provided together with a comprehensive picture of a dry world, with landscapes shaped by volcanic and intense geological activity.

Indian missions:

- **Shukrayaan**
- India plans to launch a new orbiter to Venus in 2024. It will be the first mission to Venus by the India Space Research Organisation (ISRO) and will study the planet for four years.

About Venus**Earth's Twin:**

- Venus is Earth's closest planetary neighbour which is similar in structure but slightly smaller than Earth, it is the second planet from the sun. Therefore, Venus has been called Earth's twin.

Thick & Toxic Atmosphere:

- Venus has an atmosphere 50 times denser than Earth's.
- Venus is wrapped in a thick, toxic atmosphere filled with carbon dioxide that traps in heat.

Inhabitable:

- Venus is the hottest planet in the solar system.
- The temperature of Venus is too high, and its atmosphere is highly acidic, just two of the things that would make life impossible.
- Surface temperatures reach a scorching 880 degrees Fahrenheit (471 degrees Celsius), hot enough to melt lead.

Other Features:

- It has no moons and no rings.
- Venus' solid surface is a volcanic landscape covered with extensive plains featuring high volcanic mountains and vast ridges.
- It spins from east to west, the opposite direction from all other planets in our solar system but the same as Uranus.

IMPORTANT FACTS FOR PRELIM**1. Sealed Cover Jurisprudence**

The Supreme Court said it will look into the issue of "sealed cover jurisprudence" which is adopted by government and prosecuting agencies by handing over "confidential" documents to the court in a sealed cover.

What is Sealed Cover Jurisprudence?

- It is a practice used by the Supreme Court and sometimes lower courts, of asking for or accepting information from government agencies in sealed envelopes that can only be accessed by judges.
- While a specific law does not define the doctrine of sealed cover, the Supreme Court derives its power to use it from Rule 7 of order XIII of the Supreme Court Rules and Section 123 of the Indian Evidence Act of 1872.

Rule 7 of order XIII of the Supreme Court Rules:

- It is stated under the said rule that if the Chief Justice or court directs certain information to be kept under sealed cover or considers it of confidential nature, no party would be allowed access to the contents of such information.

Exceptions:

- If the Chief Justice himself orders that the opposite party be allowed to access it.
- It also mentions that information can be kept confidential if its publication is not considered to be in the interest of the public.
- Section 123 of the Indian Evidence Act of 1872:
- Under this act, official unpublished documents relating to state affairs are protected and a public officer cannot be compelled to disclose such documents.
- Other instances where information may be sought in secrecy or confidence are when its publication impedes an ongoing investigation, such as details which are part of a police case diary.

Reasons for Sealed Covers

- When the matter pertained to the Official Secrets Act.
- To maintain public confidence in the Government agency.
- Delicate international negotiations or those that relate to sensitive aspects of security,
- Details about survivors of sexual assaults or child abuse which may affect their future life and bring unnecessary shame affecting the Right to Live with Dignity.
- Disclosure sometimes affects the ongoing investigation.

2. New Draft National Youth Policy

The Government has prepared a new draft National Youth Policy (NYP) after reviewing the existing draft of National Youth Policy, 2014.

About the Policy

Ministry: Ministry of Youth Affairs and Sports.

Aim: The new draft NYP envisages a ten-year vision for youth development that India seeks to achieve by 2030.

The new draft NYP seeks to catalyse widespread action on youth development across five priority areas:

- Education
- Employment & entrepreneurship

- Youth leadership & development
- Health, fitness & sports
- Social justice

Significance of the move

- Youth development has been one of the primary agendas of the government: However, experts believe that a new policy dedicated to the youth might contribute to their overall development.
- It is aligned with the Sustainable Development Goals (SDGs) and serves to unlock the potential of the youth to advance India.
- Social inclusion: Each priority area is underpinned by the principle of social inclusion keeping in view the interests of the marginalised sections.

3. Front Running

Recently, Axis Asset Management Company suspended two fund managers for various irregularities, including front-running the AMC's transactions on their personal accounts.

