

WHAT IS SHUKRAYAAN-1?

An advisor to the space science programme recently said that the Indian Space Research Organisation is yet to receive approval from the Indian government for the Venus mission and that the mission could as a result be postponed to 2031.



About SHUKRAYAAN-1?

- It is also called the Venus Mission.
- The Shukrayaan I mission will be an **orbiter mission**.
- Its scientific payloads currently include a high-resolution synthetic aperture radar and a ground-penetrating radar.
- The mission is expected to study Venus's **geological and volcanic activity**, emissions on the ground, wind speed, cloud cover, and other planetary characteristics from an elliptical orbit.
- Optimal launch windows from Earth to Venus occur once **every 19 months**.

Key facts about Venus

- Venus is often called "Earth's twin" because they're similar in size and structure, but Venus has extreme surface heat and a dense, toxic atmosphere.
- It **rotates very slowly** on its axis – one day on Venus lasts 243 Earth days.
- The thick atmosphere of Venus traps heat creating a runaway greenhouse effect – making it the **hottest planet** in our solar system.
- **Phosphine**, a possible indicator of microbial life, has been observed in the clouds of Venus.
- Unlike the other planets in our solar system, Venus spins clockwise on its axis.

CHATGPT AND ETHICS

Why in news?

- Ever since the ChatGPT, an artificial intelligence (AI)-powered chatbot, was made public, users have been testing the bot's capability to do nefarious (immoral) things.

- This has raised concerns among intellectuals as there are many ways in which such a tool could be exploited

What is ChatGPT?

- ChatGPT is a state-of-the-art **natural language processing (NLP)** model developed by OpenAI.
 - NLP is the ability of a computer program to understand human language as it is spoken and written
 - It is a component of artificial intelligence (AI).
- It is a variant of the popular GPT-3 (Generative Pertained Transformer 3) model, which has been trained on a massive amount of text data to generate human-like responses to a given input.
- The answers provided by this chatbot are intended to be technical and free of jargon.
- It can provide responses that sound like human speech, enabling natural dialogue between the user and the virtual assistant.

How does it work?

- ChatGPT uses a **neural network architecture** and **unsupervised learning** to generate responses.
 - Other traditional models rely on explicitly created rules and labelled data.
- This means that it can learn to generate responses without explicitly told what is the correct response.
- This makes it a powerful tool for handling a wide range of conversational tasks.
- One of the key features of ChatGPT is its ability to generate responses that are consistent with the context of the conversation.
 - The model is able to understand the flow of the conversation and generate responses that fit naturally with what has been said previously.

Where is it used mostly?

- ChatGPT is much more than a chat bot (generating responses). For example, it can be asked to write a program or even a simple software application.
- Performing a range of other tasks, such as language translation, text summarisation, and sentiment analysis.

- Valuable asset for companies in fields such as customer service, online education, help debug a code and market research.
- Replacement for the basic emails, party planning lists, CVs, and even college essays and homework.
- Creative tasks such as writing a story and can explain scientific concepts and answer any question that needs factual answers.
- Reviewing and writing codes in seconds, making the future of coders grim.

Are there any ethical issues surrounding the use of ChatGPT?

- **Malicious code generator**
 - Recently, many users claimed the chatbot helped them write malicious code.
- **Impact on written assignments**
 - Teachers and academicians have also expressed concerns that the bot could be used to turn in plagiarised essays that could be hard to detect for invigilators due to lack of time.
 - The use of ChatGpt raises questions about how individuals will identify AI-generated content that others might pass off as their original work.
- **Quick spread of misinformation and fraud**
 - Chatbot is capable of generating authentic-sounding news reports that were filled with misinformation to spread fake news & instigate violence against minorities.
- **Racial and sexist biases**
 - The ChatGPT displayed racial and sexist biases, which remains a problem with almost all AI models.

MAYAN CIVILIZATION

Recently, researchers have discovered the ruins of a large Mayan town buried beneath the rainforest while surveying northern Guatemala from the air.



Why in News?

- The discovery was made using LiDAR (light detection and ranging) by a team of researchers from several American universities as well as collaborators from France and Guatemala.

About Mayan Civilization

- The Maya are probably the best-known of the **classical civilizations of Mesoamerica**.
- **Originating in the Yucatán peninsula around 2600 B.C.**, they rose to prominence around A.D. 250 in **present-day southern Mexico, Guatemala, northern Belize and western Honduras**.
- Building on the inherited inventions and ideas of earlier civilizations, the **Maya developed astronomy, calendrical systems and hieroglyphic writing**.
- The Maya were **noted as well for elaborate and highly decorated ceremonial architecture, including temple-pyramids, palaces and observatories, all built without metal tools**.
- They were also **skilled farmers**, clearing large sections of tropical rain forest and, where groundwater was scarce, building sizable underground reservoirs for the storage of rainwater.
- The Maya were **equally skilled as weavers and potters**, and cleared routes through jungles and swamps to foster extensive trade networks with distant peoples.
- The **Maya made paper from the inner bark of wild fig trees and wrote their hieroglyphs on books made from this paper. Those books are called codices**.
- Their **society consisted of many independent states**, each with a **rural farming community and large urban sites built around ceremonial centers**. It started to decline around A.D. 900.
- The Maya peoples never disappeared, neither at the time of the Classic period decline nor with the arrival of the Spanish conquerors and the subsequent Spanish colonization of the Americas.
- The **Maya remain in contemporary Mesoamerican societies**, and maintain a distinctive set of traditions and beliefs, combined with more recent practices such as the almost total adoption of Roman Catholicism.

Where is the Yucatan Peninsula?

- The Yucatan Peninsula is Mexico's southeastern projection, extending into the Atlantic Ocean.
- It separates the Gulf of Mexico to the north and west and the Caribbean Sea to the east.

What is meant by Mesoamerica?

- It refers to a geographical and cultural area which extends from central Mexico down through Central America, including the territory which is now made up of the countries of Guatemala, Belize, Honduras, and El Salvador.

What is LiDAR (light detection and ranging)?

- It is a remote sensing method that uses light in the form of a pulsed laser to measure ranges (variable distances) to the Earth.
- These light pulses—combined with other data recorded by the airborne system — generate precise, three-dimensional information about the shape of the Earth and its surface characteristics.

DEBATE | OLD PENSION SCHEME VS NEW PENSION SCHEME

Why in News?

- Recently, the Reserve Bank of India (RBI) has cautioned against the reintroduction of the Old Pension Scheme (OPS) by some states.

What is the Old Pension Scheme (OPS)?

- OPS offers pensions to government employees on the basis of their last drawn salary. **50% of the last drawn salary.**
- The attraction of the Old Pension Scheme lay in its promise of an assured or 'defined' benefit to the retiree. It was hence described as a '**Defined Benefit Scheme**'.
- Eg., if a government employee's basic monthly salary at the time of retirement was Rs 10,000, she would be assured of a pension of Rs 5,000.

- Also, like the salaries of government employees, the monthly pay-outs of pensioners also increased with hikes in dearness allowance or DA announced by the government for serving employees.
- The OPS was discontinued by the Central government in 2003.

What were the concerns with the OPS?

- The main problem was that the pension liability remained unfunded — that is, **there was no corpus specifically for pension**, which would grow continuously and could be dipped into for payments.
- The Government of India budget provided for pensions every year; there was no clear plan on how to pay year after year in the future.
- The ‘pay-as-you-go’ scheme created **inter-generational equity issues** — meaning the present generation had to bear the continuously rising burden of pensioners.

What is New Pension Scheme (NPS)?

- As a substitute of OPS, the NPS was introduced by the Central government in **April, 2004**.
- This pension programme is open to employees from the **public, private** and even the **unorganised sectors** except those from the armed forces.
- The scheme encourages people to invest in a pension account at regular intervals during the course of their employment.
- After retirement, the subscribers can take out a certain percentage of the corpus.
 - The beneficiary receives the remaining amount as a monthly pension, post retirement.
- **Nodal agency:** Pension Fund Regulatory and Development Authority (PFRDA)

Eligibility:

- Any Indian citizen **between 18 and 60 years** can join NPS.
- **NRIs** (Non-Residential Indians) are also eligible to apply for NPS.

Permanent Retirement Account Number (PRAN):

- Every NPS subscriber is issued a card with 12-digit unique number called Permanent Retirement Account Number or PRAN.

Minimum contribution in NPS:

- The subscriber has to contribute a minimum of **Rs. 6,000 in a financial year**.
- If the subscriber fails to contribute the minimum amount, his/her account is frozen by the PFRDA.

Who manages the money invested in NPS?

- The money invested in NPS is managed by PFRDA-registered Pension Fund Managers.
- At the moment, there are eight pension fund managers.

What is the Difference between NPS and OPS?

- The Old Pension Scheme is a pension-oriented scheme. It offers regular pensions to employees during retirement. The pension amount is 50% of the last drawn salary by the employee.
 - Thus, in OPS, **the pension amount is constant**.
- On the other hand, the National Pension Scheme is an investment cum pension scheme.
- NPS contributions are invested in market-linked securities, i.e., equity and debt instruments.
 - Therefore, **NPS doesn't guarantee returns**.
- However, the investments, in NPS, are volatile and hence have the potential to generate significant returns.

WHAT IS A BLACK BOX/FLIGHT RECORDER?

Both black boxes from the crashed Yeti Airlines flight in Nepal have been discovered, Kathmandu airport officials said recently.



Why in News:

- Search teams retrieved the flight data and cockpit voice recorders of a passenger plane that plummeted into a gorge on approach to a new airport in the foothills of the Himalayas, officials said, as investigators looked for the cause of Nepal's deadliest plane crash in 30 years.

What is a Black Box?