What is Frontrunning?

- It is a practice of dealing in securities on advance information of an upcoming transaction that could affect its price movement.
- It is illegal in India
- Sebi has categorised front running as a form of market manipulation and insider trading because a person who commits a front running activity expects security's price movements based on the non-public information.
- Sebi has investigated and penalised several fund houses and fund managers in the past for front-running.

How does it work?

- Stock market operators give 'buy or sell' recommendations in closed or private groups that have a higher subscriber base.
- Most of such recommendations are given on stocks where the liquidity is less and even a small amount of buying or selling can impact share prices.
- Multiple groups are formed on Whatsapp, which further spread these recommendations.
- Front-running is hard to establish because it entails a fund manager using friends or other unrelated entities to buy stocks before the fund house buys it for its schemes.
- The fund manager can use his or her network to purchase stocks before the fund house does, so that they can personally benefit from the price rise.

DAILY ANSWER WRITING PRACTICE

Q1. The progression to electric vehicles is important for India because such vehicles are sustainable and profitable in the long term. Evaluate the growth of electric vehicles in India and the various measures taken by the government to promote it. (250 words)

Introduction

An electric vehicle, uses one or more electric motors or traction motors for propulsion. An electric vehicle may be powered through self-contained battery, solar panels or an electric generator to convert fuel to electricity. India is among a handful of countries that supports the global EV30@30 campaign, which aims for at least 30 per cent new vehicle sales to be electric by 2030.

Body:**Potential of EVs in India****Help tackle Climate change and air pollution:**

- India has committed to cutting its GHG emissions intensity by 33% to 35% percent below 2005 levels by 2030.
- As per NITI Aayog's report EVs will help in cutting down as much as 1 Gigatonne (GT) of carbon emissions by 2030.
- Electric vehicles don't produce emissions that contribute to climate change and smog than conventional vehicles.
- All-electric vehicles produce zero direct emissions, which specifically helps improve air quality in urban areas.
- According to a recent study by WHO, India is home to 14 out of 20 most polluted cities in the world. EVs will help in tackling this problem by reducing local concentrations of pollutants in cities.

- Cost reduction from better electricity generating technologies. This has introduced the possibility of clean, low-carbon and inexpensive grids.

Energy security:

- India imports oil to cover over 80 percent of its transport fuel.
- Electric mobility will contribute to balancing energy demand, energy storage and environmental sustainability.
- Electric vehicles could help diversify the energy needed to move people and goods thanks to their reliance on the wide mix of primary energy sources used in power generation, greatly improving energy security.

Cutting edge Battery Technology:

- Advances in battery technology have led to higher energy densities, faster charging and reduced battery degradation from charging.

Innovation:

- EVs manufacturing capacity will promote global scale and competitiveness.

Employment:

- Promotion of EVs will facilitate employment growth in a sun-rise sector.

growth of electric vehicles in India

- As fuel prices skyrocket, there are rising concerns about the steep increase in the cost of running petrol and diesel vehicles. Electric vehicles seem to be coming into their own at last.
- The Indian electric vehicle market was valued at USD 1,434.04 billion in 2021, and it is expected to reach USD 15,397.19 billion by 2027, registering a CAGR of 47.09% during the forecast period (2022-2027).
- The National Electric Mobility Mission Plan (NEMMP) and Faster Adoption and Manufacturing of Hybrid & Electric Vehicles in India (FAME I and II) helped create the initial interest and exposure for electric mobility.
- To promote the domestic electric vehicle industry, the Indian government has provided tax exemptions and subsidies to EV manufacturers and consumers.
- In FY 2020, EV sales for two-wheelers in India increased by 21 percent. For EV buses, the sales for the same period increased by 50 percent. In contrast, the market for electric cars remained grim, registering a five percent decline.
- In terms of penetration, EV sales accounts for barely 1.3 per cent of total vehicle sales in India during 20-21. However, the market is growing rapidly and is expected to be worth more.
- India's shift to shared, electric and connected mobility could help the country save nearly one giga-tonne of carbon dioxide emissions by 2030.