- A flight recorder, byname black box, **is an instrument that records the performance and condition of an aircraft in flight.**

- Governmental regulatory agencies require these devices on commercial aircraft to make possible the analysis of crashes or other unusual occurrences.
- A black box refers to two pieces of equipment together – the Cockpit Voice Recorder (CVR) and the Flight Data Recorder (FDR).
- Together, they provide investigators the data needed to identify what led to a flight crash.
- **Flight Data Recorder(FDR):**
- The FDR records many variables, not only basic aircraft conditions such as **airspeed, altitude, heading, vertical acceleration, and pitch** but also hundreds of individual instrument readings and **internal environmental conditions** that can help narrow down a flight's path and what may have gone wrong in its last moments.
- FDRs are also made to **survive depths over 6,000 meters underwater**, while still relaying signals.
- **Cockpit Voice Recorder:**
- The CVR records verbal communication between crew members within the aircraft's cockpit as well as voice transmissions by radio.
- Aircraft sounds audible in the cockpit are also caught on the recorder.
- Flight recorders are **commonly carried in the tail of the aircraft**, which is usually the structure that is subject to the least impact in the event of a crash.
- In spite of the popular name black box, **flight recorders are painted a highly visible vermilion color known as “international orange”**.

WHAT IS A MUTUAL FUND SYSTEMATIC INVESTMENT PLAN (SIP)?

Mutual Fund's SIP collection jumps 31% to ₹1.5 lakh cr. in 2022 on account of higher retail participation, data with the Association of Mutual Funds in India (AMFI) showed.



Why in News?

- Contributions to mutual fund schemes through systematic investment plans, or SIPs, remain unfazed from the market volatility in 2022 with inflow growing to ₹1.5 lakh crore in 2022, a surge of 31% from a year earlier, due to higher retail participation.

What is a Systematic Investment Plan (SIP)?

- SIP is an investment methodology offered by mutual funds wherein an **individual saver can invest a fixed amount in a chosen scheme periodically at fixed intervals** - say once a month, instead of making a lump sum investment.
- The SIP installment amount can be as small as ₹500 per month and is **similar to a recurring deposit**.
- SIPs help to achieve financial goals by investing small sums of money on a monthly basis that eventually leads to accumulating the required corpus for reaching the goal.

Benefits of SIP:

- SIP's bring in an **investment discipline** for the investor.
- SIPs are done in open-ended funds where the **investors can invest and take out the money anytime**.
- There is **no fixed tenor for running SIP**. Once the SIP tenor is fixed, it can BE stopped in between or could be continued even after the tenor by placing the request with the respective mutual fund company.
- **Full and partial withdrawal is possible** during or after the SIP tenor.
- The **SIP amount can be increased or decreased**.

What is a Mutual Fund:

- A mutual fund is a **pool of money managed by a professional Fund Manager**.
- It is a **trust that collects money from a number of investors** who share a common investment objective and **invests the same in equities, bonds, money market instruments and/or other securities**.
- The **income / gains generated from this collective investment is distributed proportionately** amongst the investors after deducting applicable expenses and levies.

SNOW LEOPARD

Recently 4 snow leopards were spotted in a rare sighting in Himachal Pradesh.



About Snow Leopard:

- It is found in the mountainous regions of **central and southern Asia**.
- In India, it is seen in Jammu and Kashmir, Himachal Pradesh, Uttarakhand and Sikkim and Arunachal Pradesh.
- The **Hemis National Park** has a good presence of Snow Leopard.
- They play a key role as a top predator, an indicator of the health of their high-altitude habitat, and, increasingly, an important indicator of the impacts of climate change on mountain environments.

What is the Conservation status?

- IUCN Red List: **Vulnerable**
- Under CITES it is listed in Appendix I
- Wildlife (Protection) Act 1972: Schedule I

INTEGRATING TRANSGENDER CONCERNS IN SCHOOLING PROCESSES

Why in News?

- Recently, the draft manual titled “Integrating Transgender Concerns in Schooling Processes” has been released.
- The document aims to initiate a dialogue among the participants and bring to fore their experiences with transgenders and understanding of transgender concerns.
- It is prepared by a new committee convened by the National Council of Educational Research and Training’s (NCERT) Department of Gender Studies head (Jyotsna Tiwari).

What is the Background in which the New Draft came?

- It came two years after NCERT removed a document (“Inclusion of Transgender Children in School Education: Concerns and Roadmap”) on inclusion of transgender children in schools.

- The old document was removed following an objection by the National Commission for Protection of Child Rights (NCPCR) to suggestions on gender-neutral toilets and puberty blockers.
- The NCERT has released a fresh manual, which avoids the usage of not just those terms but also references to caste system and patriarchy that were highlighted in the previous one.

What are the Key Highlights of the New Draft?

- **Diverse gender expressions have a long history of acceptance in India:** It was documented in various art forms and multiple texts of ancient period, including epics of Ramayana and Mahabharata.
 - However, it avoids any discussion of the role of the caste system or patriarchy in maintaining stigmas.
 - **Recognise people with diverse sexualities:** It includes LGBTQIA+ communities and the present module is specifically focusing upon transgender persons by birth.
 - **Recommends the introduction of gender-neutral uniforms:** From Grade VI onward, the schools can introduce gender neutral uniforms which are comfortable, climate appropriate, fit and do not conform to a particular gender.
 - **Toilets exclusively for transgender students:** In case there is a toilet for Children with Special Needs (CWSN) that can also be shared by transgender students.
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