Various measures taken by the government to promote electric vehicles

- Most recently, Government think-tank Niti Aayog has prepared a draft battery swapping policy, under which it has proposed offering incentives to electric vehicles (EVs) with swappable batteries, subsidies to companies manufacturing swappable batteries, a new battery-as-a-service business model, and standards for interoperable batteries, among other measures.
- Government has set a target of electric vehicles making up 30 % of new sales of cars and two-wheelers by 2030.
- To build a sustainable EV ecosystem initiative like –National Electric Mobility Mission Plan (NEMMP) and Faster Adoption and Manufacturing of (Hybrid &) Electric vehicles in India (FAME India) have been launched by India.
- NEMMP was launched with an aim to achieve national fuel security by promoting hybrid and electric vehicles in the country.
- FAME India Scheme was launched with the objective to support hybrid/electric vehicles market development and manufacturing ecosystem.
- The Union power ministry categorized charging of batteries as a service, which will help charging stations operate without licenses.
- Implementation of smart cities would also boost the growth of electric vehicle

Way Forward:

- For EVs to contribute effectively, we need commensurate efforts in developing an entire ecosystem.
- Need to shift the focus from subsidizing vehicles to subsidizing batteries because batteries make up 50% of EV costs.

- Increasing focus on incentivizing electric two-wheelers because two-wheelers account for 76% of the vehicles in the country and consume most of the fuel.
- A wide network of charging stations is imminent for attracting investment.
- Work places in tech parks, Public bus depots, and Multiplexes are the potential places where charging points could be installed. In Bangalore, some malls have charging points in parking lots.
- Corporates could invest in charging stations as Corporate Social Responsibility compliances.
- Addressing technical concerns like AC versus DC charging stations, handling of peak demand, grid stability etc.
- Private investment in battery manufacturing plants and developing low cost production technology is needed.
- India is highly dependent on thermal sources, which account for about 65% of current capacity. As EV adoption increases, so should the contribution of renewables.
- Need for a policy roadmap on electric vehicles so that investments can be planned.
- Acquiring lithium fields in Bolivia, Australia, and Chile could become as important as buying oil fields as India needs raw material to make batteries for electric vehicles.
- Providing waiver of road tax and registration fees, GST refunds and free parking spaces for EVs.

DAILY QUIZ

Q1. With reference to Jog Falls , consider the following statements:

1. It is created by the Sharavathi River.
2. It is the second-highest plunge waterfall in India.
3. It is situated in Kerala.

Which of the statements given above are correct?

- (a) 1 and 3 only
- (b) 2 only
- (c) 1 and 2 only**
- (d) only 1

Q2. With reference to Collegium System, consider the following statements:

1. Article 124 and 217 gives power to the Collegium system for Supreme Court and High Court respectively.
2. The Second Judges Case devised the procedure of the Collegium System.

Which of the statements given above is/are correct?

- (a) Neither 1 nor 2
- (b) 2 only**
- (c) 1 and 2 only
- (d) only 1

Q3. With reference to the Delimitation Commission, consider the following statements :

1. It is chaired by the Chief Election Commissioner of India.
2. Its orders can be challenged before the Supreme Court.

Which of the statements given above is/are not correct?

- (a) Neither 1 nor 2
- (b) 2 only
- (c) 1 and 2 only**
- (d) only 1

Q4. The term 'Twin deficit' often seen in the news related to economy, it is a

- (a) **High Current Account Deficit and High Fiscal Deficit**
- (b) High Capital Account Deficit and High Fiscal Deficit
- (c) High Budget Deficit and High Fiscal Deficit
- (d) High Current Account Deficit and High Revenue Deficit

Q5. Shigella recently seen in the news ,it is related to

- (a) Viruses
- (b) Bacteria**
- (c) Fungi
- (d) Parasites